

**Analysis the Relationship between Big Data and Knowledge
Management Process: A Field Study in Jordanian Commercial
Banks in Amman**

**تحليل العلاقة بين البيانات الضخمة وعمليات إدارة المعرفة: دراسة ميدانية في
البنوك التجارية الأردنية في عمان**

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**Thesis Submitted in Partial Fulfillment of the Requirements for master's
Degree in E-Business.**

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June 2018**

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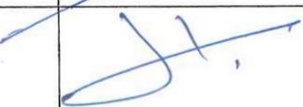
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Examination Committee's Decision

This thesis of the student Nadine AL-Hinn, which studied Analysis the Relationship between Big Data and Knowledge Management Process: A Field Study in Jordanian Commercial Banks in Amman

has been defined accepted and approved on 4/5/2018.

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Acknowledgment

All praises and success are due to the Merciful ALLAH, always and forever.

I will forever be thankful to my greatest family in my life.

Also, I would like to extend my deepest gratitude to my supervisor Prof. Dr.

Osama Rababah, for his help and support.

I would like to extend my appreciation and thanks to all my doctors, professors and academic staff at the Middle East University, who help me a lot throughout my period of study.

Finally, special thanks for my friends, who supported me to accomplish this thesis, I greatly value their friendship.

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

My Mother, no words can describe what you have done for me, thank you for your endless love

My sweetest sisters: Dima and Diala, who are one part of my life

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**Analysis the Relationship between Big Data and Knowledge Management
Process: A Field Study in Jordanian Commercial Banks in Amman**

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Abstract

This study aims to investigate the relationship of Big Data on Knowledge Management Process at Commercial Banks in Amman. The study used the quantitative method by collecting data via questionnaire. 430 questionnaires were distributed among managers, head of departments and working at Jordanian Commercial Banks in Amman. The study revealed the significant Relationship between Big Data (Volume, Variety, Velocity and value) and Knowledge Management processes (creation, acquisition, sharing, and application).

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

Keywords: Big Data, Knowledge Management Processes, Agility, Commercial Banks.

تحليل العلاقة بين البيانات الضخمة وعمليات إدارة المعرفة: دراسة ميدانية في البنوك

التجارية الأردنية في عمان

اعداد الطالبة

ندين خليل الحن

اشراف

الأستاذ الدكتور أسامة ربابعة

الملخص

توضح هذه الدراسة علاقة البيانات الضخمة حول عمليات إدارة المعرفة لدى البنوك التجارية في عمان. استخدم الباحث الطرق الكمية في جمع البيانات عن طريق الاستبيان. تم توزيع عينة عشوائية بسيطة بمقدار 430 استبيان على المدراء وموظفيهم في البنوك التجارية في عمان. بيّن الباحث وجود علاقة ذو دلالة إحصائية بين البيانات الضخمة (حجم البيانات الضخمة، تنوع البيانات الضخمة، سرعة البيانات الضخمة قيمة البيانات الضخمة) وعمليات إدارة المعرفة (إنشاء المعرفة، استحواذ المعرفة، مشاركة المعرفة وتطبيق المعرفة).

بيّنت الدراسة ضرورة تبني البنوك البيانات الضخمة لتشجيع تطبيق البيانات الضخمة في البنوك من خلال برامج تدريبية مختلفة. أيضاً، اعداد برامج تدريبية مختلفة لموظفي البنوك لتعزيز قدراتهم ومعارفهم ومهاراتهم. الكلمات المفتاحية: البيانات الضخمة ،عمليات إدارة المعرفة ،البنوك التجارية.

Chapter One

General Framework

1.1 Abstract

1.2 Introduction

1.3 Study Problem

1.4 Study Objectives

1.5 Study Significance

1.6 Study Questions and Hypothesis

1.7 Study Model

1.8 Study Limitations

1.9 Study Delimitations

1.10 Study Conceptual and Operational Definitions

1.1 Introduction

When Talked about Big Data the first thing that comes to our mind is the Volume (how much are the Big Data. However, it is not just about Volume, it is also about the Variety (diverse types of data such as audio, video, text...etc.), the Velocity which (speed to transfer the data) as well as the Value (how much is the data worth in a business environment).

Knowledge management process focused on how the organization was created, transferred and distribute the data. (King, 2009).

Big Data is about how the information can be secured, sorted out, and gotten a handle on to such a degree, to the point that it can be used for predicting the future blueprint with an incredible exactness and attractive time delay. (Fonseca and Marcinkowski, 2014). While (Satyanarayana, 2015) defined Big Data as generous measure of data which required new advances and models to make possible to remove an incentive from it by getting and examination process".

Knowledge: is the actualities, skills and understanding that individual has picked up whether through learning or experience, that upgrades the capacity of assessing setting, deciding, and taking activities. (Nazick, 2014). Also, (King, 2009) defined Knowledge as a “justified personal belief.”

Knowledge Management (KM) is the planning, sorting out, motivating, and controlling of individuals, procedures and frameworks in the association to guarantee that its information related resources are enhanced and effectively utilized. (King, 2009).

According to (Zhan et.al, 2016) Big Data is a wide term for informational collections so extensive or complex that conventional information handling applications are lacking. Difficulties incorporate examination, capture, data creation, seek, sharing, storage, exchange, perception, and data security. The term regularly alludes just to the utilization of predictive analytics or other advanced methods to extract value from data, and rarely to a specific size of data set. Exactness in Big Data may prompt more confident decision making. Furthermore, better decision can mean more noteworthy operational efficiency, cost reduction and decrease risk, while (Fredriksson, 2015) show that Big Data is valuable for associations to make opportunities and develop Knowledge Management.

Finally, researcher presents the relationship between Big Data and knowledge Management Process to understand the business environment and achieve better performances by using the Big Data which provide useful and good knowledge for Jordanian banks.

1.2 Study Problem

Banks face problems in the Volume, Velocity, Variety and Value with Big Data, as it impedes progress at all phases of the pipeline that can create Value from data (Zhan et.al, 2016).

The main problem of this study focused on the relationship between Big Data: Volume, Varsity, Velocity, and Value, and Knowledge Management Process: Creation, Acquisition, Share, and Application. So, the main question as following:

“Is there any relationship between Big Data and Knowledge Management Process”?

According to many related studies and the increased adoption of Big Data in Jordanian organizations, especially in commercial banks, key factors effecting Big Data implementation

need to be investigated. Furthermore, this study seeks to address the key benefits of Big Data as well as the relation with the Knowledge Management Process.

1.3 Study Objectives

This study investigated the relationship between Big Data and KM process, these objectives are:

- Investigate the relationship between Big Data: (Volume, Variety, Velocity, Value), and KM process (Creation, Acquisition, Share, and Application).
- Examine the relationship between variables by using questionnaires.
- Analyze and investigate the relationship between the Big Data and KM process in Jordanian commercial banks.
- Provide a recommendation based on the study results for the decision makers in Jordanian commercial banks in Amman, to identify the most critical variables of Big data and knowledge management process.

1.4 Study Significance

The significance of this study is to demonstrate the relationship between Big Data and KM Process; Big Data measured and evaluated in terms of independent variables (Volume, Variety, Velocity, Value) to determine the relationship with dependent variables of KM Process (Creation, Acquisition, Share, and Application).in order to assist and enable the business to be more conscious and aware of applying Big Data in the future.

There are few studies that have addressed the relationship between Big Data and Knowledge Management Process as well as the commercial Banks, especially in Amman.

1.5 Study Questions and Hypothesis

Study Questions:

The main question of this study:

1. Is there relationship between Big Data: (Volume, Variety, Velocity, Value), and KM process (Creation, Acquisition, Share, and Application)?

The following questions of this study:

- 1.1 Is there relationship between Big Data Volume and KM process (Creation, Acquisition, Share, and Application)?
- 1.2 Is there relationship between Big Data Variety and KM process (Creation, Acquisition, Share, and Application)?
- 1.3 Is there relationship between Big Data Velocity and KM process (Creation, Acquisition, Share, and Application)?
- 1.4 Is there relationship between Big Data Value and KM process (Creation, Acquisition, Share, and Application)?

Study Hypothesis:

This study tested the main hypothesis and their four branches according to the above questions and objectives as shown below:

Ho1: There is no relationship between Big Data: (Volume, Variety, Velocity, Value), and the KM process (Creation, Acquisition, Share, and Application) .

Ho1.1: There is no relationship between Big Data Volume, and KM process (Creation, Acquisition, Share, and Application), at the level of significance ($\alpha \leq 0.05$).

Ho1.2: There is no relationship between Big Data: Varsity, and KM process (Creation, Acquisition, Share, and Application), at the level of significance ($\alpha \leq 0.05$).

Ho1.3: There is no relationship between Big Data: Velocity, and KM process (Creation, Acquisition, Share, and Application), at the level of significance ($\alpha \leq 0.05$).

Ho1.4: There is no relationship between Big Data: Value, and KM process (Creation, Acquisition, Share, and Application), at the level of significance ($\alpha \leq 0.05$).

1.6 Study Model

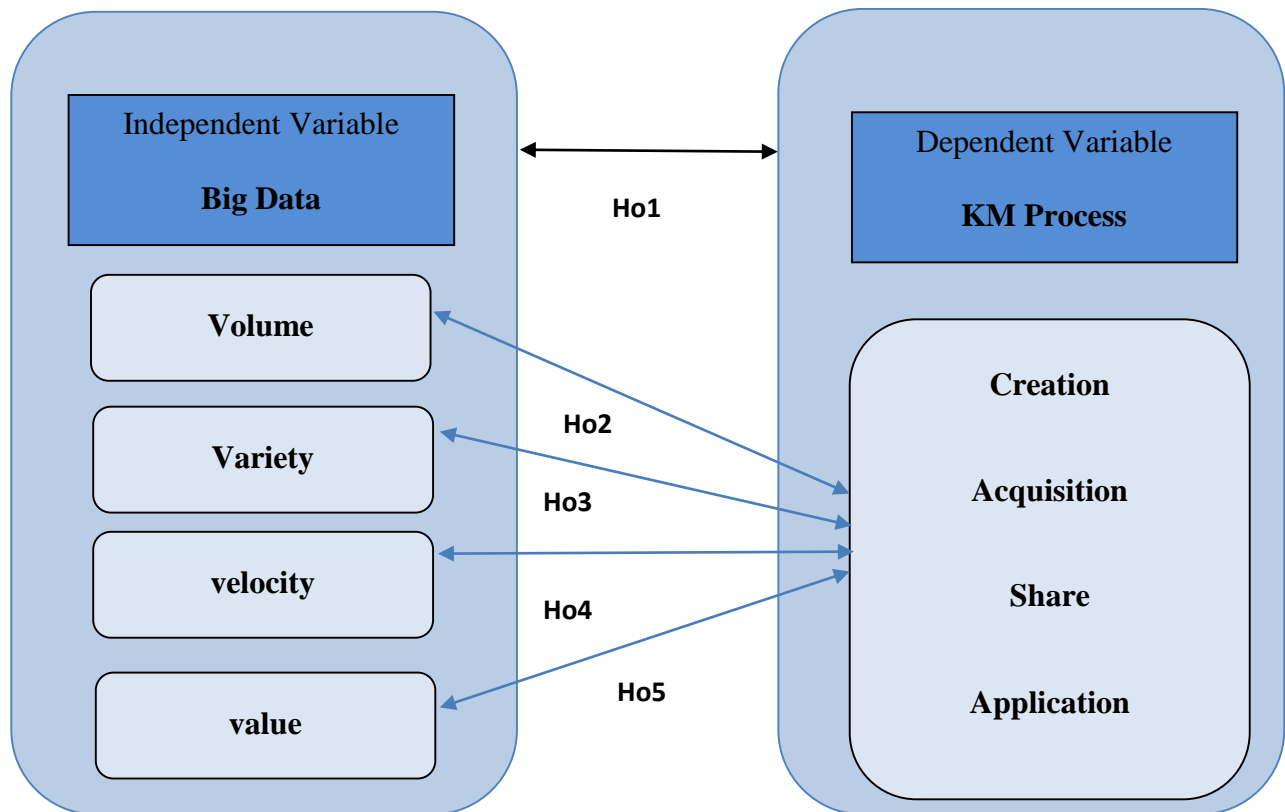


Figure (1): Study model

Sources: prepared by the researcher based on:

Independent variable:

- (Moyne and Iskandar, 2017) under the title “Big Data Analytics for Smart Manufacturing: Case Studies in Semiconductor Manufacturing”.
- (Satyanarayana, 2015) under the title “A Survey on challenges and Advantages in Big Data”.
- (Fredriksson, 2015) under the title “Knowledge management with Big Data Creating new possibilities for organizations.”

Dependent variable:

- (King, 2009) under the title “Knowledge Management and Organizational Learning”.
- (Al-Mahamid, 2015) under the title “The Impact of knowledge management process on organizational intelligence: An empirical investigation on Jordanian commercial banks”.
- (Aladwan, 2017) under the title “The Impact of Knowledge Management Processes on Workforce Agility: An Empirical Investigation at Pharmaceutical Companies in Jordan.”
- (Erickson and Rothberg, 2014) under the title “Big Data and Knowledge Management: Establishing a Conceptual Foundation.”

1.7 Study Limitations

The study limits itself to the following:

This study is implemented at Banks which may limited its generalizability to other organizations and industries.

- Study results restricted only at commercial banks management (Top, Middle, Other position).
- The amount of collected data depended on employees' response to the questionnaires, which may not give the full information.
- The employees' response reflects the psychological impression of the company at a certain point of time.

1.8 Study Delimitation

- **Human delimitation:** this study carried with top management in commercial banks in Amman.
- **Place delimitation:** this study conducted with commercial banks - Amman-Jordan.
- **Time delimitation:** the academic year 2017-2018.
- **Scientific delimitation:** this study focused on determining the relationship between Big Data and KM process and adapt the prior's studies recommendations.

1.9 Study Conceptual and Operational Definitions

- Conceptual Definitions:

Big Data is a generous measure of data that requires new advances and models to make possible to remove a motivating force from it by getting and examination process, additionally Big Data suggests constantly creating Data Set, that so much it winds up clearly difficult to direct it using existing database organization ideas and tools. (Satyanarayana, 2015).

According to Fonseca and Marcinkowski, (2014), Big Data is about how the information can be secured, sorted out, and gotten a handle on to such a degree, to the point that it can be used for predicting the future blueprint with an incredible exactness and attractive time delay, while (Bhadani and Jothimani, 2016) define Big Data is described not by essentially the volume of the data, but instead furthermore by the collection and speed of data.

Big Data doesn't just mean the measure of data sets but also data management processes, Big Data require new ways to deal with gather, store, oversee and pick up value for all data essentially, likewise Big Data isn't just a phenomenon of numbers and texts however it described as the change in data management (Big Data technologies) alluding to a new generation of technologies and architectures, designed to economically extract value from very large volumes of a wide variety of data, by enabling high velocity capture, discovery and analysis, data sets whose volume, variety, velocity and complexity, which make it impossible for current databases and architectures to store and oversee. (Fredriksson, 2015).

Knowledge: is the actualities, skills and understanding that individual has picked up whether through learning or experience, that upgrades the capacity of assessing setting, deciding, and

taking activities. (Nazick, 2014). Also, (King, 2009) defined Knowledge as a “justified personal belief.”

Knowledge Management (KM): is an efficient coordination to arrange individuals, process, innovation, and hierarchical structure to add value through reuse, development, and advance knowledge creation, acquisition, share, and application to upgrade proceeds with organizational learning. (Dalkir, 2011), while (King, 2009) said that the Knowledge management is the arranging, sorting out, motivating, and controlling of individuals, procedures and systems in the association to guarantee that its knowledge-related assets are enhanced and effectively utilized. Likewise (Silwattananusarn and Tuamsuk, 2012) characterized Knowledge management as a procedure of data use.

The process of KM as (King, 2009) include knowledge acquisition, creation, refinement, storage, transfer, sharing, and utilization, while (Silwattananusarn and Tuamsuk, 2012) specify that; the process focused on knowledge flows and the process of sharing, creating, and distributing knowledge.

Additionally (Bousa and Venkatachalam, 2013) specify that each of the knowledge units of catch, creation, sharing, spread, acquisition and application can be encouraged by data innovation.

Successful organizations now comprehend why they must oversee knowledge and develop plans, however keeping in mind how to achieve objectives, they must dedicate time and energy to these endeavors, since KM has been described as a key driver of organizational performance. (Bousa and Venkatachalam, 2013).

- **Operational Definition:** Applying Big Data with Effective use of Knowledge Management Process in Jordanian Commercial Banks in Amman in order to understand the business environment and achieve better performance, also using Big Data with Knowledge management process improved the capabilities of the Banks.

Chapter Two

Theoretical Framework and Previous Studies

2.1 Theoretical Framework.

2.1.1 Big Data.

2.1.2 Knowledge Management (KM)

2.2 Previous Studies.

2.2.1 Distinctive Features of the Current Study.

Chapter Two

This chapter reviewed the related literature and previous relevant studies that are related to Big Data and KM process in Jordanian commercial banks.

2.1 Theoretical Framework

2.1.1 Big Data.

Big Data is a generous measure of data that requires new advances and models to make possible to remove a motivating force from it by getting and examination process, additionally Big Data suggests constantly creating Data set, that so much it winds up clearly difficult to direct it using existing database organization ideas and tools. (Satyanarayana ,2015).

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for current databases and architectures to store and oversee. (Fredriksson, 2015).

Numerous specialists expounded on the Characteristics of Big Data as (Satyanarayana,2015), (Moyne and Iskandar, 2017) and (Bhadani and Jothimani,2016) they say that (Volume, Variety, Velocity, Value, complexity, variability, Veracity, Low-Value thickness), are Characteristics of Big Data, they talk about it in points of interest as the following:

- **Big Data Volume:** The Huge word in Big Data itself characterizes the Volume, Data Volume measures the data open to an affiliation. (Satyanarayana, 2015), while (Moyne and Iskandar, 2017) characterized the Volume implies to the extent of the data that is being created and accumulated.

- **Big Data velocity** as (Moyne and Iskandar, 2017) alludes to the rate of age of data, customary data examination relies upon intermittent updates-day by day, week after week or month to month. With the extending rate of data age, Big Data should be taken care of and broken down in genuine or close ongoing to settle on educated choices. While (Satyanarayana, 2015) characterize Data Velocity as an idea which manages the speed of the data beginning from various sources, this trademark isn't being limited to the speed of approaching data yet likewise speed at which the data streams and aggregated.

- **Big Data Variety:** is a measure of the lavishness of the data portrayal – content, pictures video, sound...etc. Data being crated isn't of single classification as it consolidates the regular data as well as the semi organized data from various resources like website pages, Web Log Files, web-based social networking locales, email, reports. (Satyanarayana,2015), while (Sridhar and Dharmaji, 2013) defined Variety: implies different sorts of data that are being created and caught. They connect past organized data and fall under the classes of semi-organized and unstructured data.

- **Big Data Value** as (Satyanarayana, 2015) measures the value of data in choosing, while (Abdelhafez, 2014) specify Low-Value thickness is a Data in its extraordinary edge is unusable. Data is separating to discover high value. For example, logs from the site can't be used as a part of its basic structure to gain business value. It must be separate to anticipate the client direct.
- **Big Data complexity** as (Satyanarayana,2015) measures the level of interconnections (huge conceivably) and association in Big Data structures to such an extent that a minor change (or mix of minor changes) in one or a few parts can yield far reaching changes or a minor change that swell crosswise over or course through the system and extensively impact its conduct, or no change by any methods.
- **Big Data Veracity** alludes to the lack of quality related with the data sources. For instance, supposition examination using internet organizing data (Twitter, Facebook, etc.) is liable to weakness. There is a need to isolate the strong data from questionable and loose data and manage the helplessness related with the data. (Sridhar and Dharmaji, 2013).
- **Big Data Variability** was incorporated as additional estimations by SAS. Regularly, irregularity in the Big Data velocity prompts variety in stream rate of data, which is insinuated as changeability. (Sridhar and Dharmaji, 2013).

Dimensions of Big Data Volume: Big data volume is used to find opportunities and develop working patterns with enhancing data quality (Sookhak et.al, 2017). According to (Baoan, 2014). Characterized that Using large amount of data enables banks to predict the outlook for many important decisions, helps to achieve effective information and increase the effective of work. Using large data to extract the knowledge for decision maker and can generate new information and knowledge beneficial for banks. (Zhan et.al, 2016).

Dimensions of Big Data Variety: According to (Zhan et.al, 2016) mention that Big data creates a variety of significant values for the organizations and can help banks to be more strategic. Also (Silwattananusarn and Tuamsuk, 2012) characterized that Banks regard information from big data that is gathered from a variety of sources and Analyzing the variety of big data can discover the hidden pattern between knowledge management processes and its performance. A variety of sources of big data can increase social media and new technology, improved knowledge management processes, increase the efficiency and effectiveness of work and helps to gain effective information.

Dimensions of Big Data Velocity: As per (Erickson and Rothberg, 2014) said that Big data needs to be structured to allow banks to work and use the information effectively, also Using big data velocity effectively achieved many advantages and continuous profitability and provide speed in achieving tasks. Using Big data velocity to analyze the data on real time to users, exceeds the capabilities of auditing the data, improved knowledge management processes. (Baoan, 2014).

Dimensions of Big Data Value: According to (Baoan, 2014) characterized that effective utilization of knowledge management process by taking a value from Big data, optimizing resources allocation and Using valuable knowledge from big data can solve many problems. While (fredriksson, 2015) mentioned the good value of big data can increase the performance of knowledge management process with increasing profits and productivity. As per (Erickson and Rothberg, 2014) characterized that the value of big data improved knowledge management processes, can support the important decisions and increase the efficiency and effectiveness of work.

In addition, the Big Data has different central focuses on society, science and advancement. It is into the way that how it is used for the general population. A segment of the purposes of interest are described below (Lee et.al, 2014):

- **Comprehension and Targeting Customers:** This is one of the greatest and most promoted areas of Big Data use today. Here, Big Data is used to better appreciate customers, their practices and slants. Associations rush to develop their regular data sets with online long range interpersonal communication information, program logs and substance examination and sensor data to get a more aggregate photograph of their customers. The enormous objective, when in doubt, is to make perceptive models.
- **Comprehension and Optimize Business Process:** Big Data is moreover dynamically used to develop business forms. Retailers advance their stock considering desires made from online networking data, web seek patterns and climate estimates.
- **Enhance Science and Research** is starting at now being changed by the new possible results Big Data brings.
- **Improving Social insurance and General Wellbeing:** The enrolling vitality of Big Data examination engages us to translate entire DNA stings in minutes and empower to find new cures and better grasp and anticipate sickness designs.
- **Advancing Machine and Device Performance:** Big Data examination empower machines and gadgets to wind up obviously more intelligent and more independent.
- **Improving Security and Law Enforcement:** Big Data is associated vigorously in enhancing security and engaging law implementation. The disclosures are that the National Security organization in the U.S.

2.1.2 Knowledge Management (KM)

Knowledge

First of all, (Dalkir, 2011) characterize the knowledge concept as well as defended by comprehension, experiences, and know how all process did basic resources that permit function intelligently, also its transformed to other manifestations such as books, practices, innovation, and conventions inside associations of numerous kinds and society in general Knowledge embeds in business processes, activities, and relationships that have been made over time through the execution of a proceeding with arrangement of enhancements.

According to (Hislop, 2013), it is essential for associations to deal with their workforce knowledge, that is turning into a key resource for associations to oversee and the nature of work has changed fundamentally inside the significance of scholarly work expanding altogether, additionally its provide a source of competitive advantage. Knowledge is the key resource for creating, improving, and maintaining the economic benefits for market grow. (Foumani and Chirani, 2012).

Knowledge Management (KM)

Successful organizations now comprehend why they must oversee knowledge and develop plans, however keeping in mind how to achieve objectives, they must dedicate time and energy to these endeavors, since KM has been described as a key driver of organizational performance. (Bousa and Venkatachalam, 2013).

KM is basically about getting the correct knowledge to the perfect individual at the right time, it suggests solid connections to corporate strategy, comprehension of where and in what forms

knowledge exists, making processes that span organizational functions, and guarantee that activities are acknowledged and supported by organizational members. KM may likewise incorporate new knowledge creation, or spotlight on knowledge sharing, storage, and refinement (Frost, 2010).

Within business and KM there are two kinds of knowledge typically characterized, namely explicit and tacit knowledge, the first alludes to classified knowledge, for example, found in reports, while the last alludes to non-arranged, and regularly individual or experience based knowledge (Forst, 2010).while (Botha, et al., 2008) bring up that tacit and explicit knowledge ought to be a spectrum rather than as definitive points, and all knowledge is a blend of tacit and explicit elements as opposed to being either. As indicated by (Emadzade et.al, 2012) knowledge should be overseen and sorted out to produce new knowledge and apply it effectively and efficiently that succeed to make economic value.

Knowledge Management KM depends on the premise that individuals can't draw on maximum capacity of their brains, associations are generally and not able to completely use the knowledge that they have, through KM associations try to procure or make conceivably valuable knowledge and make it accessible to the individuals who can utilize it at once and put that proper for them to accomplish maximum effective usage in order to positively influence organizational performance, likewise an association can increment effective knowledge use by little rate, extraordinary advantages resulted (Sweis et.al, 2011). Although, KM can be applied to workforces who have been recently get attention of organizations (Aladwan, 2017). In this way, KM applied to workforces who have been recently get attention of organizations.

The process of KM includes knowledge acquisition, creation, refinement, storage, transfer, sharing, and utilization, KM is function in association by works these procedures, creates techniques and frameworks

to help them and motivates individuals to participate them (king, 2009). KM incorporates organizational process that expects to make a centralized knowledge source inside the association that acquired, an assimilates, distributes, integrates, shares, retrieves and reuses the internal and external, explicit and tacit to acquire advancement to associations in the type of the product, workforces, and organizational process. (Akram et. al, 2011). KM creates frameworks and process to acquire and share intellectually assets, and in addition through expanding the generation of helpful and important information in order to increase and team learning. (Dalkir, 2011).

Bellow discuss the four processes that effect on KM process in details:

1. Knowledge Creation

The capacity to create new knowledge is regularly at the core of the association's competitive advantage. In some cases, this issue isn't dealt with as a major aspect of knowledge management since it borders and covers with advancement management (Wellman, 2009).

Knowledge creation relies on joined with the capacity to put knowledge in a situation which supports interaction and experimentation, the creative process are: to empower and encourage knowledge sharing, to make an appropriate workplace, to give frameworks that help the work process, and to give knowledge specialists with timely, relevant data and information, in this manner, the creative process is a sensitive one, and it is effectively destroyed by strict adherence to rules and regulations, or by administration (Forst, 2010).

2. Knowledge Acquisition

Knowledge acquisition alludes to the knowledge that a firm can endeavor to get from external sources. External knowledge sources are important and one ought to in this way

take an all-encompassing perspective of the value chain. (Aladwan, 2017). As per (Kidd, 2014), knowledge acquisition is a vital stage in the improvement of a specialist framework it includes eliciting, analyzing and translating the knowledge that human expert utilizes when solving a specific issue then changing the knowledge into reasonable machine portrayal.

The principal procedure for knowledge acquisition is to include knowledge when the case is taken care of erroneously. That implies that knowledge is included for genuine cases in genuine conditions, the cost of knowledge acquisition is successfully constant with knowledge base size, so information can be included while the framework is in real utilize and turns out to be little fascinating augmentation to ordinary work or activity flow. (Aladwan, 2017).

3. Knowledge Share

Knowledge sharing is an essential part in knowledge management and the achievement or disappointment will straightforwardly relate to how much knowledge could be utilized by more individuals. (Oye, 2011).

The sharing of knowledge between workforce teams and association units that trade can focused or unfocused, yet it ordinarily does not have a reasonable earlier objective, the main considerations that impact knowledge share are the nature of knowledge, motivation to share, chances to share, culture, and workplace. (Paulin and Suneson, 2012).

knowledge sharing relies on the habit and ability of the knowledge worker to search out and be open to knowledge sources, it can be depicted as push or pull, knowledge push

when knowledge is "pushed onto" the client (e.g. newsletters, unsolicited publications), knowledge pull when knowledge specialist effectively seeks out knowledge sources (e.g. library search), to encourage knowledge sharing, KM must comprehend the requirements of people and the complexities, and potential issues with overseeing knowledge and knowledge sources (Forst, 2010).

4. Knowledge Application

Without application, association wasted resources and time on the re-creation of knowledge and spend a lot of money and time on area or distinguishing proof of hard to discover information, subsequently, application manages cultural changes at working environments rather than changes in innovation alone. (Martin, 2015).

The utilization of knowledge that has been caught or made to send it in the association environment, it empowered the implementation of decision supportive network to help configuration assignments in differing domains, for example, design, building and planning (Fernandez, et al., 2007). As indicated by (Jawadeke, 2007) KM winds up effective in an association when advancement clients perceive and appreciate the barriers in the system implementation.

Dimensions of Knowledge Management Process: According to (fredriksson,2015) characterized that Creating effective knowledge and using valuable information can increase profits and productivity, also Acquiring the knowledge can develop marketing strategies and sales planning. The Acquisition of knowledge helps to analyze the information to store a big

amount of data, on the other hand, sharing big data with other organizations leads to more ideas that benefit each other (Erickson and Rothberg, 2014). As per (Silwattananusarn and Tuamsuk, 2012) mentioned that Sharing Knowledge is used to manage and develop plans to accomplish objectives. While (Baoan,2014) said that Applying big data can be beneficial to innovate new business model and can predict consumer behavior to be aware about many problems face.

Dimensions of the relationship between Big Data and Knowledge Management Process:

According to (fredriksson,2015) mentioned that Big Data helps to discover the hidden knowledge in the enormous amount of data, also Big Data can help guiding managers in determining strategies by using knowledge management processes. while (Baoan,2014) Addressing Big Data dimensions of fast growing data to develop knowledge management process, need a knowledge management process in order to discover and utilize the Big Data. As per, (Sookhak et.al,2017) Evaluate the level of Big Data awareness is relevant toward the implication of KM process and utilizing Big Data with knowledge management process could enhance the capabilities of organizations.

2.2 Previous Studies:

Study (Wang, 2008) entitled “A knowledge management approach to data mining process for business intelligence” in Canada

Motivation behind this investigation center around data mining has been a tool of business intelligent for knowledge discovery. In this field express that Data Mining did not add to business in an extensive scale. The motivation behind this examination is to talk about the

significance of business insiders during the time spent information improvement to make Data Mining more relevant to business.

Plan/strategy/approach – This examination proposes a blog-based model of knowledge sharing framework to help the Data Mining procedure for effective business intelligent.

Discoveries – Through an illustrative contextual analysis, the investigation has exhibited the value of the model of knowledge sharing framework for Data Mining in the dynamic change of explicit and tacit knowledge for business intelligent. Data Mining can be a powerful Business Intelligent device just when business insiders are included, and organizational knowledge sharing is actualized.

Study (Akram et.al, 2011) entitled "Role of Knowledge Management to Bring Innovation: An Integrated Approach" in Pakistan

The essential target of the study is to accommodate the writing on knowledge Management and development in associations. The study seeks to analyze and expound the linkage between knowledge management process and development process to uncover the imperative relationship and streams of activities. The study is incited utilizing qualitative methodology. The relationships hypothesized, and the recommendations made, depend on the compromise of optional information on the study factors. Hypothetical relationship is improved by the conclusions drawn from literature review.

Study (Omotayo, 2015) entitled “Knowledge Management as an important tool in Organizational Management: A Review of Literature” in Nigeria

The development of knowledge-based economies has set a significance on effective management of knowledge. The effective management of knowledge has been depicted as a basic element for association looking to guarantee sustainable strategic competitive advantage.

This study audits writing in the area of knowledge management keeping in mind the end goal to draw out the significance of knowledge management in association. The study exhibited that knowledge management is a key driver of organizational performance and a basic tool for hierarchical survival, aggressiveness and productivity. In this way making, overseeing, sharing and using knowledge successfully is imperative for associations to take full favorable position of the value of knowledge. The study likewise contributes that, with the end goal for associations to oversee knowledge effectively, consideration must be paid on three key segments - individuals, procedures and innovation. Generally, to guarantee association's prosperity, the concentration ought to be to interface individuals, procedures, and innovation to leverage knowledge.

Study (Owoc, 2014) entitled “The Role of Data Warehouse as a Source of Knowledge Acquisition in Decision-Making. An Empirical Study” in Jordan

The principle motivation behind this study is to research experimentally the part and significance of Data Warehouse in improving the adequacy of decision making.

It is accepted and expected that important and noteworthy information can be procured from Data Warehouse which gives valuable knowledge to help business process and decision making.

A mail questionnaire survey was viewed as the proper strategy for gathering data. The survey was produced in light of the discoveries from related writing and other related research questionnaires. Every one of the organizations (277) recorded on Amman Stock Trade at the season of data gathering, were chosen. The scientists landed at scores of significant and remarkable outcomes with respect to Data Warehouse and its part in upgrading the procedure of decision making. The review's discoveries demonstrated that the percentage of actualizing

Data Warehouse in the Jordanian firms included is 35 %. As a rule, the respondents had a positive attitude towards the execution of Data Warehouse.

Study (Satyanarayana, 2015) entitled " A Survey on Challenges and Advantages in Big Data" in India

Big Data, which alludes to the data sets that are too huge to be taken care of utilizing the current database administration devices, are rising in numerous vital applications, for example, Web seek, social networks and social media. Big Data displays a fantastic test for database and data analytics research. The exciting activities tending to the Big Data challenge. The focal subject is to associate Big Data with individuals in different ways. Especially, this study exhibited our current advance in client preference understanding, context-aware, on-request Data Mining utilizing crowd intelligence, outline and exploration examination of huge data sets, and protection saving data sharing and examination. The basic role of this study is to give an inside and out investigation of various stages accessible for performing big Data analytics. This study reviews distinctive equipment stages accessible for big data analytics and surveys the points of interest and disadvantages of Big Data.

Study (Al-Mahamid, 2015) under the title “The Impact of knowledge management process on organizational intelligence: An empirical investigation on Jordanian commercial banks” in Jordan.

This study aims to investigate the effect of intelligent use of knowledge management and its application on creating value for the commercial banks in Jordan. To achieve the research objectives, the researcher has used the descriptive analytical method because of its relevance for this kind of research field. Four commercial banks were selected: The Housing Bank, Jordan

Bank, Arab Bank, and the Investment Bank. Research samples' individuals consist of banks managers, head of divisions, and employees. A questionnaire was designed and distributed by the researcher to the participants in the research, and the samples are randomly selected for the purpose of this research. (107) questionnaires out of (150) were analyzed, representing (71.33%). The researcher reaches a set of result and presents recommendations that are believed to contribute positively to the use of knowledge management and ultimately to improve the banks performance by creating value.

Study (Palade et al, 2016) entitled “Model of Handling Big Data and Knowledge Management in Automotive Industry” in Romania

This study talks about the measure of knowledge in the whole world and inside associations as of now achieved tremendous dimensions and is continually expanding. With a specific end goal to deal with it, Big Data approaches and algorithms should be presented. Without a strong management of knowledge and arrangement of Big Data, the business can't advance in the current competitive environment and gradually vanish.

Study (Khan and Vorley, 2016) entitled “Big Data Text Analytics an enabler of Knowledge Management” in United Kingdom

The purpose of this study is to look at the part of Big Data content analytics as an empowering agent of knowledge management. The study contends that Big Data content analytics speaks to a critical intends to visualize and data analysis, particularly unstructured information, which can possibly enhance knowledge management inside associations.

design/strategy/approach – The study utilizes content analytics to survey 196 articles distributed in two of the main knowledge arrangement journals - the journal of knowledge management and the Journal of Knowledge Management Exploration &Practice. The content analytics

approach is utilized to process, extricate and analyze to demonstrate the utility of Big Data text analytics. Discoveries – The discoveries demonstrate how big data text analytics can be a key empowering influence part in knowledge management. the study demonstrates the energy of Big Data oriented text analytics instruments in supporting knowledge management through the perception of Data. Along these lines, feature the nature and quality of the knowledge created through this strategy for productive knowledge management in developing a competitive advantage.

Study (Vloet, 2016) entitled “Influence of big data and analytics on management control” in Netherlands

This study investigates the impact of Big Data and analytics on management control, and the advantages and difficulties that associations experience by making utilization of Big Data. Existing writing on Big Data is basically centered around authorization and formulation of expectation and regularly concentrates just on the positive parts of Big Data. Moreover, within current writing the impact of Big Data on management control has gotten just minor consideration. So as to develop existing knowledge, various meetings are held with five representatives from five unique associations, individuals from the management team or closely required with data and the improvements of data in their association.

The consequences of this study demonstrate that the normal effect of Big Data on management control isn't accomplished in the diverse organizations yet. Each of the five associations have understood that they need to oblige the improvements in the area of data since it is a dynamic advancement in the market, and not obliging these improvements could prompt adverse impacts for the association. Hence, the interviewed associations are occupied with different data projects

keeping in mind the end goal to help the capability of data better, with the outcome that data gets a more unmistakable part in the associations.

In any case, because of a few technological and managerial difficulties it ends up being hard to take advantage of Big Data benefits.

Study (Gonzalez and martins, 2017) entitled “Knowledge Management Process: a theoretical-conceptual research” in Brazil

This study treats the knowledge management, a subject that has pulled in light of a legitimate concern for some analysts in the most recent decade, being extraordinary part of commitments driven by steps, named Knowledge management process. Since it is a grasping topic, distributions about Knowledge management process have multidisciplinary commitments and, in this manner, this exploration expects to conceptualize this process, analyzing the principle approach that aides the study of each stage, and furthermore, to raise the primary publication regarding the matter, characterizing them as to their commitment region. To achieve these objectives, this article is situated by a theoretical conceptual research. The outcomes show that the Knowledge management process comprises of four phases: acquisition, storage, distribution, and utilize of knowledge. In the storage phase, the considered subjects are hierarchical learning, information initiation, innovative process and learning change. In the storage phase, the contributions deal with a person, an association and data innovation, while in the distribution phase the studies gather in social contact topics, practice community and sharing through data innovation. Furthermore, at last, in the utilization stage, address the type of utilization, dynamic capacity and retrieval and knowledge transformation.

Study (Moyne and Iskandar, 2017) entitled “Big Data Analytics for Smart Manufacturing: Case Studies in Semiconductor Manufacturing” in USA.

Smart manufacturing (SM) is a term generally applied to the improvement in manufacturing operations through integration of systems, linking of physical and cyber capabilities, and taking advantage of information including leveraging the big data evolution. SM adoption has been occurring unevenly across industries, thus there is an opportunity to look to other industries to determine solution and roadmap paths for industries such as biochemistry or biology. The big data evolution affords an opportunity for managing significantly larger amounts of information and acting on it with analytics for improved diagnostics and prognostics. The analytics approaches can be defined in terms of dimensions to understand their requirements and capabilities, and to determine technology gaps. In the future, an improved big data environment incorporating smart manufacturing concepts such as digital twin will further enable analytics; however, it is anticipated that the need for incorporating subject matter expertise in solution design will remain.

Study (Novak, 2017) entitled “Knowledge Management and Organizational performance – Literature Review” in Slovenia

The primary motivation behind this study is to recognize applicable writing lately on the topic of relations between knowledge management and organizational performance. An examination show concerning relations between knowledge management process (creation, storage, transfer and application) and organizational performance and relations between knowledge infrastructure elements (technology, organizational culture, and organizational structure) and

organizational performance investigated through writing survey and proposed for further empirical research in doctoral work. The majority of reviewed studies revealed a positive effect of knowledge management practices and / or knowledge infrastructure components on organizational performance. Researchers characterized organizational performance with different performance indicators from financial to strictly non-financial performance measures and as a combination of a few diverse performance indicators. The greater part of the checked on scientific papers characterized organizational performance with general or integral performance indicators comprising of several distinctive performance indicators and by that avoiding more particular performance indicators, for example, financial indicators. As effect of knowledge management and organizational performance is affirmed in an ever-increasing number of concentrates every year, a study of relation between knowledge management and more particular performance indicators (financial and non-financial) and additionally strength of relation, remains challenge and subject of future researches.

Study (king,2009) entitled "Knowledge Management and Organizational Learning– Literature Review" in USA

The study center around Knowledge Management which rose over the most recent 20 years, people was "not able draw on the maximum capacity of their brains" and "associations are for the most part not ready to completely use the knowledge that they have". With Knowledge Management, associations endeavor to make or get useful knowledge and utilize time and place to make it accessible to accomplish the best effective utilization to impact decidedly to organizations performance. Moreover, if the association can increment successful knowledge usage even little rate, great advantages resulted.

Study (Erickson and Rothberg, 2014) entitled " Big Data and Knowledge Management: Establishing a Conceptual Foundation " in USA

the study talks about knowledge management and intellectual capital have constantly recognized information, data, and knowledge. One of the essential ideas of the study is that knowledge goes past an unimportant gathering of information or data, including know-how in view of some degree of reflection. Another core idea is that intellectual capital, as a study, deals with valuable organizational assets which, while not sufficiently formal to rate a designation as intellectual property, still merit the consideration of administrators. Intellectual capital is valuable enough to be recognized, managed, and protected, perhaps granting competitive advantage in the marketplace.

Study (Fredriksson,2015) entitled " Knowledge Management with Big Data creating new possibilities for organization “in Gothenburg

The study talks about researchers have not yet achieved an agreement of a particular meaning of Big Data and the concept of Big Data still brings up numerous issues. The advantages of Big Data, and in addition the difficulties related with Big Data, are known to some degree. Big Data is viewed as profitable for associations, making new conceivable outcomes and chances to create knowledge management. Simultaneously, there are various difficulties that ought to be tended to create value from Big data. This study offers a more profound comprehension of the concept of Big Data and how the application of Big data is reflected in the research so far.

Definitions and attributes of Big Data is presented in this study. Economic, societal and decision-making aspects of Big data is examined also, to better understand the value of using Big data to create knowledge (management) in associations. Moreover, challenges related with

Big Data is displayed, to expand the attention of obstacles that needs to be addressed when applying Big data.

Study (Silwattananusarn and Tuamsuk, 2012) entitled "Data Mining and Its Applications for Knowledge Management– Literature Review" in Thailand

the study talks about data mining is the most imperative steps of the knowledge discovery in databases process and is considered as noteworthy sub-field in knowledge management. Research in Data mining keeps developing in business and in learning association over coming decades. This audit study investigates the applications of Data mining methods which have been created to help knowledge management process.

Study (Bhadani and Jothimani, 2016) entitled “Big Data: Challenges, Opportunities, and Realities “in India

the study emphasizes on the requirement for big data, technological advancements, tools and strategies being utilized to process big data are talked about. Innovative improvement and limitation of existing stockpiling strategies are additionally displayed. Since, the conventional innovations like Relational Database Management System have their own confinements to handle big data, new technologies have been produced to handle them and to derive valuable insights of knowledge. This section exhibits an outline of big data analytics, its application, advantages, and limitations.

2.2.1 Distinctive Features of the Current Study

Many scholars have studied Data, information, knowledge, but they have paid little attention to Big Data as Volume, Varsity, Velocity, Value and the relationship of Big Data and KM process.

Therefore, this study might be the first of its kind that sheds light on the indirect relationship of Big Data and KM process.

Chapter Three

Study Methodology (Method and Procedures)

3.1 Study Methodology

3.2. Study Population

3.3 Study Sample

3.4 Study Data Collection Tools

3.5 Study Reliability

3.6 Study Validity

3.7 Study Variables

3.8 Statistical Treatment

Chapter Three

Study Methodology (Method and Procedures)

In this chapter the researcher described the methodology used in this study, then present the study population and sample, after that the study data collection tools, reliability and validity, and explain the study variables and statistical tools.

3.1 Study Methodology

The researcher collected data through descriptive studies to test hypothesis and examine the relationship between variables by using questionnaires to analyze and investigate the relationship between the Big Data and KM process in Jordanian commercial banks.

3.2 Study Population

The field of the current study was in (21) of Jordanian commercial banks in Amman. The study population consists of different positions of managers and all employees in Jordanian commercial banks in Amman.

3.3 Study Sample

A simple random selection approach was applied. The sample size at Jordanian Commercial Banks in Amman is 33.341 and 430 questionnaires were distributed among managers and employees at Jordanian commercial Banks in Amman.

3.4 Study Data Collection Tools

The study used descriptive and analysis methods to collect data, and to test hypothesis.

The data based on two sources:

- **Primary Source:** To answer the questions and hypothesis of this study the researcher developed a questionnaire to understand the relationship between Big Data and KM process.
- **Secondary Source:** Books, Journals, Theses, Articles, and Worldwide Web to write theoretical framework of this study.

3.5 Study Reliability

To verify the reliability, the researcher used Cronbach's Alpha (α) to measure the internal consistency and reliability, the following table (3.1) shows the results of the analysis:

Table (3.1): verify the reliability by using Cronbach's Alpha (α)

#	Variables	No. of items	Alpha Value (α)
1-	Relationship between Big Data and Knowledge Management Process	7	0.90

2-	Volume of Big Data	7	0.77
3-	Variety of Big Data	8	0.78
4-	Velocity of Big Data	8	0.74
5-	Value of Big Data	8	0.83
6-	Knowledge Management process	10	0.77
7-	Overall performance	48	0.93

3.6 Study Validity

To validate the data collected from the questionnaire, the researcher presented it to many professors in public and private Jordanian universities with specializations and experience in the field of this study.

To verify the validity, the researcher calculated the correlation coefficient between performance on the paragraph and overall performance. Table (3.2) shows the correlation coefficients of the paragraphs with the variable “Relationship between Big Data and Knowledge Management Process”

Table (3.2) shows the correlation coefficients between Big Data and KM

#	Relationship between Big Data and Knowledge Management	correlation coefficient	Level of significance
1-	Big Data helps to discover the hidden knowledge in the enormous amount of data	0.78	0.00

2-	Big Data can help guiding managers in determining strategies by using knowledge management process	0.78	0.00
3-	Addressing Big Data dimensions of fast growing data to develop knowledge management process	0.81	0.00
4-	Banks rely on Big Data to contribute knowledge management progress	0.86	0.00
5-	Banks need a knowledge management process in order to discover and utilize the Big Data	0.82	0.00
6-	Evaluate the level of Big Data awareness is relevant toward the implication of KM process	0.73	0.00
7-	Using Big Data with knowledge management process can improve the capabilities of our organization	0.78	0.00

It is noted from the results of the analysis that the values of correlation coefficients ranged from (0.86-0.73), all values were statistically significant; this reinforces the validity of the internal consistency of the related variable “Relationship between Big Data and Knowledge Management”.

To verify the validity, the researcher calculated the correlation coefficient between performance on the paragraph and overall performance. Table (3.3) shows the correlation coefficients of the paragraphs with the variable “Volume of Big Data”.

Table (3.3): shows the correlation coefficient between Volume of Big Data and KM

#	Volume of Big Data	correlation coefficient	Level of significance
1-	Big data volume is used to find opportunities and develop working patterns.	0.62	0.004
2-	Big data volume enhanced data quality.	0.77	0.00
3-	Using large amount of data enables banks to predict the future outlook for many important decisions.	0.77	0.00
4-	The use of big data helps to achieve effective information	0.77	0.00
5-	Increase volume of big data will increase the effective of work	0.10	0.00
6-	Using large data to extract the knowledge for decision maker	0.66	0.00
7-	Large amount of data can generate new information and knowledge beneficial for banks.	0.62	0.004

It is noted from the results of the analysis that the values of correlation coefficients ranged from (0.77-0.10), all values were statistically significant; this reinforces the validity of the internal consistency of the related variable “Volume of Big Data”.

To verify the validity, the researcher calculated the correlation coefficient between performance on the paragraph and overall performance. Table (3.4) shows the correlation coefficients of the paragraphs with the variable “Variety of Big Data”.

Table (3.4) shows the correlation coefficient between Variety of Big Data and KM

#	Variety of Big Data	correlation coefficient	Level of significance
1-	Big data creates a variety of significant values for our bank	0.52	0.018
2-	The Variety of Big data can help banks to be more strategic	0.55	0.013
3-	Banks regard information from big data that is gathered from a variety of sources	0.62	0.004
4-	Analyzing the variety of big data can discover the hidden pattern between knowledge management processes and its performance.	0.78	0.00
5-	A variety of sources of big data can increase social media and new technology.	0.86	0.00

6-	Big data variety improved knowledge management processes	0.75	0.00
7-	Big data variety will increase the efficiency and effectiveness of work.	0.78	0.00
8-	Using big data variety helps to gain effective information.	0.73	0.00

It is noted from the results of the analysis that the values of correlation coefficients ranged from (0.86-0.52), all values were statistically significant; this reinforces the validity of the internal consistency of the related variable “Variety of Big Data”.

To verify the validity, the researcher calculated the correlation coefficient between performance on the paragraph and overall performance. Table (3.5) shows the correlation coefficients of the paragraphs with the variable “Velocity of Big Data”.

Table (3.5): shows the correlation coefficient between Velocity of Big Data and KM

#	Velocity of Big Data	correlation coefficient	Level of significance
1-	Big data needs to be structured to allow banks to work and use the information effectively	0.51	0.021
2-	Use the velocity of big data effectively achieved advantages and continuous profitability	0.63	0.004
3-	Big data velocity is used to provide speed in achieving tasks	0.57	0.009
4-	Using Big data velocity to analyze the data on real time to users	0.86	0.00
5-	Big data velocity exceeds the capabilities of auditing the data	0.77	0.00
6-	Big data velocity improved knowledge management processes	0.67	0.001
7-	Big data velocity will increase the efficiency and effectiveness of work	0.78	0.00
8-	Banks have a sufficient control and monitor over big data velocity	0.77	0.00

It is noted from the results of the analysis that the values of correlation coefficients ranged from (0.86-0.51), all values were statistically significant; this reinforces the validity of the internal consistency of the related variable “Velocity of Big Data”.

To verify the validity, the researcher calculated the correlation coefficient between performance on the paragraph and overall performance. Table (3.6) shows the correlation coefficients of the paragraphs with the variable “Value of Big Data”.

Table (3.6): shows the correlation coefficient between Value of Big Data and KM

#	Value of Big Data	correlation coefficient	Level of significance
1-	Using effective knowledge management process for taking a value from Big data, optimizing recourses allocation	0.83	0.00
2-	Using valuable knowledge from big data can solve many problems that banks faces	0.60	0.004
3-	The good value of big data can increase the performance of knowledge management process	0.66	0.001
4-	using valuable big data can increase profits and productivity	0.81	0.00
5-	The value of big data improved knowledge management processes	0.72	0.00

6-	The value of big data can support the important decisions	0.77	0.00
7-	The value of big data will increase the efficiency and effectiveness of work.	0.66	0.001
8-	Managing knowledge processes in an effective way can lead to control the value of big data	0.68	0.001

It is noted from the results of the analysis that the values of correlation coefficients ranged from (0.83-0.60), all values were statistically significant, this reinforces the validity of the internal consistency of the related variable “Value of Big Data”.

To verify the validity, the researcher calculated the correlation coefficient between performance on the paragraph and overall performance. Table (3.7) shows the correlation coefficients of the paragraphs with the variable “Knowledge Management Process”.

Table (3.7): shows the correlation coefficient

#	Knowledge Management Process	correlation coefficient	Level of significance
1-	Creating effective knowledge and using valuable information can increase profits and productivity	0.81	0.00
2-	Creating knowledge management is an integral part of competitive markets	0.68	0.001
3-	Acquiring the knowledge can develop marketing strategies and sales planning	0.66	0.002
4-	The Acquisition of knowledge helps to analyze the information	0.64	0.004
5-	Acquiring knowledge is a good way to store a big amount of data	0.77	0.00
6-	Sharing big data with other organizations leads to more ideas that benefit each other	0.69	0.00
7-	Sharing Knowledge is used to manage and develop plans to accomplish objectives.	0.56	0.005
8-	Applying big data can be beneficial to innovate new business model	0.70	0.001

9-	Using big data can predict consumer behavior by applying the knowledge	0.79	0.00
10-	Applying big data helps to be aware about many problems that banks face	0.75	0.00

It is noted from the results of the analysis that the values of correlation coefficients ranged from (0.81-0.56), all values were statistically significant; this reinforces the validity of the internal consistency of the related variable “Knowledge Management Process”.

3.7 Study Variables

- **Independent Variable:** Big Data (Volume, Variety, Velocity, Value).
- **Dependent Variable:** KM process (Creation, Acquisitions, Share, Application).

3.8 Statistical Treatment

The collected data were analyzed using statistical package for social sciences “SPSS” to derive conclusion. Then the researcher used suitable statistical methods that consist of:

- Cronbach's Alpha (α) to measure strength of the correlation and coherence between questionnaire items.
- Percentage and Frequencies.
- Standard deviation to measure the responses spacing degree about Arithmetic Mean.

- Arithmetic Mean to identify the level of response of study sample workforces to the study variables.
- Simple Regression analysis to measure the impact of study variables on testing the direct effects.

Chapter Four

Analysis of the Results & Hypotheses Testing

4.1 Introduction

4.2 Demographic Variables of Study Sample

4.3 Descriptive Analysis of Study Variables

4.4 Hypothesis Testing

Chapter Four

Analysis of the Results & Hypotheses Testing

1.1 Introduction

According to the purpose of the research and the research framework presented in the previous chapter, this chapter describes the results of the statistical analysis for the data collected according to the research questions and research hypotheses. The data analysis includes a description of the Means and Standard Deviations for the questions of the study; Multiple and Simple and Linear Regression analysis and path analysis used.

4.2: Demographic Variables of Study Sample

Tables (4.1); (4.2); (4.3); (4.4); (4.5) and (4.6) show the demographic variables of the study sample.

Table (4.1) shows that the (35.8%) of the sample is male and (64.2%) is female

Gender	Frequency	percent
Male	154	35.8
Female	276	64.2
Total	430	100

Table (4.2) Descriptive the Age of the sample study

Age	Frequency	Percent
Less than 28 years old	121	28.1
29-37 years old	141	32.8
38-46 years old	86	20.0
47-55 years old	53	12.3
More than 55 years old	29	6.7
Total	430	100.0

Table (4.2) shows that (28.1%) of the sample range from the users are less than 28 years old, (32.8%) of the users are 29-37 years old, (20.0%) of the users are 38-46 years old, (12.3%) of the users are 47-55 years old and (6.7%) of the users are more than 55 years old.

Table (4.3) Descriptive the Educational qualification of the sample study

Educational qualification	Frequency	Percent
College /Diploma	16	3.7
Bachelor's Degree	312	72.6
Master's Degree	88	20.5
PHD degree	14	3.3

Total	430	100.0
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Table (4.3) shows that (3.7%) of educational qualification were college/diploma, (72.6%) were bachelor's degree, (20.5%) were master's degree, and (3.3%) were PHD degree.

Table (4.4) Descriptive the Job Title of the sample study

Job Title	Frequency	Percent
Executive Manager	11	2.6
Administrative Manager	78	18.1
Director General	30	7.0
Head of Section	86	20.0
Other Position	225	52.3
Total	430	100.0

Table (4.4) shows that (2.6%) of Job Title were Executive Manager, (18.1%) were Administrative Manager, (7.0%) were Director General, (20.0%) were Head of Section, and (52.3%) were Other Position.

Table (4.5) Descriptive the Job Level of the sample study

Job Level	Frequency	Percent
Low-Level	104	24.2
Mid-Level	225	52.3

Top-Level	101	23.5
Total	430	100.0

Table (4.5) shows that (24.2%) of Job Level were Low-Level, (52.3%) were Mid-Level, and (23.5%) were Top-Level.

Table (4.6) Descriptive the Years of Experience of the sample study

Years of Experience	Frequency	Percent
Less than 5 years	153	35.6
6-13 years	168	39.1
14-20 years	67	15.6
More than 21 years	42	9.8
Total	430	100.0

Table (4.6) shows that (35.6%) of the sample range from the users are less than 5 years, (39.1%) were 6-13 years, (15.6%) were 14-20 years, and (9.8%) were more than 21 years.

4.3 Descriptive analysis of study variables

Table (4.7) shows the estimation of Each paragraph was based on the following arithmetical mean:

1	Strongly Disagree	1-1.80
2	Disagree	1.81-2.60
3	Neural	2.61-3.40
4	Agree	3.41-4.2
5	Strongly Agree	4.21-5

The researcher used the arithmetic mean, standard deviation for the variable “Relationship between Big Data and Knowledge Management Process” of study tools as shown in table (4.8).

Table (4.8): The arithmetic mean, standard deviation

#	Relationship between Big Data and Knowledge Management	N	Mean	Slandered Deviation	Rank	Degree of Evaluation
1-	Big Data helps to discover the hidden knowledge in the enormous amount of data	430	3.6767	.99423	6	Agree
2-	Big Data can help guiding managers in determining strategies by using knowledge management process	430	3.8674	.91535	2	Agree

3-	Addressing Big Data dimensions of fast growing data to develop knowledge management process	430	3.7395	.94958	4	Agree
4-	Banks rely on Big Data to contribute knowledge management progress	430	3.7395	1.01599	4	Agree
5-	Banks need a knowledge management process in order to discover and utilize the Big Data	430	3.7907	.98374	5	Agree
6-	Evaluate the level of Big Data awareness is relevant toward the implication of KM process	430	3.8442	.93937	3	Agree
7-	Using Big Data with knowledge management process can improve the capabilities of our organization	430	3.9256	.94069	1	Agree
Total		430	3.7977	.73889	Agree	

Table (4.8) shows the result of analysis that arithmetic mean ranged between (3.93-3.68), the slandered deviation ranged between (1.02-0.74) and the overall degree of evaluation was Agree in arithmetic mean (3.80) and slandered deviation (0.74).

The researcher used the arithmetic mean, standard deviation for the variable “Volume of Big Data” of study tools as shown in table (4.9).

Table (4.9): The arithmetic mean, standard deviation

#	Volume of Big Data	N	Mean	Standard deviation	Rank	Degree of Evaluation
1-	Big data volume is used to find opportunities and develop working patterns.	430	3.8256	.74157	3	Agree
2-	Big data volume enhanced data quality.	430	3.6512	.83019	6	Agree
3-	Using large amount of data enables banks to predict the future outlook for many important decisions.	430	3.6767	.98481	5	Agree
4-	The use of big data helps to achieve effective information	430	3.8209	.69834	4	Agree
5-	Increase volume of big data will increase the effective of work	430	3.6256	.98321	7	Agree
6-	Using large data to extract the knowledge for decision maker	430	3.9558	.66927	1	Agree
7-	Large amount of data can generate new information and knowledge beneficial for banks.	430	3.8860	.64308	2	Agree
Total		430	3.7774	.55273	Agree	

Table (4.9) shows the result of analysis that arithmetic mean ranged between (3.96-3.63), the slandered deviation ranged between (.98-.67) and the overall degree of evaluation was Agree in arithmetic mean (3.77) and slandered deviation (0.55).

The researcher used the arithmetic mean, standard deviation for the variable “Variety of Big Data” of study tools as shown in table (4.10).

Table (4.10): The arithmetic mean, standard deviation

#	Variety of Big Data	N	Mean	Std. deviation	Rank	Degree of Evaluation
1-	Big data creates a variety of significant values for our bank	430	3.7047	.96258	7	Agree
2-	The Variety of Big data can help banks to be more strategic	430	3.9698	.60032	1	Agree
3-	Banks regard information from big data that is gathered from a variety of sources	430	3.8884	.69403	3	Agree
4-	Analyzing the variety of big data can discover the hidden pattern between knowledge	430	3.6860	.88317	8	Agree

	management processes and its performance.					
5-	A variety of sources of big data can increase social media and new technology	430	3.8977	.84663	2	Agree
6-	Big data variety improved knowledge management processes	430	3.8093	.64840	5	Agree
7-	Big data variety will increase the efficiency and effectiveness of work.	430	3.8047	.83007	6	Agree
8-	Using big data variety helps to gain effective information	430	3.8744	.66413	4	Agree
Total		430	3.8294	.50937	Agree	

Table (4.10) shows the result of analysis that arithmetic mean ranged between (3.97-3.69), the standard deviation ranged between (.96-.600) and the overall degree of evaluation was Agree in arithmetic mean (3.83) and standard deviation (.51).

The researcher used the arithmetic mean, standard deviation for the variable “Velocity of Big Data” of study tools as shown in table (4.11).

Table (4.11): The arithmetic mean, standard deviation

#	Velocity of Big Data	N	Mean	Std. deviation	Rank	Degree of Evaluation
1-	Big data needs to be structured to allow banks to work and use the information effectively	430	3.9442	.65252	1	Agree
2-	Use the velocity of big data effectively achieved advantages and continuous profitability	430	3.8442	.78232	2	Agree
3-	Big data velocity is used to provide speed in achieving tasks	430	3.7372	.96718	4	Agree
4-	Using Big data velocity to analyze the data on real time to users	430	3.5837	.74559	8	Agree
5-	Big data velocity exceeds the capabilities of auditing the data	430	3.8372	.60032	3	Agree

6-	Big data velocity improved knowledge management processes	430	3.7209	.69045	5	Agree
7-	Big data velocity will increase the efficiency and effectiveness of work	430	3.5930	.92842	7	Agree
8-	Banks have a sufficient control and monitor over big data velocity	430	3.6512	1.04633	6	Agree
Total		430	3.7390	.54619	Agree	

Table (4.11) shows the result of analysis that arithmetic mean ranged between (3.94-3.58), the standard deviation ranged between (1.0-.600) and the overall degree of evaluation was Agree in arithmetic mean (3.74) and standard deviation (.55).

The researcher used the arithmetic mean, standard deviation for the variable “Value of Big Data” of study tools as shown in table (4.12).

Table (4.12): The arithmetic mean, standard deviation

#	Value of Big Data	N	Mean	Std. Deviation	Rank	Degree of Evaluation
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1-	Using effective knowledge management processes for taking a value from Big data, optimizing recourses allocation	430	3.8860	.70201	7	Agree
2-	Using valuable knowledge from big data can solve many problems that banks faces.	430	4.0674	.83770	3	Agree
3-	The good value of big data can increase the performance of knowledge management process	430	3.9837	.75861	5	Agree
4-	using valuable big data can increase profits and productivity	430	4.0907	.67500	2	Agree
5-	The value of big data improved knowledge management processes	430	3.8651	.90347	8	Agree
6-	The value of big data can support the important decisions	430	3.9256	.94563	6	Agree

7-	The value of big data will increase the efficiency and effectiveness of work.	430	4.1535	.60277	1	Agree
8-	Managing knowledge processes in an effective way can lead to control the value of big data	430	4.0558	.83157	4	Agree
Total		430	4.0035	.53148	Agree	

Table (4.12) shows the result of analysis that arithmetic mean ranged between (4.15-3.87), the slandered deviation ranged between (.95-.603) and the overall degree of evaluation was Agree in arithmetic mean (4.004) and slandered deviation (.531).

The researcher used the arithmetic mean, standard deviation for the variable “Knowledge Management Process” of study tools as shown in table (4.13).

Table (4.13): The arithmetic mean, standard deviation

#	Knowledge Management Process	N	Mean	Std. Deviation	Rank	Degree of Evaluation
1-	Creating effective knowledge and using valuable	430	3.9953	.98472	8	Agree

	information can increase profits and productivity					
2-	Creating knowledge management is an integral part of competitive markets	430	4.1512	.82102	2	Agree
3-	Acquiring the knowledge can develop marketing strategies and sales planning	430	4.1837	.65932	1	Agree
4-	The Acquisition of knowledge helps to analyze the information	430	4.065	.63516	5	Agree
5-	Acquiring knowledge is a good way to store a big amount of data	430	4.0395	.81981	6	Agree
6-	Sharing big data with other organizations leads to more ideas that benefit each other	V	4.1000	.75215	3	Agree
7-	Sharing Knowledge is used to manage and develop plans to accomplish objectives.	430	3.8837	.70328	9	Agree

8-	Applying big data can be beneficial to innovate new business model	430	4.0302	.86449	7	Agree
9-	Using big data can predict consumer behavior by applying the knowledge	430	3.8628	.87560	10	Agree
10-	Applying big data helps to be aware about many problems that banks face	430	4.0535	.71574	4	Agree
Total		430	4.0347	.48917	Agree	

Table (4.13) shows the result of analysis that arithmetic mean ranged between (4.18-3.9), the slandered deviation ranged between (.98-.64) and the overall degree of evaluation was Agree in arithmetic mean (4.03) and slandered deviation (.49).

4.4 Hypothesis testing

H₀₁: There is no relationship between Big Data: (Volume, Varity, Velocity, Value), and the KM process (Creation, Acquisition, Share, and Application) in Jordanian commercial banks.

To answer the first hypothesis, the researcher used a correlation between Big Data and Knowledge Management Process.

Table (4.14): Correlation between Big Data and Knowledge Management Process.

Correlation for Ho1	Sig.
.763a	0.0

Table (4.14) shows that there is a Relationship between Big Data and Knowledge Management Process, the value of Sig. (0.00) and this value is statistically significant ($\alpha = 0.05$).

H₀₂: There is no relationship between Big Data Volume, and KM process (Creation, Acquisition, Share, and Application) in Jordanian commercial banks, at the level of significance ($\alpha \leq 0.05$).

To answer the second hypothesis, the researcher used a correlation between Big Data Volume and Knowledge Management Process.

Table (4.15): correlation between Big Data Volume and Knowledge Management Process.

Correlation for Ho2	Sig.
.614a	0.0

Table (4.15) shows that there is a Relationship between Big Data Volume and Knowledge Management Process, the value Sig. (0.00) and this value is statistically significant ($\alpha = 0.05$).

H₀₃: There is no relationship between Big Data Variety, and KM process (Creation, Acquisition, Share, and Application) in Jordanian commercial banks, at the level of significance ($\alpha \leq 0.05$).

To answer the third hypothesis, the researcher used a correlation between Big Data Variety and Knowledge Management Process.

Table (4.16): Correlation between Big Data Variety and Knowledge Management Process.

Correlation for Ho3	Sig.
.789a	0.0

Table (4.16) shows that there is a Relationship between Big Data Variety and Knowledge Management Process, the value of Sig. (0.00) and this value is statistically significant ($\alpha = 0.05$).

H₀₄: There is no relationship between Big Data Velocity and KM process (Creation, Acquisition, Share, and Application) in Jordanian commercial banks, at the level of significance ($\alpha \leq 0.05$).

To answer the fourth hypothesis, the researcher used a correlation between Big Data Velocity and Knowledge Management Process.

Table (4.17): Correlation between Big Data Velocity and Knowledge Management Process.

Correlation for Ho4	Sig.
.636a	0.0

Table (4.17) shows that there is a Relationship between Big Data Velocity and Knowledge Management Process, the value of Sig. (0.00) and this value is statistically significant ($\alpha = 0.05$).

H₀₅: There is no relationship between Big Data Value and KM process (Creation, Acquisition, Share, and Application) in Jordanian commercial banks, at the level of significance ($\alpha \leq 0.05$).

To answer the fifth hypothesis, the researcher used a correlation between Big Data Value and Knowledge Management Process.

Table (4.18): correlation between Big Data Value and Knowledge Management Process.

Correlation (R) for Ho4	Sig.
.682a	0.0

Table (4.18) shows that there is a Relationship between Big Data Value and Knowledge Management Process, the value of Sig. (0.00) and this value is statistically significant ($\alpha = 0.05$).

Chapter Five

Results, Conclusion and Recommendations

5.1 Introduction

5.2 The Main Results of this Study

5.3 Study Conclusions

5.4 Scientific Recommendation

5.5 Scientific Recommendation

Chapter Five

Results, Conclusion and Recommendations

5.1 Introduction

The main objective of this study is to investigate the relationship between Big Data and Knowledge Management Process at commercial banks in Amman. To achieve objectives of this study, the study has developed a model to measure the relationship between Big Data and Knowledge Management Process. 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 of Big Data which include (Volume, Variety, Velocity and Value) and the dependent variables of Knowledge Management Process which include (creation, acquisition, sharing and application). The model was applied and tested at commercial banks in Amman. Likewise, the study investigated the importance of Big Data, Knowledge Management process and relationship between them. In addition, the study tested if there is a relationship between Big Data and Knowledge Management Process, at the concerned banks.

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 reliable with (Omotage, 2015) study, which indicated the need to implement KM processes effectively and the need to generate knowledge to get its best results in organizations.
- There is a high degree of agreement on **“Knowledge Acquisition”** , from perspective among samples of this study. This result disagrees with (Almahamid, 2015) study, 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 reliable with (Almahamid, 2015) study which has a high degree of knowledge sharing on the capability of banks to identify any changes on workplaces.
- 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 Knowledge Management process to accomplish competitive advantage in telecommunication group “Orange” in Jordan. Also, (Almahamid, 2015) study, affirmed this result in an empirical study on Jordan commercial banks in which knowledge application has the top level in Knowledge Management process.
- There is a high degree of agreement on **“Big Data Volume”** , from perspective among samples of this study. This result reliable with (Moyne and Iskandar, 2017) study in

which stated that the Volume implies to the extent of the data that is being created and accumulated.

- There is a high degree of agreement on “**Big Data Variety**” , from perspective among sample of study. This result predictable with (Satyanarayana,2015) study in which stated Data being crated isn't of single classification as it consolidates the regular data as well as the semi organized data from various resources like website pages, Web Log Files, web-based social networking locales, email, reports.
- There is a high degree of agreement on “**Big Data Velocity**” , from perspective among samples of this study. This result consistent with (Satyanarayana, 2015) study which an idea manages the speed of the data beginning from various sources, this trademark isn't being limited to the speed of approaching data yet likewise speed at which the data streams and aggregated.
- There is a high degree of agreement on “**Big Data Value**” , from perspective among samples of this study. This result consistent with (Satyanarayana, 2015) study which Data is separating to discover high value. For example, logs from the site can't be used as a part of its basic structure to gain business value. It must be separate to anticipate the client direct.
- There is a relationship between Big Data (Volume, Variety, Velocity, value) and Knowledge Management Process (Creation, Acquisition, Sharing, and Application), at the level of significance ($\alpha \leq 0.05$). The study results confirmed by (Erickson and

Rothberg, 2014) study which supported Knowledge management and Big Data providing valuable organizational assets. Also, (Fredriksson,2015) study indicated that Knowledge Management with Big Data creating new possibilities for work environment.

- There is a relationship between Big Data Volume and Knowledge Management Process (Creation, Acquisition, Sharing, and Application), at the level of significance ($\alpha \leq 0.05$). (Sookhak et.al, 2017) study confirmed this result which Big data volume is used to find opportunities and develop working patterns, enhanced data quality. Also (Zhan et.al,2016) study indicated that Increase volume of big data increased the effective of work.
- There is a relationship between Big Data Variety and Knowledge Management Process (Creation, Acquisition, Sharing, and Application), at the level of significance ($\alpha \leq 0.05$). (Silwattananusarn and Tuamsuk, 2012) study confirmed this result which Analyzing the variety of big data can discover the hidden pattern between knowledge management processes and its performance. Also (Sookhak et.al,2017) study indicated that Big data variety increased the efficiency and effectiveness of work.
- There is a relationship between Big Data Velocity and Knowledge Management Process (Creation, Acquisition, Sharing, and Application), at the level of significance ($\alpha \leq 0.05$). (Baoan,2014). study confirmed this result which Big data velocity improved

knowledge management processes. Also (Erickson and Rothberg,2014) study indicated that Big data velocity increased the efficiency and effectiveness of work.

- There is a relationship between Big Data Value and Knowledge Management Process (Creation, Acquisition, Sharing, and Application), at the level of significance ($\alpha \leq 0.05$). (Erickson and Rothberg,2014). study confirmed this result which Using effective knowledge management processes for taking a value from Big data, optimizing recourses allocation. Also (fredriksson,2015) study indicated that the good value of big data can increase the performance of knowledge management process.

5.3 Study Conclusions

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

1. There is a real agreement within the commercial banks regarding the importance of Big Data and Knowledge Management Processes.
2. Managers, head of departments and employees at commercial banks in Amman believe that Big Data (Volume, Variety, Velocity, Value) and Knowledge Management Process (Creation, Acquisition, Sharing, and Application) to create new possibilities for work environment.
3. Commercial Banks would achieve excellent benefits of the Big Data and Knowledge Management process. If they pay more consideration of how invest Big Data (Volume, Variety, Velocity, Value) and knowledge Management Process (Creation, Acquisition, Sharing, and Application) in productive and effective way.

4. There is a high agreement with Big Data and Knowledge Management Process in commercial banks in Amman.

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 Big Data in their daily performance and organizations should support this through meeting, communication, lectures and brainstorming.
2. Top levels managers ought to be adapted for Big Data and organizations should support them to apply Big Data through different training programs.
3. Organizations should prepare different training programs for top level management to enhance their capabilities and skills in utilizing Big Data
4. Encourage all employees at all levels to share Big Data and useful information with their colleagues.
5. There is a need to establish a specialized unit within the organization to coordinate all efforts to implement Big Data in other units successfully and effectively.
6. To encourage the use of Big Data can generate new information and knowledge beneficial for organizations

5.5 Scientific Recommendation

7. Encourage others to conduct more studies and researches in field of Big Data and Knowledge Management Process in the future.
8. Encourage more studies in using different characteristics of Big Data such as Big Data complexity and Big Data Veracity and using different process of knowledge management such as capturing and reuse.
9. Encourage future studies in this field to use the same model but with larger sample.

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Appendix 1

List of Esteemed Academics that Arbitrated the Questionnaire

الدكتور محمد العضايبة	اعمال الكترونيه	دكتور
الدكتورة هبة ناصر الدين	اعمال الكترونيه	استاذ دكتور
الدكتورة هبة القضاة	اعمال الكترونيه	دكتور
الدكتور فراس أبو قاعود	اعمال الكترونيه	دكتور

Appendix 2



Research Questionnaire

Dear participant

The researcher is conducting a study entitled **“Analysis of the Relationship between Big Data and Knowledge Management Processes: A Field study in Jordanian Commercial Banks in Amman”**.

Please kindly give us a few minutes of your valuable time to answer the questions, knowing that the data will be used for scientific research only and will be treated confidentially.

I wish you continued progress

Researcher: Nadine Khalil Al-Hinn

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Middle East University,

Business Department,
Master Program in E-business
Amman, Jordan

Part 1: Demographic data

Please, give us a few minutes of your valuable time to answer the following questionnaire using multiple choice.

Gender

- A) Male. B) Female.

Age

- A) Less than 28 years. B) 29-37 years old.
C) 38-46 years old. D) 47-55 years old.
E) More than 55 years old.

Educational qualification

- A) College/ Diploma. B) Bachelor's Degree.
C) Master's Degree. D) PHD degree.
E) Other ...

Job Title

- A) Executive Manager. B) Administrative Manager.
C) Director General. D) Head of Section.
E) Other Position ...

Job level

A) Low -level.

B) Mid-level.

C) Top- level.

Years of experience

A) Less than 5 years.

C) 6-13 years.

B) 14-20 years.

D) More than 21 years.

Part 2: Questionnaire items

Using Big Data with knowledge management to create new possibilities and opportunities for organizations. (fredriksson,2015)

#	Relationship between Big Data and knowledge management processes. (fredriksson,2015), (Baoan,2014), (Sookhak et.al,2017)	Strongly disagree	disagree	Neural	agree	Strongly agree
1-	Big Data helps to discover the hidden knowledge in the enormous amount of data					
2-	Big Data can help guiding managers in determining strategies by using knowledge management processes					
3-	Addressing Big Data dimensions of fast growing data to develop knowledge management processes.					
4-	Banks rely on Big Data to contribute knowledge management progress					
5-	Banks need a knowledge management process in order to discover and utilize the Big Data					
6-	Evaluate the level of Big Data awareness is relevant toward the implication of KM processes					
7-	Using Big Data with knowledge management process can improve the capabilities of our organization					

Big Data: characterized as substantial measure of information which requires new advances and models to make conceivable to extricate an incentive from it by catching and examination process (Satyanarayana ,2015).

The four V's characteristics of Big data are (volume, variety, velocity, value).

#	Volume of big data (Sookhak et.al,2017), (Zhan et.al,2016), (Baoan,2014).	Strongly disagree	disagree	Neural	agree	Strongly agree
1-	Big data volume is used to find opportunities and develop working patterns.					
2-	Big data volume enhanced data quality.					
3-	Using large amount of data enables banks to predict the future outlook for many important decisions.					
4-	The use of big data helps to achieve effective information.					
5-	Increase volume of big data will increase the effective of work.					
6-	Using large data to extract the knowledge for decision maker.					
7-	Large amount of data can generate new information and knowledge beneficial for banks.					
#	Variety of Big Data (Zhan et.al,2016), (Silwattananusarn and Tuamsuk, 2012)	Strongly disagree	disagree	Neural	agree	Strongly agree

1-	Big data creates a variety of significant values for our bank					
2-	The Variety of Big data can help banks to be more strategic					
3-	Banks regard information from big data that is gathered from a variety of sources					
4-	Analyzing the variety of big data can discover the hidden pattern between knowledge management processes and its performance.					
5-	A variety of sources of big data can increase social media and new technology.					
6-	Big data variety improved knowledge management processes					
7-	Big data variety will increase the efficiency and effectiveness of work.					
8-	Using big data variety helps to gain effective information.					
#	Velocity of Big Data) (Erickson and Rothberg,2014), (Baoan,2014).	Strongly disagree	disagree	Neural	agree	Strongly agree
1-	Big data needs to be structured to allow banks to work and use the information effectively					
2-	Use the velocity of big data effectively achieved					

	advantages and continuous profitability					
3-	Big data velocity is used to provide speed in achieving tasks					
4-	Using Big data velocity to analyze the data on real time to users					
5-	Big data velocity exceeds the capabilities of auditing the data					
6-	Big data velocity improved knowledge management processes					
7-	Big data velocity will increase the efficiency and effectiveness of work					
8-	Banks have a sufficient control and monitor over big data velocity					
#	Value of Big Data. (fredriksson,2015)),(Erickson and Rothberg,2014),(Baoan,2014).	Strongly disagree	disagree	Neural	agree	Strongly agree
1-	Using effective knowledge management processes for taking a value from Big data, optimizing recourses allocation					
2-	Using valuable knowledge from big data can solve many problems that banks faces.					
3-	The good value of big data can increase the performance					

	of knowledge management process					
4-	using valuable big data can increase profits and productivity					
5-	The value of big data improved knowledge management processes					
6-	The value of big data can support the important decisions					
7-	The value of big data will increase the efficiency and effectiveness of work.					
8-	Managing knowledge processes in an effective way can lead to control the value of big data					

Knowledge Management (KM): is a systematic coordination to organize people, process, technology, and organizational structure to add value through reuse, innovation, and promote knowledge creation, acquisition, share, and application to enhance continues with organizational learning (Dalkir, 2011).

#	Knowledge management processes. (fredriksson,2015),(Erickson and Rothberg,2014),(Baoan,2014), (Silwattananusarn and Tuamsuk, 2012).	Strongly disagree	disagree	Neural	agree	Strongly agree
1-	Creating effective knowledge and using valuable information can increase profits and productivity					
2-	Creating knowledge management is an integral part of competitive markets					
3-	Acquiring the knowledge can develop marketing strategies and sales planning					
4-	The Acquisition of knowledge helps to analyze the information					
5-	Acquiring knowledge is a good way to store a big amount of data					
6-	Sharing big data with other organizations leads to more ideas that benefit each other					
7-	Sharing Knowledge is used to manage and develop plans to accomplish objectives.					
8-	Applying big data can be beneficial to innovate new business model					
9-	Using big data can predict consumer behavior by applying the knowledge					
10-	Applying big data helps to be aware about many problems that banks face					