The Impact of Knowledge Management Uses on Total Quality Management Practices: An Empirical Study on Commercial Banks of Jordan

Lama Hashem
Department of Business Management, School of Business
The University of Jordan, Amman, Jordan
Mais Jaradat
Master of Engineering Project Management
The University of Jordan, Amman, Jordan E-mail: Maisjaradat@gmail.com

Abstract:
This study tested the impact of knowledge management uses on total quality management practices in commercial banks of Jordan. A quantitative research design, using regression analysis was applied in this study and a total of 250 valid returns were obtained through a questionnaire distributed to the employees of commercial banks in Jordan. Knowledge management uses was adopted as an independent variable with four subgroups: knowledge acquisition, knowledge storage, knowledge transfer and knowledge application. Total quality management practices were adopted as dependent variable with five subgroups: top management support, employee's involvement, continuous improvement, customer focus, and data driven decision management. The results show that three of the knowledge management dimensions (i.e. knowledge acquisition, knowledge storage, and knowledge transfer) significantly affects total quality management practices. However, knowledge application showed insignificant effect. The theoretical and practical implications of this study are discussed at the end of this paper.

Keywords:
Knowledge management, knowledge management uses, total quality management, total quality management practices, developing countries, commercial banks, Jordan

Introduction
Knowledge Management (KM) is an idea that covers a set of approaches and practices in order to generate, save and spread knowledge and practice within the business (Loria, 2008; Obeidat et al., 2017; Abualoush et al., 2018a, 2018b). There are no clear and exact ways to clarify how business should work with knowledge management. Consequently, every business is unique by the resources that it exists in a definite context, having its workers, its set of clients, its own market and its own competitors (Masa'deh et al., 2013a, 2013b; 2015a, 2015b, 2015c; Khalayleh et al., 2017). When leaders of a society want to reflect the idea of knowledge management, they must develop precise policies in accordance with that idea and provide the staff with adequate needed capitals. However, the leaders can neither control the course of the knowledge nor control to what degree they are following these policies (Al-Syaidh & Al-Zu'bi, 2014; AL-Syaidh et al., 2016). The only thing they can do is to inspire the workers to follow the selected strategies or encourage them to self-organize and how they should work with knowledge management (Danish et al. 2014). There is no single path to achieve total quality within an organization. There are no hard and fast rules to follow to become a world class company. The only constants are basic guidelines, that, when followed, lead to success. This is because all organizations have their own cultures, people, and technologies. What may work well for one company will not necessarily work for another (Pekar, 2005; Al Azmi et al., 2012; Obeidat et al., 2012; Shannak & Obeidat, 2012).

To increase competitive rewards, knowledge management and how administrations release the practices expanded in projects are critical topics for commercial banks nowadays. Commercial banks, especially, those which are project-based companies have to gain by considering knowledge management strategies in their organization (Montes et al., 2003). Much of the literature has focused on what should companies in hiring consultants do in order to confirm that knowledge stays in the organization. Slight attention has been given in how do commercial banks work with knowledge management activities and their acquired knowledge from projects. Because of the sufficiency in resources and the dynamic and flexible nature of small businesses; commercial Banks make it even more special (Kaynak, 2003; Mondy, 2013).

Commercial banks are more able to dedicate resources for knowledge management, and to build total quality management. Commercial Banks rely on gathering, processing, analyzing and providing information in order to meet the needs of customers. Banks were among the earliest adopters of automated information processing technology (Tang, 2006; Kateb et al., 2015; Hassouna et al., 2015; Masa'deh et al., 2018). Banks in the Jordanian sector have adapted total quality management to enhance the value of their banks, financially and socially, and to increase Return on Equity in order to become more reasonable in national and regional banking markets (Abu Baker, 2013; Obiedat et al., 2016). The banks also have provided banking services of high quality to trade and corporate customers, which meet purchaser's needs and surpass their anticipations, in line with the latest progresses in international financial and banking markets.

This study specifically aims to determine the effect of knowledge management uses on total quality management practices in the commercial banks in Jordan. To the best of the authors' knowledge, there are few studies that investigate effect of knowledge management uses on total quality management practices (e.g. Ju et al., 2006; Honarpour et al., 2012) and this study is the first to be tested in the commercial banks in Jordan which highlight the importance of conducting such a study.

Literature Review
The theoretical framework for this study is drawn from literature which forces mainly on two relevant areas: knowledge management and total quality management.

Knowledge Management (KM)
Knowledge management discusses a methodical and integrative procedure that helps organizations to find, organize, allocate and transfer important evidence, knowledge, and expertise which is essential for actions such as problem resolving, self-motivated learning, strategic planning, and decision-making to accomplish the goals of the organization (Gupta et al. 2000; Lawson 2013; Danish et al. 2014). The following Knowledge Management Uses are considered to be the most important uses (knowledge acquisition, knowledge storage, knowledge transfer and knowledge application (Hajir et al., 2014).

Knowledge Acquisition
Ractham (2012) defined knowledge acquisition as the process of the development and creation of insight, skill and relationships. For knowledge to be acquired there should be willingness and ability of a recipient to acquire and use knowledge which is crucial elements (Gupta, 2000). During the process of knowledge acquisition, it is important that both source and recipient should be

willing to share. There are five motivational drivers that should be taken into consideration: attitude towards knowledge sharing, cost and benefit, subjective norms and organizational climate and perceived value of knowledge (Ford & Staples, 2010; Al-dalahmeh et al., 2018). Knowledge acquisition envisages learning from others through interaction between recipient and source. Nonaka & Takeuchi (2015) indicate that the SECI (socialization, externalization, combination, and internalization) and models play important roles in knowledge acquisition through interaction and collaboration with other individual systems.

Knowledge Storage

Stein & Zwass (2005) have highlighted that storage and retrieval of organizational knowledge are referred as administrative memory which includes knowledge residing in numerous form such as written records, documented managerial policies and measures, and organized knowledge stored in database, data warehouse or other business intelligence tools. So knowledge storage is the process of recognizing new information as relevant and essential for current and future use and storage it in reasonable forms so that anyone in the organization can access it (Alkandari et al., 2017).

Knowledge Transfer

Knowledge transfer is the knowledge wherever the data recipient acquires identical data because the data supplied and internalizes the data to create his/her new data (Krogh & Roos, 1995).The basic framework needed to research information transfer among a corporation involves three areas of interest: the information characteristics, the activities of information transfer, and also the actual transfer performance (Cummings, 2002; Young, 2013). Information transfer is that the sensible drawback of transferring information from one a part of the organization to a different. Like information management, information transfer seeks to arrange, create, capture or distribute information and guarantee its availableness for future users (Fotopoulos & Psomas, 2010).

Knowledge Application

Knowledge application or reuse to decision-making processes, related to business strategy, task implementations, service delivery, and organizational performance and effectiveness. Knowledge application processes are those processes oriented toward the actual use of knowledge (Gold et al., 2011; Pacharapha & Vathanophas, 2012). Wiig (2007) noted that the value of knowledge assets is realized when the assets are used to create products or deliver services, or when they are sold or traded for value. Knowledge application is the ability of employees to use knowledge for the purpose of creating frameworks for solving problems and dealing with challenges in the organization. It is also the actual use of knowledge that has been captured or created and put into the KM cycle and also for the practical usage in the banking

forms according to financial real application used in the real banking and business situations.

Total Quality Management (TQM)

Total quality management is defined as "a management approach of an organization, centered on quality, based on participation of all members and aimed at long-term success through customer satisfaction, and benefits to all members of the organization and the society"(ISO 8402:1994). TQM is a constant procedure of development for individuals, and the whole organization. Commercial banks yield a product that is intangible. Usually, the completed product cannot be seen or touched; rather, it is experienced (Wang et al., 2012).

In this research, the TQM practices that were selected for banking sector are: top management support, employee's involvement, continuous improvement, customer focus and data driven decision management. These practices have been identified as the key practices of TQM in service industries, and in the promotion of service quality (Sweis et al., 2013, p. 274).

Top Management Support

The importance of top management support has long been documented in the previous studies (Young & Jordan, 2008). However, consultants and researchers alike have absorbed their courtesy. Prescriptions for top management support are not well established. Some impose very challenging requirements for top management resources simply to improve technical quality or user happiness, goals of little direct interest to top managers. Other preparations for communication, enthusiasm, involvement and contribution appear to be little more than exhortation. Top management support is generally endorsed as being inherently good but there is clear indication that too much top management support can be dysfunctional and lead to failure. Projects can succeed without following the general prescriptions for top management support and others can fail while following all the common prescriptions. As a result, the advice for top managers lacks trustworthiness. However, few would distrust the need for top management support and top management support is consistently recognized as a critical success factor. The problem is that current preparations are practitioner-led and mantra-like in their call for top management support. Top managers have the freedom to provide or withhold their funding, but current instructions are failing to have any important effect on their behavior.

Employee's Involvement

Colleages (2006) found no provision for the idea that the mere attendance of employee participation and contribution is related with positive employee perceptions of participation practices. It was also recommended by them that the quantity and mix of practices is the key matter in the participation and commitment relation. Research indicates that participation is not usually needed

to gain commitment toward objectives, but having employee participation in the planning can be a current means of development commitment with the organization. Participation can be mainly helpful in emerging plans for applying goal. For these reasons, managers often include assistants in goal setting and in the subsequent planning of how to attain the goal. It is observed that employee's promise to the organization is strong among those whose leaders allow them to contribute in decision making (AlHarrasi & AL-Lozi, 2015; AlHarrasi et al.., 2016; Darawsheh et al., 2016). The need for employees to be more complicated in decisions that affect their work has been a center of argument in current management issues (Hales, 2010).

Continuous Improvement

Continuous improvement is a quality philosophy which assumes that further improvements are always possible and that processes should be continuously re-evaluated and improvements implemented (Juergensen, 2005). It is also the process of seeking small improvements in processes and products, with the objective of increasing quality and reducing waste. The belief that an organization must constantly measure the effectiveness of its processes and strive to meet more difficult objectives to satisfy its customers also constitutes continuous improvement. Continuous improvement (CI) can be considered an ongoing effort to improve products, services or processes. These efforts can seek "incremental" improvement over time or "breakthrough" improvement all at once (Bhuiyan & Baghel, 2005, p. 761). CI's importance manifests itself in terms of the role it plays in quality improvement, customer satisfaction, employee engagement and productivity. Continuous Improvement is essentially a quality journey that is never ending (Oakland, 2007) and its main emphasis per Deming's teachings, lies in never accepting that the way business operates today is the best way, even in the face of profitability. Continuous Improvement in context of Kaizen means improving performance in many small, incremental steps. In Japan, continuous improvement is called kaizen. The word means continuous improvement, involving everyone in an organization. CI is a philosophy that Deming described simply as consisting of "Improvement initiatives that increase successes and reduce failures" (Juergensen, 2005, p .761).

Customer Focus

Retaining customers and attracting them has constituted one of the toughest and most challenging activities of financial institutions in most developing countries like Nigeria (Banabo & Koroye, 2011). Among the litany of problems faced by financial institutions, key operate in a highly competitive banking industry, hence the consistently strategies on different forms of sales promotion strategies to attract depositors as well as incur huge cost in training and retraining personnel for more efficient service delivery. This is a result of the

competitiveness of the industry and the struggle for survival of banks especially in the face of the post consolidation challenges that still on-going.

The total quality management approach outline by Stevenson (2007) supports the fact that TQM is customer focus. This approach is describe as follows: find out what the customer wants; design a product or service that meets or exceeds customer wants; design processes that facilitates doing the job right the first time; keep track of results and extend these concepts to suppliers. Focusing on both internal and external customers' needs or understanding the customers is the driving force behind TQM schemes (Stevenson, 2007).

Data-Driven Decision Management
Recent Emphasis on Data–Driven Decision Making (DDDM) has resulted in a vast body of research elucidating the power of DDDM for school, classroom, and student improvement. DDDM refers to systematic collection and use of many forms of data from a variety of sources in order to improve student performance (Choppin, 2002; Marsh, Pane & Hamilton, 2012). DDDM is more than a system for accountability; at the classroom level, DDDM is a learner-centered teaching tool that supports differentiated instruction by providing information that helps teachers tailor instruction to fit class and individual learning needs (Rallis & MacMullen, 2010). Thus, a major challenge for data-focused educational reform is the identification and implementation of effective professional development practices that lead to transformed instruction (U.S. Department of Education, Institute of Education Sciences, 2009). However, the chain of inferences from teacher use of data systems, to teacher data analysis, to changed instruction, and to improved student outcomes is currently weak (U.S. Department of Education, Institute of Education Sciences, 2009). Furthermore, research related to the change process associated with teacher adoption of DDDM practices is almost nonexistent.

This study focuses on the pre-mentioned variables as they are the most common variables that are used and related to banks in Jordan to provide superior customer value and meet customer needs.

Knowledge Management- Total Quality Management Relationship
Few researchers recently expressed their interest in the relationship of TQM and KM, but, they have not achieved a consensus toward conceptualizing this relation. These practical studies are the ones conducted by (Molina et al., 2007; Hung et al., 2011; Baker, 2014) considered this relationship related to innovation. According to Molina et al. (2007), performance is the criterion. However, these results have different settings in respect of the nature of the relationship. Hung et al. (2010) showed that TQM is a mediator in the relationship between KM and innovation, while Molina et al. (2007) considered

knowledge transfer as a mediator between TQM and performance. However, in respect of the methodical aspect of the mediator concept, the mediator represents the general mechanism by which the focal independent variable is able to influence the dependent variable of interest.

These results assure credibility of the relate literature of the relationship. However, some researchers considered KM as a facilitator to TQM (Barber et al., 2006; Stewart & Waddell, 2008) other scholars concerned TQM as an antecedent or KM (Lin & Wu, 2005; Choo et al., 2007; Molina et al., 2007; Colurcio, 2009; Jayawara & Holt, 2009; Frick, 2014).

The relationship between TQM and KM understood in different ways. From one perspective Km is determined as an activator to TQM. Stewart & Waddell (2008) mentioned that widening the concept of quality for product and service specifications as a quick response to customer needs, clear the relationship between KM and TQM.

Gaining the knowledge and spreading it brings about a quality culture which creates understandable frame work according to quality programs and KM (Al-Salti & Hackney, 2011).

On other hand, there are many approaches supposes that TQM is a supporter for KM. Lin & Lee (2005) presented ISO 9000 process-based knowledge management system architecture, which support knowledge flow in the organization. Abu-Shanab et al. (2014) in a case study research revealed that TQM practices are facilitators of Knowledge Creation and dissemination. Choo et al. (2007) introduces a conceptual framework based on quality programs and KM. Jayawarana & Holt (2009) analyzed the relationship between knowledge creation and transformation in the research and development context. Based on their case study research, they concluded that TQM practices improve knowledge creation and transformation. Finally, Molina et al. (2007) examined the relationship between TQM practices and knowledge transformation.

Theoretical Framework
In this study, the dependent variable is total quality management and the independent variable is knowledge management uses. Figure 1 illustrates the theoretical framework developed for this study.
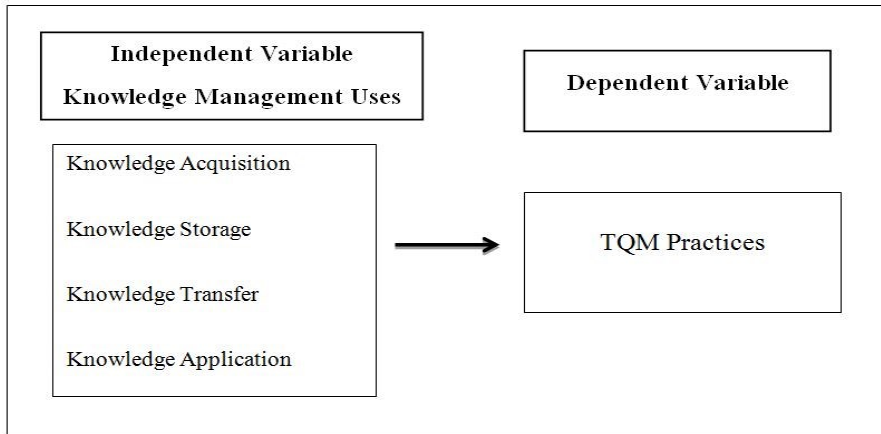
Figure 1: The proposed theoretical framework
Operational Definitions of Variables
Total Quality Management Practices (Dependent Variable)
Top Management Support
It is the most important critical success factor for project success and it is not simply one of many factors. The finding is justified in the context of the project management literature and the IS factor research on project success. There are implications for practice because it appears that the conventional technical and project management advice has less impact on project success than previously thought. Boards and top managers may have personally accepted that they have more influence on whether a project succeeds or fails. The measure and scale used for top management support can be shown in Appendix 1.

Employee's Involvement
One of the greatest underlying factors in the success or failure of any organization is the power of its people, and how well that power is focused towards meeting the organization's objectives. The measure and scale used for Employee's involvement can be shown in Appendix 1.

Continuous Improvement
It is an ongoing effort to improve products, services and processes. These efforts can seek incremental improvement over time or breakthrough improvement all at once. Accordingly, the measure and scale used for continuous improvement can be shown in Appendix 1.

Customer Focus
Total Quality Management firms focus on serving the external customers. They should know first the customers' expectations and requirements and then offer the products/services, accordingly. By the aid of successful customer focus efforts, production can be arranged with respect to the customers' needs,

expectations, and complaints. This encourages firms to produce high quality and reliable products/services on time with increased efficiency and productivity. When customer expectations are met, their satisfaction will increase as well as the firm's sales and market. Accordingly, the measure and scale used for customer focus can be shown in Appendix 1.

Data-Driven Decision Management (DDDM)

It is an approach to business governance that values decisions which can be backed up with data and be verified. The data-driven approach is gaining popularity within the enterprise as the amount of available data increases in tandem with market pressures. Accordingly the measure and scale used for Data driven Decision Management can be shown in Appendix 1.

Knowledge Management (Independent Variable)

Knowledge Acquisition

It is defined as an improved use of existing knowledge and effectively producing new knowledge through active conversation and externalized and distributed as new knowledge. The acquisition and creation of organizational knowledge involves not only the organization knowledge related to the organization's purposes, vision, mission, and principles, but also the sharing and circulating of personal experience.

Knowledge Storage

It is the process of identifying new knowledge as relevant and important process for current and future use, and storing it in reasonable forms so that anyone in the organization can access it. Accordingly, knowledge storage has been measured using four questions adopted from the work of Bourini et al. (2013) and Manivannan et al. (2014).

Knowledge Transfer

It is critical in Knowledge Management processes. Knowledge transfer describes the business process that distributes and transmits knowledge among individuals or groups who are participating in process activities within or across organizations.

Knowledge Application

It refers to the processes of applying knowledge to new situations in which users can learn and generate new knowledge and having effective storage and retrieval mechanisms that allow the organization to access that knowledge easily.

Hypotheses

In order to test the effect of knowledge management uses on total quality management practices in commercial banks of Jordan, the following hypotheses were developed:

- H1: There is no significant effect of knowledge management uses on total quality management practices in commercial banks in Jordan.
- H1.1: There is no significant effect of knowledge acquisition on total quality management practices in commercial banks in Jordan.
- H1.2: There is no significant effect of Knowledge storage on total quality management practices in commercial banks in Jordan.
- H1.3: There is no significant effect of Knowledge transfer on total quality management practices in commercial banks in Jordan.
- H1.4: There is no significant effect of Knowledge application on total quality management practices in commercial banks in Jordan.

Methodology

This research is a quantitative research, to achieve this research goal data were collected using a self-administrated questionnaire using a convenience sampling techniques. The questionnaire consist of two sections, section one contained the demographic questions, while section two contained the main variables items.

Total quality management scale was adopted from (Al-Shobaki et al., 2010). While, knowledge management questions were adopted from previous researchers, Knowledge acquisition was adopted the work of Bourini et al. (2013) and Girard (2013), knowledge storage has been measured using four questions adopted from the work of Bourini et al. (2013) and Manivannan et al. (2014). Knowledge transfer has been measured using four questions adopted from the work of Bourini et al. (2013) and Popli & Ropian (2014). Knowledge application was measured using four items adopted from the work of Bourini et al. (2013).   and the items used to measure this question can be shown in Appendix 1.

More specifically, the questionnaire was distributed to 300 projects stakeholders (directors, project managers, customer service, quality management employees) working in commercial banks Amman/Jordan. 250 completed questionnaires were returned yielding a 70% response rate. A 5-Likert scale ranging from 1-Strongly disagree to 5-Stongly agree was used to measure the items used in this study. Before the data was collected, the questionnaire has been explained on the arbitrators with a group of jurisdiction of the faculty members from number of professors of the University of Jordan, majoring in business administration, in order to ensure validity of the data collection, and after retrieving the questionnaires, the researchers conducted the proposed amendments of the arbitrators before being distributed to a sample study.

After that, the questionnaire was also tested with 20 potential respondents to check the questionnaire for content validity and to make sure that the tool that was used in this study actually measure what should be measured. In this study, scale reliability was assessed using Cronbach's alpha coefficient. The internal consistency coefficient should be minimum 0.60 (Hair et al., 2010; Sekaran & Bougie, 2013). The results in Table 1 show that Cronbach's alpha coefficient range from 0.619 to 0.79. Therefore, all values are highly reliable since alpha above 0.6. This result indicates a good internal consistency among the items related to its dimensions, also to each variable, and the entire scale.

Table 1. Reliability of the items used in this study

Construct	Number of Items	Cronbach's Alpha Values
Top Management Support	3	0.703
Employees Involvement	6	0.653
Continuous Improvement	8	0.658
Customer Focus	4	0.619
Data-Driven Decision Management	3	0.756
TQM Practices		0.616
Knowledge Acquisition	6	0.684
Knowledge Storage	5	0.66
Knowledge Transfer	4	0.790
Knowledge Application	4	0.656
Knowledge Management Practices		0.752

DATA ANALYSIS AND DISCUSSION
Demographic Characteristics of the Respondents
The data collected through the questionnaire distributed to the employees were analyzed using Statistical Package for Social Science version 21.0.The demographic characteristics of the respondents can be shown in table 2.

Table 2. The respondents' profile

Respondent's characteristics	Frequency	Percentages
Gender		
Male	178	71.2
Female	72	28.8

Qualification		
Bachelor	223	89.2
Master	19	7.6
PhD	8	3.2
Experience		
Lower than 5 years	146	58.4
5 years to lower than 10 years	72	28.8
10 years to lower than 15 years	18	7.2
15 years to lower than 20 years	7	2.8
20 years and above	7	2.8

As can be shown in Table 2, among the 250 usable questionnaires, there was 178 (71.2%) male and 72 (28.2%) female. Furthermore, Table 2also shows that respondents who have bachelor qualification form (89.2%) and who have a master degree form (7.6%). Moreover, table 2 reveals that respondents who have experience lower than 5 years form (58.4%) and people who have 5 years to lower than 10 years experience form (28.8%). Also, people who have 10 years to lower than 15 years experience form (7.2%). However, people who have 15 years to lower than 20 years and people who have 20 years and above experience form the same percent (2.8%).

Descriptive Analysis
The descriptive statistics of the constructs used in the proposed research model can be shown Appendix 1. The results in Appendix1 show that the standard deviations ranged from .916 to 1.64 which indicate a narrow spread around the mean. In addition, all means were above the mid-point of 2.5 and most of the variables were classified "high". The results show that the majority of respondents express generally positive answers to the variables used in the research model. More specifically, the results reveal that the Jordanian commercial banks present the TQM concept to their employees and have a sufficient training department for their employees. In addition, it can be noticed that Jordanian banks allow their employees to establish and carry out their job by the methods and means they believe appropriate. Also, results indicated that the Jordanian banks look to be in the running with the knowledge of modern technology in the field of communication through giving scholarships to their employee. Moreover, the majorities of Jordanian banks encourage their employees to gain more knowledge from the experience of successful international practices and also encourages their staffs and workers to participate in the training programs inside and outside Jordan to gain more information in their fields, which in turn lead to enhance the performance.

Also, the bank administration shares its staffs in discovering the appropriate results and solutions to the problems that face the department they are working in. The results showed also that the bank management enhanced and established the motivation configuration to suit the TQM concept. Also, the Jordanian bank management inspires and become accustomed to the new ideas. Therefore, the improvement in the Jordanian banks is a continuous process. Furthermore, it can be noticed that Jordanian banks always looking to satisfy their customer needs and has general strategic goals for the quality. Moreover, it can be noticed that Jordanian banks management aims to reduce the cost of different financial procedures and have strategy plan to present the TQM concept to their staffs. Also, the Jordanian bank has a credential system that is appropriate for all workers in all levels. Also, Jordanian banks have a database and procedures that aim to make steps that required providing the service, easier. Furthermore, Jordanian commercial banks take a great attention to encourage the innovative ideas and suggestions that provided by their workers.

Hypotheses Testing
In order to examine the study hypotheses the multiple regression analysis was applied. The result of the study hypotheses will be displayed in the table below:

Table 3. The results of the hypotheses testing

	Model summary			ANOVA		Coefficients(a)	
	R	R^2	Adjusted R Square	F-value	Sig		
	.35 2	0.1 24	0.109	8.652	0.00 0	t	Sig.
Knowledge Acquisition						2.229	0.0 27
Knowledge Storage						3.557	0.0 00
Knowledge Transfer						2.245	0.0 26
Knowledge Application						0.275	0.7 84

It can be seen from the result in table (3) that the multiple correlation coefficient R = 0.352 indicates that there is a positive correlation between total quality management and knowledge management. Also, the value of R^2 = 0.124. This means that the knowledge management can account (12.4%) of the variation of the total quality management. It is noticed that the value of adjusted R^2 is very close to the value of R^2. If the adjusted R^2 is excluded from R^2 (0.124-0.109) =

0.015. This little shrinking (0.015) means that if the model has been fitted when the whole population participates in the study, there will be 0.015 less variance in the outcome. The above table also shows the analysis of variance (ANOVA) which is used to statistically test the main hypothesis. It can be seen from the above table that there is a statistical effect of knowledge management on total quality management.

Furthermore, the above table shows that the Knowledge Acquisition has a statistical effect on total quality management at P-value (0.027) and the T calculated (2.229) is higher than the T tabulated (1.96). Also, the table above reveals that the Knowledge Storage has a statistical effect on total quality management at a significant level (0.05), where the P-value is (0.000). Moreover, the results in the above table show that the Knowledge Transfer has a statistical effect on total quality management at P-value (0.026) at a significant level (0.05). Whereas, the above table shows that Knowledge Application has no statistical effect on the total quality management, where the T calculated (0.275) is lower than the T tabulated (1.96).

Table 4. Summary of the study hypothesis results

Study hypothesis	result
H1: There is no significant effect of knowledge management uses on total quality management practices in commercial banks in Jordan	Rejected
H1.1: There is no significant effect of knowledge acquisition on total quality management practices in commercial banks in Jordan	Rejected
H1.2: There is no significant effect of Knowledge storage on total quality management practices in commercial banks in Jordan.	Rejected
H1.3: There is no significant effect of Knowledge transfer on total quality management practices in commercial banks in Jordan	Rejected
H1.4: There is no significant effect of Knowledge application on total quality management practices in commercial banks in Jordan.	Accepted

As can be shown in Table 4, H1, H1.1, H1.2 and H1.3 were rejected, while H1.4 was accepted.

Discussion, Conclusion and Recommendations

This study is devoted to identify the knowledge management and to present its role in effect on Total quality management through (Top Management support, Employees involvement, Continuous Improvement, Customer Focus, Data driven Decision Management, Knowledge Storage, Knowledge Application, Knowledge Acquisition, Knowledge Transfer)in enhancing the quality of service at banks and service firms in Jordan. The fundamental statistical analysis was applied in order to achieve the main objective of this study. The following findings are shown below:

The study results reveal that the multiple correlation coefficient R = 0.352 indicates that there is a positive correlation between total quality management and knowledge management. This support that the Jordanian commercial banks do create procedure that simplifying knowledge-related events such as transformation and use of knowledge (Bhatt, 2002). Furthermore, the Jordanian commercial banks are in the process of evaluating, storing, and commercializing proficiency of the employees, which in turn make the Jordanian banks more powerful and valuable and more competitive than its competitors (Bollinger & Smith, 2001; Alrowwad et al., 2016). Moreover, the quality management department in the Jordanian banks spent more effort to produce high-qualified products for their customers. This result is consistent with (Honarpour et al., 2012) who examined the relationship between total quality management practices and knowledge management and they found a positive relation between them. Also, this result is in the line with (Ju et al., 2006) who founds that total quality management practices and knowledge management are synergistically related to each other.

Also, the study analysis of variance reveals that knowledge management uses has a statistical effect on total quality management at F-value (8.652). Furthermore, the study results reveal that knowledge acquisition has a statistical effect on total quality management. This support that the Jordanian banks took a great attention to the innovative ideas, thoughts and suggestions proposed by their employees, as the innovation has an important impact on business development and survival. This result is consistent with (Kor & Maden, 2013) who found that knowledge management processes relate positively to innovation. Also, the study results show that the knowledge storage has a statistical effect on total quality management. This support that the Jordanian banks have an adequate database which is available for their employees and the Jordanian commercial banks encourages their workers to seek new ideas from all possible sources. This result is in the line with (Ju et al., 2006) who found that knowledge storage can reduce the engineers' time and problem solving skills was further improved.

Moreover, the results show that the knowledge transfer has a statistical effect on total quality management. This indicates that the Jordanian commercial bank management encourages the knowledge exchange among their employees and have an information system facilities the knowledge sharing among the workers and staff. This result is consistent with (Molina et al., 2007) who found a positive relationship between the presence of external and internal knowledge transfer and total quality management. Whereas, the results reveal that knowledge application has no statistical effect on the total quality management. Also, researchers called for more research on the enabling factors of applying electronic services (e.g. Masa'deh, et al., 2008, 2013a, 2013b; Masa'deh, 2012;

Karajeh & Maqableh, 2014; Maqableh & Karajeh, 2014; Al-Dmour et al., 2015; Almajali & Maqableh, 2015; Kateb et al., 2015; Maqableh et al., 2015; Masa'deh, 2016; Tarhini et al., 2015; 2016, 2017a, 2017b; Almajali & Al-Dmour, 2016; Almajali et al., 2016; Alenezi et al., 2017; Aldmour et al., 2017; Khwaldeh et al., 2017; Mikkawi & Al-Lozi, 2017; Yassien & Mufleh, 2017; Tarhini et al., 2018; Al-Dmour et al., 2019), hence, future research is vital to examine these enablers as to assist stakeholders on their decisions on reaching high levels of such services, and in turn enhancing TQM practices in an optimal way.

To conclude, bank sector has shown huge growth in recent years and it's considered one of the most competitive sectors in Jordan; however, its need to invest more in implementing knowledge management in order to manage knowledge created within the organization, this will help them to maintain their competitive position in the changing banking sector. The importance for the banking sector to invest more in telecommunication banking technology to perform its service with less time and effort and updated to customer services. The Jordanian commercial banks should demonstrate the importance of the TQM concept to their employees and have a sufficient training department for their employees. Obeidat et al. (2013) found that Jordanian commercial banks should take a great attention for encouraging the innovative ideas and suggestions that provided by their workers. The Jordanian commercial banks should encourage the continuously meeting in order to discuss the issues and work problems, which may increase the performance and enhance the profitability. The Jordanian commercial banks should facilitate and encourage ideas sharing between and among employees.

Appendix 1:
Table A1. Means and Standard Deviation for the Constructs used in the Conceptual Model

Top Management Support	Mean	STD	Level
The management introduces the TQM concept to their employees.	3.84	0.989	High
The management distribute a book about quality on their employees explain the service quality improvement steps.	3.84	1.004	High
The bank has a training department (provided with annual budget and equipment needed for training).	3.86	0.994	High
Total	3.85	0.989	High
Employees Involvement	Mean	STD	Level
The bank employees believe in the relationship	3.8	0.9	High

between the application of the TQM concept and the success of the bank.	2	17	
Training programs includes employees from all management levels.	3.95	0.915	High
The bank management share its employees in finding the suitable solutions to the problems that face the department they are working in.	4.06	0.871	High
The employees have the chance to demonstrate their opinions about the jobs they are doing.	3.69	1.028	High
The bank management forms teams work to improve the bank quality involving employees in all levels.	3.88	0.913	High
The bank management grants awards to their employees about their excellent performance.	3.85	0.935	High
Total	3.88	0.963	High

Continuous Improvement	Mean	STD	Level
The management improved and developed the motivation structure to suit the TQM concept.	3.64	1.089	Medium
The training programs aims to minimize the mistakes and achieving high level of quality.	3.76	1.06	High
The bank management encourages and adapts wise ideas.	3.86	0.936	High
The bank has teams work that meet continuously to discuss the work problems and make decisions.	3.41	1.11	Medium
The bank management and its employees are making preventive and immediate corrective actions for them is takes.	3.57	1.167	Medium
The bank management studies the situation of the other competitors to improve the service.	3.75	1.047	High
The bank has a system to study the market and the economic changes.	3.6	0.953	Medium
The senior management has a long term plans for the service quality.	3.7	0.852	High
Total	3.66	1.02	Medium

Customer Focus	Mean	STD	Level
The bank management listens to the customer complaints and provides an immediate solution.	3.6	1.029	Medium
The bank management makes surveys to know the customer needs and wants.	3.51	1.061	Medium

	Mean	STD	Level
There is an active communication method between customers and employees.	3.76	0.967	High
The bank management has general strategic goals for the quality dependent on the wants and needs of depositor, loan, and beneficiary.	3.24	1.176	Medium
Total	3.53	1.025	Medium
Data-Driven Decision Management	**Mean**	**STD**	**Level**
The management reengineered the organizational structure to suit the TQM concept.	3.46	1.127	Medium
The management has a completely plan to introduce the TQM concept to their employees.	3.56	1.164	Medium
The management aim to minimize the cost of different financial processes.	3.64	1.139	Medium
Total	3.55	1.138	Medium
Knowledge Acquisition	**Mean**	**STD**	**Level**
The bank has a documentation system that is introduced to and applicable from employees in all levels.	3.5	1.076	Medium
The bank has a program to simplify the steps required to provide the service.	3.56	1.041	Medium
The bank has a program to eliminate the unnecessary activities and training work.	3.32	1.053	Medium
My Bank concerns with new ideas, thoughts and suggestions proposed by employees.	3.16	1.243	Medium
My Bank cares for motivating and rewarding creative employees.	3.2	1.225	Medium
My Bank encourages collective work and subordinates cooperation instead of competition.	3.24	1.376	Medium
Total	3.33	1.232	Medium
Knowledge Storage	**Mean**	**STD**	**Level**
My Bank encourages employees to seek new ideas from all possible sources (i.e. Internally and Externally).	3.48	1.196	Medium
In my Bank, each department determines important knowledge in its field to be distributed and exchanged between personnel.	2.4	1.464	Medium
When new knowledge is created, my Bank filters	3.4	1.2	Medi

53

(adjust) it to be suitable for work environment.	9	9	um
My Bank has a comprehensive, adequate database or(knowledge base) which is available for all personnel.	3.5 5	1.2 12	Medi um
My Bank documents new acquired knowledge for each accomplished project.	3.2 7	1.2 47	Medi um
Total	3.2 4	1.2 51	Medi um

Knowledge Transfer	Me an	STD	Level
My Bank's information system facilitates ideas sharing between or among employees to achieve innovation.	3.3 0	1.0 08	Medi um
My Bank is concerned in participating in conferences and workshops inside and outside Jordan as a method of obtaining knowledge.	3.3 6	1.0 48	Medi um
My Bank encourages personnel to join training programs inside and outside Jordan to gain knowledge in their fields.	3.5 8	1.0 54	Medi um
My company filters obtained knowledge and determines the most important part to be distributed and exchanged between personnel.	3.3 6	1.0 40	Medi um
Total	3.4 0	1.0 14	Medi um

Knowledge Application	Me an	STD	Level
My Bank gives its employees the freedom to organize and carry out their job by methods and means they believe appropriate.	3.4 6	0.9 03	Medi um
My Bank has a strong commitment to new ideas because of its important role in achieving innovation.	3.5 6	1.0 37	Medi um
My Bank seeks to qualify its personnel through scholarships award to gain knowledge of modern technology in the field of communication.	3.3 2	0.9 88	Medi um
My Bank encourages personnel to benefit from the experience of successful international practices and knowledge to adopt them.	3.2 9	1.0 51	High
Total	3.6 6	0.9 25	Medi um

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