



The Impact of Knowledge Management Environment on Knowledge Management Effectiveness: Through Mediating Role of Knowledge Sharing Process in Branch Banking of Pakistan

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Abstract: *The purpose of this study is to examine the effect of knowledge management environment on knowledge management effectiveness through the mediating role of knowledge sharing processes in public and private, conventional and Islamic branch banking of Pakistan. Survey technique was used for collection of data from the staff of branch banking. A sample of 290 was used for data analysis. The hypothesized relationships were tested using Smart PLS software. The results shows that knowledge management environment has a directly and indirectly positive and significant effect on knowledge management effectiveness through the mediating role of knowledge sharing process in branch banking of Pakistan. Findings of this study reveal that management of the branch banking can enhance their knowledge management effectiveness in terms of innovation, efficiency and adaptability by managing the knowledge management environment (Tacit and Explicit) through a mediating role of knowledge sharing process (Internal and External).*

Keywords: Knowledge Management Environment, Internal Knowledge sharing process, Knowledge Management Effectiveness, Branch Banking, Pakistan.

Introduction

In present age, organizations are facing severe challenges to achieve competitive advantage, and sustainable growth, higher organizational performance and efficiency in organizational operations, innovation and creativity in the complex, uncertain, competitive and rapidly changing global business environment. Presently knowledge has become a tool of competitive advantages. Because, this century is the century of knowledge and information. Along with the other economic resources knowledge has also been recognized as a valuable asset of the organizations because of its increasing contribution towards competitive advantages and organizational performance.

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According to [Cepeda-Carrion, Martelo-Landroguez, Leal-Rodríguez, and Leal-Millán \(2017\)](#), the ability of the organization to create value depends on the creation, dissemination and application of knowledge. According to knowledge based view of the organizations, knowledge linked sources are being treated as strategic asset of the organizations in a dynamic and critical business environment. Because of the challenging and critical business environment, competition and sustainability have become major issues for the organizational managers.

According to [Santoro, Vrontis, Thrassou, and Dezi \(2018\)](#), knowledge is a corporate power and a major asset for a firm. To respond the ever changing market demands effectively, knowledge becomes very challenging for an organization without managing knowledge effectively. According to [Dingsøy \(2019\)](#) knowledge is considered as a major driver of competition and competitive companies cannot easily replace the knowledge of the company. According to [Dalmarco, Maehler, Trevisan, and Schiavini \(2017\)](#) in this period of competitive edge, every organization is working in the center of economic transition which based on the information which comes from the new era of knowledge development.

Because of the globalization, level of competition has been increasing day by day and survival for the organizations in this competitive environment depends on how the organizational management manages this knowledge. No doubt, many organizations are engaged in managing their knowledge but it is not much clear how knowledge management mechanism is contributing towards organizational performance and how knowledge sharing and knowledge management processes are affecting the knowledge management performance. The researchers like ([Anantamula, 2007](#); [Anantamula & Kanungo, 2010](#)) concluded knowledge as a commodity, vital economic resource and a key asset of the organization. Knowledge not only has been associated with advancement of the organization but also considered a key source for success of the organizations. The performance of the services business mainly depends on efficient management of knowledge ([B. Obeidat, Hashem, Alansari, Tarhini, & Al-Salti, 2016](#); [B. Y. Obeidat, Hashem, Alansari, Tarhini, & Al-Salti, 2016](#)).

[Kruger and Johnson \(2011\)](#) concluded that in order to obtain higher organizational performance, organizations must have to focus on developing employee knowledge management strategies especially for tacit knowledge because tacit knowledge is considered as a vital source of competitive advantages for the firms. Organizations are utilizing their tangible and intangible assets in order to achieve organizational goals of higher performance and competitive advantages.

[Lee and Choi \(2003\)](#); [Suppiah and Sandhu \(2011\)](#) showed that knowledge is considered a unique source, a significant differentiator and a key weapon for maintaining the sustainable competitive advantages and bases for organizational performance. For maintaining continuous survival, sustained competitive advantages and improved organizational performance knowledge management strategies cannot be overlooked while formulating the corporate strategies.

According to [Harlow \(2008\)](#), knowledge has become a dominant economic source for managing the organizational operations efficiently and effectively. Many methods of knowledge management have been introduced but selecting the very appropriate methods have been remained a tough question particularly to retain the tacit knowledge.

The developed knowledge management can become a vital source of creativity, survival,

innovation, improved performance, adaptation and competitive advantages in all types of organizations (Sigala & Chalkiti, 2007).

Because of the significance of knowledge as an asset and a key source of competitive advantages, knowledge needs a clear and effective management in the organizations. The knowledge management cycle involves creation of knowledge, sharing of knowledge and application of knowledge. With the help of application of valuable knowledge, organizations can decrease their costs and enhanced their competency.

In the existing literature, numerous studies have been conducted on the knowledge management in the world in developing theoretical frameworks, building theory, developing KM models and practical use of knowledge but limited work has been done in Pakistan particularly in branch banking sector of Pakistan. In spite of amplified importance of knowledge management in banking sector, there is a lack of studies that investigate the relationship between knowledge management environment and knowledge management effectiveness. This is one of the earliest studies that not only investigated the relationship between KM environment and KM effectiveness in public and private, conventional and Islamic branch banking of Pakistan but also contributed to the existing literature by simultaneously investigating the mediating role of knowledge sharing processes in understanding the stated relationship.

Hence, Keeping in view the significance of knowledge management in organizational performance and vibrant role of banking sector in economic development of any country, this study is undertaken to investigate the association among knowledge management environment (Explicit knowledge and Tacit Knowledge), knowledge sharing processes (Internal Knowledge sharing and External Knowledge sharing) and knowledge management effectiveness (Innovativeness, Efficiency and Adaptability) by taking the knowledge sharing process as a mediating variable in the Public and private, Conventional and Islamic branch banking of Pakistan.

Literature Review

The effective knowledge management mainly depends on SECI model (Socialization, Externalization, Combination and Internalization). The main functions of knowledge creation, knowledge transfer, knowledge application is based on the SECI model in which different measures and strategies are developed by the organizations to convert the tacit knowledge into explicit knowledge and explicit knowledge to tacit knowledge, tacit knowledge to tacit knowledge and explicit knowledge to explicit knowledge.

The process of converting tacit knowledge into tacit knowledge is termed as socialization which is done by sharing experiences and living and spending time together (Karim, Razi, & Mohamed, 2012). In the SECI Model, the process of converting tacit knowledge to explicit knowledge is known as externalization which is done by using concepts and different ideas, visuals and analogies, metaphor and others. The process of exploiting concepts from one knowledge system to another knowledge system by using different channels is termed as combination. It is a process of transforming explicit knowledge into explicit knowledge where employee's shares and combines different knowledge with the help of

different communication channels and integration. The process of transforming explicit knowledge into tacit knowledge is known as internalization which is done by the employees when they think and create new ideas and knowledge during performing their practical work.

The SECI model is the foundation of this study for creating, sharing and application of knowledge for the knowledge management effectiveness with in the Branch banking sector of Pakistan.

Knowledge and Knowledge Management

According to [Imran, Bilal, Aslam, and Rahman \(2017\)](#) knowledge management is essential for implementing change successfully and achieving organizational objectives. These days Knowledge management has become a common function instead of the emerging concept in the organizational practices.

The existing literature shows that the number of studies on different aspects of Knowledge management and on its implementation has been increasing rapidly. The knowledge management as a weapon of competitive edge and a vibrant for higher organizational performance is widely accepted and acknowledged by the organizations in the existing literature ([Zaim, 2016](#)).

[Desai and Rai \(2016\)](#) examined the impact of knowledge resources on firm's competitive edge and found that knowledge resources have positive and significant impact on company's competitive edge supported by the results of [Alaarj, Mohamed, and Bustamam \(2017\)](#).

[Cabrilo and Leung \(2019\)](#) conducted a research to examine the influence of KM on organizational performance and found that knowledge management has significant impact on organizational performance. According to [Shpakova, Dörfler, and MacBryde \(2018\)](#) organizations should focus on managing key KM practices such as creation, conversation, sharing and contribution of knowledge. Effective KM is not only improves continuous learning and understanding of employees but also is fruitful in sharing with other stakeholders that results in building and improving new relationships.

According to [B. Obeidat et al. \(2016\)](#); [B. Y. Obeidat et al. \(2016\)](#), knowledge has become a vital asset for the organizations. Owing to importance of the knowledge management, different recent studies have acknowledged that this century is an age of knowledge and information. [Shahzad, Bajwa, Siddiqi, Ahmid, and Sultani \(2016\)](#) have stated the knowledge can be understood in the terms of insights, skills, experience, information, skills, ideas and expertise. They have also argued that competitive advantages and higher organizational performance cannot be achieved only by having the knowledge unless the knowledge has been managed efficiently and effectively through a proper system.

Knowledge management has been defined as combination of management tools, techniques, principles and practices with aims of creation, conversion, dissemination and application of knowledge. Knowledge management is a mechanism that highly supports organizational strategic plans and its objectives. [Davenport and Prusak \(1998\)](#) have defined the knowledge as a fluids mixture bounded knowledge, suitable information, important values and erudite forthcoming that supports for novel experience and information. They described knowledge like: fluids combination of bounded knowledge, appropriate information,

values, and erudite imminent that offers support intended for estimating and integrating novel information and experience. Now a day, knowledge is being considered as an essential element for jobs and a vital source of sustainability in the business organizations because both depends on knowledge.

Moreover, Harlow (2008) has also defined knowledge management as a process of collection, creation, dissemination, application and reutilization of knowledge within the organization to make it internally availability of information for those who need it and use it for the benefit of organization. As compared to explicit knowledge, tacit knowledge is hard to code, hard to extract, hard to discovered and hard to capture. Therefore, for the effectiveness of the knowledge management, tacit and explicit knowledge must be shared for the sound base of knowledge management.

Zaim, Muhammed, and Tarim (2019) conducted study on Relationship between knowledge management processes and performance and concluded that knowledge generation have direct impact on KM performance.

From the literature, it can be inferred that knowledge management is process of development of knowledge and organizing of knowledge, generation and regeneration of knowledge, dissemination of knowledge, utilization and reutilization of knowledge to gain the competitive edge and higher organizational performance. Park and Kim (2006) stated that knowledge must be continuously up graded with the help of their collaborators and it must be gathered both from internal and external sources of knowledge.

Tacit Knowledge Management

The management of tacit knowledge has become an essential element for those who have to perform routine activities, to make critical decisions on the bases of their experiences and to maintain relations, and to communicate regularly with customers, suppliers and all other stakeholders which are important for continuity of business. Thus, implementation of tacit knowledge management strategies becomes essentials for the organizations in order to gain sustainable organizational performance.

According to Peet (2012), tacit knowledge is knowing more than we can tell. Tacit knowledge is unconscious, personal insights, intuitions and inner feelings. Tacit knowledge is highly personal and cannot be formalize easily. It depends on experiences and actions of individuals performed in a specific scenario. Tacit knowledge cannot be shared and communicated easily. While, explicit knowledge is that which is more formalized, structured, systematic, codified and accessible and can be easily shared and communicated.

According to Pathirage, Amaratunga, and Haigh (2007), tacit knowledge has been considered essential for sustainable organizational performance and for competitive advantages as compared to old concept of physical capital. Tacit knowledge lies within the memories of individuals and might be in the social fabric of organizations. It comprises of individual's memories and experiences. Based on the literature, the study proposed following hypothesis.

Hypotheses 1: The knowledge sharing process mediates the relationship between knowledge management tacit and knowledge management effectiveness.

Explicit Knowledge Management

In comparison with tacit knowledge, explicit knowledge lies within the organizational documents and databases which can easily be obtained, understood, shared, coded, and stored physically and electronically. Explicit knowledge is as important as the tacit knowledge is to obtain the competitive advantages. Therefore, organizations have to consider both tacit and explicit knowledge flowing in the organizations in order to achieve the sustainable competitive advantages in the challenging global business environment (Pimentel & Albino, 2010).

The knowledge was classified as tacit and explicit for the first time by the (Polanyi, 1966). But later on, (Tsoukas, 1996), stated that tacit and explicit should not be considered separate knowledge because they are mutually created. Explicit knowledge based on the tacit knowledge and tacit knowledge is an essential element for all knowledge. According to Gavrilova and Andreeva (2012), all workers who have knowledge do not have capabilities to use their experiences to convert it to explicit knowledge and all knowledgeable workers are not able to create and transfer of knowledge to bring innovation in the organizations.

For enhancement of innovation process, organizations have to strategically focus on managing tacit and explicit knowledge process instead of research and development. Because, both tacit and explicit knowledge is directly associated with outcome. Alavi and Leidner (2001) stated that both tacit and explicit knowledge should be created, organized and communicated to make all the employees effective and productive.

Explicit knowledge is conveyed and disseminated through meeting, emails, documents and telephones. Tacit knowledge is converted into explicit knowledge and explicit knowledge is shared with others for creation of new knowledge. The trust among employees is a main obstacle which organizations have to face while sharing the tacit and explicit knowledge. For transfer of knowledge with others, dialogs, discussions and training are the good tool. The networks and databases are used to support the knowledge management process of creations, organizations, storage and dissemination.

The knowledge related to words, numbers and specifications is known as explicit knowledge when it is stored on a database it can be used and reused by the staff of the organizations. Hansen, Nohria, and Tierney (1999) stated that the reuse of knowledge not only reduce cost but also saves work and time. Along this, it enables organizations to work on more projects. Clegg and Clarke (1999), also stated that with the uses and reuses of knowledge through exploitive learning, organizations can enhance performance of their employees in an effective and efficient manner.

Thus, based on the literature, it can be inferred that for obtaining of higher performance, knowledge management effectiveness and sustainable competitiveness, organizations have to foster their activities related to creations and dissemination of tacit and explicit knowledge that promote knowledge sharing process. Hence, explicit knowledge can be used in the branch banking of Pakistan to bring the knowledge management effectiveness.

Based on the literature, the study proposed following hypothesis.

Hypotheses 2: The knowledge sharing process mediates the relationship between knowledge management explicit and knowledge management effectiveness.

Internal Knowledge Sharing Process and External Knowledge Sharing Process

One of the main functions of knowledge management is knowledge disseminating or knowledge sharing. Knowledge sharing is an organizational belief and culture that is used to share knowledge, skills and experiences within the employees of the organizations. Knowledge sharing is a mechanism that facilitates transfer of internal and external knowledge within the organizations (Yang, 2005). Knowledge sharing is not only important in manufacturing industries but also in universities to facilitate, to enhance and to collaborate research among academics.

Knowledge management process encompasses acquisition of knowledge, creation of knowledge, sharing of knowledge and utilization of knowledge in order to augment organizational performance and competitiveness (Darroch, 2005; B. Obeidat et al., 2016). Within the organizations knowledge can be shared formally and informally. Formally knowledge sharing is one which is shared through a specific structure and procedure while informal knowledge sharing is done through internalization and socialization process of SECI model.

In order to accomplish the organizational goals of higher performance and competitiveness, organizations must have the wisdom of continuous knowledge creation, knowledge sharing and knowledge interpretation within all parts of the organization (Rhodes, Hung, Lok, Lien, & Wu, 2008). Thus, organizations have to maintain efficient and effective tacit knowledge and explicit knowledge sharing processes within the organizations to achieve its goals.

The process of transmitting knowledge from one level of organization to another level and from one employee to another employee is known as knowledge dissemination. The researchers found that knowledge not only be shared and utilized with in levels of the organization but also in all parts of the organizations (Darroch, 2005).

Further, Alavi and Leidner (2001) stated that knowledge transfer is a method of knowledge dissemination within the organization. Davenport and Prusak (1998) also have defined the knowledge sharing as a process of knowledge swaps with in groups and individuals. Knowledge sharing can comprises of sharing of reports, notes, publications and bulletins among groups and individuals.

From the literature, it can be deduced that for achieving the higher performance and sustainable competitive advantages, efficient and effective management of internal knowledge sharing processes and external knowledge sharing processes is essential for the all types of organizations. Without maintaining efficient knowledge disseminating system, no group, no organization and no entities can flanked. So branch banking sector of Pakistan can enhanced their performance and can get sustainable competitive advantages by managing the efficient knowledge management system comprises of tacit and explicit knowledge, internal and external knowledge sharing process and knowledge management effectiveness.

Knowledge Management Effectiveness

The term knowledge management effectiveness has been derived from the term organizational effectiveness. Organizational effectiveness means the degree to which an organi-

zation is successful in achieving its strategic goals. In order to achieve the high level of organizational effectiveness, organizations have to pursue their goals of high market share, profitability, growth and competitive advantages (McAdam & Bailie, 2002).

In this study, Knowledge management effectiveness is actually the organizational effectiveness in terms of outcome by using the knowledge management practices. Knowledge management effectiveness has been categorized as a knowledge capability, adaptation, integrations and knowledge accomplishment effectiveness. Knowledge management effectiveness is one which the organization actually receives in form of feedback. The prevailing of knowledge management factors in the organizations are associated with the practices of knowledge management effectiveness and this association further enhance the learning process.

Organizational effectiveness comprises of efficiency in operations, higher profitability, and higher market shares which become the bases for levels at which strategic goals are accomplished. It also encompasses KM capabilities, introducing of new products and services, forecasting capability and highly responsiveness to market change. Organizations can increase their performance by managing infrastructure and knowledge processes capabilities of knowledge management effectiveness.

The presence of knowledge management factors like, technical and knowledge infrastructure, strategic approach, incentives and training, KM culture and senior management support, core values, KM work process and learning process enhance the effectiveness of knowledge management practices and improvement in the learning process. There are number of factors that can affect the knowledge management effectiveness. In this study, we consider the innovativeness, efficiency and adaptability factors for KM effectiveness in branch banking of Pakistan.

Innovation

Chahal and Bakshi (2015) have defined innovation as a process of creation and application of new ideas, discoveries and inventions that are used to develop new products and services, strategies, working techniques, methods, procedures and technology. Innovation has been considered a vibrant element in organizations which has a robust impact on organizational outcome. Innovation comprises of incremental, administrative, technological and financial innovation.

Hussain, Qurashi, Mujtaba, Waseem, and Iqbal (2019) conducted the study on SME of AJ&K and found that creation, collection, organizing and dissemination and application of knowledge have significant and positive impact on innovation. Chibuzor, Jovita, and Onyemachi (2019) also concluded that acquisition, application, and sharing of knowledge all have positive and significant impact on technical and administrative innovation. In the existing knowledge management literature, innovation has been investigated in terms of radical, product, incremental, structural, process and competence innovation. The ability of the firms to speedup developments and commercialization of products and services to gain competitive advantages is termed as innovation speed. While, the impact of processes on organizational performance and outcomes is known as innovation quality.

For growth and sustainable performance, organizations have to enlarge the receiving

of external knowledge as it is strongly linked with capacity of innovation and innovation is considered an important component for growth of the organizations. With the help of effective knowledge disseminating and knowledge sharing, organizations can enhance the speed of innovation. O'Connor and Basri (2018) also found that knowledge resources are helpful in innovation because it gives a excellent performance in innovation. In addition, Du Plessis (2007) described that all types of innovation depends on knowledge, which can be enhanced by recognizing the capability of firm's knowledge and prosperity. According to him, innovation is a unique knowledge which helps organizations to create suitable products and services and refining of internal procedure and arrangements of business. Innovation cannot be made easily but it is milestone for every organization. Knowledge management is not only important for success of the organizations but also for the innovation too.

In the word of Goh (2005) innovations is a deliberate change in the prevailing products, services, ideas and operations. Creativity and innovation have become critical factors for survival of the firms in the competitive environment. The organizations working in competitive environment have been spending a huge amount on research and development for staying competitive. The existing literature showed that innovation and innovative strategies have a significant contribution in market share and customer satisfaction. Therefore, it can be opined that branch banking firms of Pakistan can obtain optimum benefits by exploring and exploiting of innovation.

Storage of knowledge, dissemination of knowledge and application of knowledge have become essential elements for innovation and competitive edge extremely capricious business environment (Probst, Raub, & Romhardt, 2000).

Efficiency

Efficiency means obtaining maximum output with minimum input. To obtain efficiency and expertise in operational, innovational, and other areas, organizations acquire knowledge, covert and distribute that knowledge in an efficient manner where it is needed in the organizations. It is found that the firm which is efficient in creation and dissemination of knowledge speedily is known as a social community (Kogut & Zander, 1996).

In this competitive environment, both tangible and intangible assets are being utilized by the organizations to obtain the higher performance, innovation, efficiency, adaptability and competitive advantages and for these both financial and non-financial performances are being assessed (Kaplan & Norton, 2001).

For survival in the competitive market, organizations have to make defensive strategies for increasing efficiency and reducing costs. In this century of knowledge and information, with the help of technologies, organizations can reduce costs, enhance operational efficiency, acquiring of highly skilled and experienced employees team. The efficiency can also be achieved by making the use and reuse of knowledge as a defensive strategy. Knowledge defensive strategies are also used to identify weakness and to overcome those weaknesses (Wee & Chua, 2013).

Efficiency also depends on the transformational leaders who create and accept the change and develop defensive strategies to improve the operational process, product quality, and customers' satisfactions. Allocation of resources efficiently including tangible and

intangible is also a mile stone in achieving of organizational efficiency. Thus, knowledge management effectiveness can be enhanced in the branch banking of Pakistan through efficiency.

Adaptability

In this challenging and competitive global business environment, changes are occurring every moment. The organizations have to respond these changes for their growth and survival. The attitude of the organizations to accept the change and adapt the change is called adaptation. Change can be adapted only when the employees of the organizations are willing to accept it. Effective knowledge management supports organizations to be ready for the changes and in consequence of the readiness to change, organizational adaptation occurred (Malhotra & Grover, 1998).

Prior to adaptation to any change, organizations have to seek the knowledge about the environmental changes and have to analyze that knowledge whether these changes will affect the business of the organizations or not. This process of analyzing is done through knowledge management effectiveness. According to Etori and Alilah (2020) it is concluded that, when firm gives importance to manage its knowledge effectively, it results in improving the performance of the firm.

Organizations can enhance innovation, competitive edge and higher organizational performance through adaptation and implementation of knowledge management processes. Organizational capabilities depend on the creation of novel knowledge. Knowledge management practices are adopted by the different organizations to shape the unique capabilities. Organizations can enhance adaptation to change and innovation through the knowledge sharing processes (Taminiau, Smit, & De Lange, 2009).

Before, adaptation to change, organizations have to acquire the knowledge, convert the knowledge and apply the knowledge. Organizational adaptation takes place naturally as a result of effective knowledge management in the organization. Adaptability can be used to bring the knowledge management effectiveness in the branch banking of Pakistan.

Research Framework

In order to examine the mediating effect of knowledge sharing process on knowledge management effectiveness in branch banking of Pakistan, a theoretical framework has been developed. Figure 1 shows the theoretical framework. Knowledge management environment with its dimensions of tacit and explicit knowledge is an independent variable. Knowledge sharing process with its dimensions of internal knowledge sharing and external knowledge sharing is a mediating variable and knowledge management effectiveness with its dimensions of innovativeness, efficiency and adaptability is a dependent variable.

Methodology

Banking Sector

The banking sector plays a vital role in social and economic development of any country. This development can be through research activities and innovative ideas. Therefore, research and knowledge management activities should be enhanced in banking sector of Pakistan to increase its role in economic and social development. There is limited research on Knowledge management in Pakistan and particularly in banking sector of Pakistan. To meet the challenges of knowledge base economy, existing research in banking sector is inadequate. In this paper, we aim to link knowledge management environment with knowledge management effectiveness through mediating variable of knowledge sharing process in branch banking of Pakistan.

Population, Sample and Data Collection

The population of this research was staff of the branch banking of Pakistan. The branches comprised of both public and private banks and both Islamic and conventional banks. The branch staff is consisted of branch managers, knowledge management experts, operation managers and customers' relation officer, IT officers, Credit and loaning officers, management trainee officers, and tellers. For collection of data, survey technique was used as this method is commonly used in social and business researches. The data was collected for investigating of hypothesized relationship among variables as shown in figure 1. A total number of 365 questionnaires were distributed through electronically and manually. A total number of 290 questionnaires were received from the respondents reflecting the response rate of 79%.

Instrumentation

The questionnaire was divided into three parts: (1) Knowledge management Environment (2) knowledge sharing process (3) knowledge management effectiveness. The eleven questions of KM environment has been taken from the work of [Choo et al. \(2006\)](#). The fifteen questions of knowledge sharing process have been taken from the work of [Park and Kim \(2006\)](#); [Gold, Malhotra, and Segars \(2001\)](#). Twenty two questions of knowledge management effectiveness have been taken form the work of [Gold et al. \(2001\)](#). The instrument based on five-point Likert Scale ranging from 1 to 5. 1 means strongly disagree and 5 means strongly agree.

Data Analysis and Results

The data collected has been analyzed by suing Smart PLS software. The Smart PLS is used because it is easy and convenient software. It has a graphical user interface. It has a facility to create different models and saving the models and their data and results. It also has a feature to generate report of results in HTML or EXCEL format. Moreover, it

provides the results in tabular and graphical form. It is also suitable for small samples of data. It has capability to analyze structural modeling of abnormal data too. It can make more assumptions for structural modeling than other software. It provides all the requisite results of the models in a single click.

R Square

R Square explained the proportionate change in dependent variable due to independent variable. The association between dependent variable and independent variables of construct are based on the values of R square. According to [Henseler, Ringle, and Sinkovics \(2009\)](#) if the value of R Square is 0.25 then it is weak, if value of R Square is 0.50 then it is moderate and if value R Square is 0.75 then it is substantial for acceptance.

Table 1
R Square

	R Square
KM Effectiveness	0.747
KS Process	0.65

Table 1 and figure 2 of the results showed that the value of R Square of Knowledge Management Environment is 0.747 and for knowledge Sharing Process is 0.650. According to [Henseler et al. \(2009\)](#) criteria, Knowledge Management Environment has substantial effect and Knowledge Sharing Process has moderate effect on Knowledge Management Effectiveness. The minimum criteria for acceptance value of R Square for social sciences is 0.2 and both the values of R Square are greater than 0.2 and are significant for this study for acceptance.

Adjusted R Square

Adjusted R Square is used where there are more than one independent variable. On this study there are two independent variables Knowledge Management Tacit and Knowledge Management Explicit. Table 2 and figure 3 of the results show that the values of adjusted R Square are 0.745 and 0.649 respectively for Knowledge Management Environment and Knowledge Sharing Process which are significant for acceptance of the study.

Table 2
Adjusted R Square

	R Square Adjusted
KM Effectiveness	0.745
KS Process	0.649

Reliability

Table 3
Reliability

	Cronbach's Alpha	Composite Reliability
KM Effectiveness	0.952	0.957
KM Environment	0.923	0.934
KS Process	0.92	0.932

The reliability of the research construct is measured with the help of Cronbach's Alpha and Composite Reliability. The table 3 and figure 4 and 5 show that the values of Cronbach's Alpha and Composite Reliability for Knowledge Management Effectiveness are (0.952 & 0.957) for Knowledge Management Environment are (0.923 & 0.934) and for Knowledge Sharing Process are (0.920 & 0.932) respectively and all the values are above the minimum acceptable value of 0.70. So the values of results confirm the reliability of the research construct.

Discriminant Validity

Table 4
Validity

	KM Effectiveness	KM Environment	KS Process
KM Effectiveness	0.709		
KM Environment	0.823	0.751	
KS Process	0.819	0.806	0.731

The validity of the construct has been confirmed with Discriminant Validity test using the Fornell-Larcker Criterion. According to Fornell-Larcker Criterion the diagonal values of all variables must be above 0.50. Table 4 showed that values are 0.709, 0.751 and 0.731 for Knowledge Management Effectiveness, Knowledge Management Environment and Knowledge Sharing Processes respectively and all the values are above 0.50 and confirm the validity of the construct. The other values of the table 4 show the correlation among variables except diagonal values.

Mediation Test

The mediation model is used to measure the association between independent variable and dependent variable. In this study mediation model is used to ascertain the relationship between Knowledge Management Environment and Knowledge Management Effectiveness. Figure 6 and 7 show that Knowledge Management Environment (Tacit and Explicit) has direct and indirect effect on Knowledge Management Effectiveness.

Table 5
Mediation Test

Independent	Mediation	Dependent	Direct Effect	Indirect Effect	Total Effect
Knowledge Management Environment	Knowledge Sharing Processes	Knowledge Management Effectiveness	0.454	0.359	0.813

Table 5 shows that Knowledge Management Environment has direct effect of 0.454 and indirect effect of 0.359 and total effect of 0.813 on Knowledge Management Effectiveness. Figure 6 shows that Knowledge Management Environment has direct effect by 0.824 on Knowledge Management Effectiveness in branch banking of Pakistan. Figure 6, 7 and 8 and table 6 show that Knowledge Sharing Processes can be affected by 0.806 by the Knowledge Management Environment. Knowledge Management Effectiveness can be affected by Knowledge Sharing Processes by 0.445 and Knowledge Management Environment can indirectly affect Knowledge Management Effectiveness by 0.464.

Table 6
Mediation Test

	KM Effectiveness	KM Environment	KS Process
KM Effectiveness			
KM Environment	0.464		0.806
KS Process	0.445		

Table 7
Indirect Effects

	KM Effectiveness	KM Environment	KS Process
KM Effectiveness			
KM Environment	0.359		
KS Process			

Table 8
Specific Indirect Effects

	Specific Indirect Effects
KM Environment ->KS Process ->KM Effectiveness	0.359

Table 9
Total Effects

	KM Effectiveness	KM Environment	KS Process
KM Effectiveness			
KM Environment	0.823		0.806
KS Process	0.445		

Tables 5, 6, 7, 8 and 9 also show the direct, indirect and total effect of Knowledge Management Environment on Knowledge Management Effectiveness. The results show

that Knowledge Sharing Process mediates the relationship between Knowledge Management Environment and Knowledge Management Effectiveness. According to Barren and Kenny if the direct effect of independent variables on dependent variable reduced by using the mediator then the mediation exist. On the bases of the results it is concluded that Knowledge Sharing Processes partially mediates the relationship between Knowledge Management Environment and Knowledge Management Effectiveness in branch banking of Pakistan.

Figure 6 and 7 shows the results of PLS Path Models which also show the path coefficients which are positive and significant. Based on the results, both hypotheses are accepted.

Significance of the Study

This study has several theoretical and practical implications for employees, managers, practitioners and scholars. First of all it fulfills the literature gap of knowledge management in branch banking of Pakistan. It is a contribution to the existing literature of knowledge management. Second, this study developed and tested a model to elaborate the effect of knowledge management environment on knowledge management effectiveness and considered the mediating role of knowledge sharing process in branch banking of Pakistan. The results of the study are in accordance with the previous results and hence, extended the previous research.

Third, it is necessary for the staff of the branch banking that they should be responsible for managing of all types of knowledge that are available in their banks for rendering of effective services to the customers and enhancing of their knowledge and skills. Without effective knowledge, staff of the banks could not deliver valuable services to their customers.

Fourth, this study shows that there is a significant and positive correlation between knowledge management environment and knowledge management effectiveness. The knowledge sharing processes has also played a mediating role in strengthening relationship between knowledge management environment and knowledge management effectiveness. So, to enhance the effectiveness of organizations in terms of innovation, adaptability and efficiency, knowledge management environment and knowledge sharing processes played a vital role in this regard.

Fifth, managing knowledge is a driver of all organizational changes. Banks can become effective in terms of adaptability, innovation and learning of their staff. Because all the major decisions of the organizations are based on valuable, and accurate knowledge and information. So it is necessary for the organizations to engage their workers in managing all types of knowledge. Sixth, to gain the competitive advantages in national and international markets through knowledge management effectiveness, knowledge management environment (tacit and explicit) played a vital role in building of effectiveness in terms of innovation, efficiency and adaptability in the organizations.

Currently, new knowledge is created and applied in the organizational structure for creation of values that lead to the employees as well as organizational success and effectiveness. To become an effective and successful manager, it is duty of the managers to provide all types of knowledge and facilities to the staff so that they can manage and generate all

types of knowledge for enhancing their skills and effectiveness for solving customers' problem in an efficient manner that leads toward the employees, managers and organizational performance and success. By managing knowledge, managers can get competitiveness and enhance the organizational effectiveness and performance.

Knowledge is considered a valuable source and worthy assets of the organizations. It depends on the managers of the organizations, that how they utilize and manage this asset for creation of effectiveness and enhancing of organizational performance. The results of the study assist the managers to identify the role of knowledge management tacit and knowledge management explicit in creation of knowledge management effectiveness. On the basis of the findings of this study, managers can establish long term strategies to develop organizational effectiveness in terms of innovation, efficiency and adaptability to gain competitive advantages and to mitigate the risk by making effective decisions. The practitioners and businessmen can determine the best effective knowledge management environment (tacit and explicit) from the findings of this study that may enhance the knowledge management effectiveness and organizational performance.

Conclusion

The results of the study reveals that knowledge management environment (tacit and explicit) and knowledge sharing processes (internal and external) contribute positive and significant to the knowledge management effectiveness in branch banking of Pakistan. Hence, knowledge management environment (tacit and explicit) and knowledge sharing process (internal and external) should be built for enhancing knowledge management effectiveness (innovativeness, efficiency and adaptability). According to [Pimentel and Albino \(2010\)](#) organizations have to consider both tacit and explicit knowledge flowing in the organizations in order to achieve the sustainable competitive advantages in the challenging global business environment. Because, both tacit and explicit knowledge is directly associated with outcome ([Vandaele & Decouttere, 2013](#)). [Alavi and Leidner \(2001\)](#), stated that both tacit and explicit knowledge should be created, organized and communicated to make all the employees effective and productive. Knowledge management process encompasses acquisition of knowledge, creation of knowledge, sharing of knowledge and utilization of knowledge in order to augment organizational performance and competitiveness ([Darroch, 2005](#)). So, results of this study are in consistence with results of [B. Obeidat et al. \(2016\)](#); [B. Y. Obeidat et al. \(2016\)](#); [Lee and Choi \(2003\)](#).

It is proved from the results that knowledge sharing process (internal and external) had a partial mediating effect on knowledge management environment (tacit and explicit) and knowledge management effectiveness (innovativeness, efficiency and adaptability) in branch banking of Pakistan. Hence, based on the results our both hypotheses are true and accepted.

Limitations and Potential for Future Research

This study is limited to context of branch banking of Pakistan but in future, researchers can change the sector and also change the context of the study as well. This study has

limitation of limited samples size of 290 but in future, researchers can enhance the sample size. In this study convenience sampling method was used but in future scholars can use the random sampling can be used. The data has been collected by using survey questionnaire base on five point likert scale but in future, scholars can collect the data by using interviews or any other method of data collection. In this study Smart PLS software is used for data analysis but in future, researcher can use other software like SPSS or others can be used. This study is also limited to the respondents, the staffs of branches of banks were the respondents of the study but in future, the researchers can include the staff of regional, divisional and country level head offices. In this study, knowledge management environment has been taken as independent variable, knowledge sharing process as mediating variable and knowledge management effectiveness as dependent variable but in future, researchers can change the variables to investigate the relationship between knowledge management and with other variables like organizational culture, organizational commitments, organizational performance etc. in future, researchers can undertake the cross regionals studied to expand the scope of the study. The research scholars can investigate the relationship between knowledge management environment and knowledge management effectiveness in other sectors of the economy of Pakistan or in different context of emerging economies of the world. The scholars can also consider the other variables that have a significant effect on knowledge management effectiveness.

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