

## **Achieving Organizational Performance through Knowledge Management Capabilities: Mediating Role of Organizational Learning**

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### **Abstract**

Around the globe, transformational shift has surged to develop dynamic capabilities for better performance. One of the objectives behind these drastic swings is to readjust resources for organizational wellbeing. The grafting of updated knowledge resources within the existing capabilities is becoming the vital component to multiply the performance factor. This study conveys the pathway to performance with the help of knowledge management capabilities and organizational learning. A multi-group analysis is performed having organizational learning as mediator between knowledge management capabilities and organizational performance using Preacher and Hayes (2004) mediation analysis on 228 responses from multiple ranked employees selected at random from public and private sector banks of Pakistan. The results exhibit substantial positive influence of knowledge management capabilities on enhancing organizational performance and organizational learning partially mediates the relationship between knowledge management capabilities and organizational performance. In addition to this, public sector banks have more responsiveness to knowledge management capabilities in context with organizational performance when compared with private sector banks. These results suggest new avenues for management to attain sustained performance using knowledge management capabilities at prime level; updated technology, supportive culture, knowledge acquisition and application processes. Further, these capabilities are helpful to induce learning environment in organizations that will lead to creativity, innovation, competitive advantage and overall performance. Moreover, technology and knowledge application are factors that are crucial for both types of banks. On the other hand, culture is more decisive for public sector banks and knowledge acquisition is for private sector banks.

**Keywords:** knowledge management capabilities, organizational performance, organizational learning, technology, culture, knowledge acquisition, knowledge application.

## 1. Introduction

The concept of knowledge management (KM) has attained significant attention in modern organizational research (Gharakhani & Mousakhani, 2012; Heisig et al., 2016). Management of knowledge is important in all kinds of organizations, yet its effective use is paramount in service sector including the banks (Ali, 2016; Gratton & Ghoshal, 2003; Lin, 2013; Taherparvar et al., 2014). With time the complexity of banking functions and use of information technology has increased manifolds, resulting in large amount of information and knowledge. Thus, making it essential to have an effective capability to manage the available knowledge for successful operations (Ali & Ahmad, 2006; Ali, 2016; Zaim et al., 2015).

Banking sector in Pakistan is one of the prime pillars of its economy (Rehman et al., 2011). The banking sector is increasing in magnitude and facing competitive environment in which effective performance is essential element of survival (Hanif et al., 2014). The effective management of knowledge important for successful performance of Pakistani Banks yet it has not been extensively researched (Ahmed et al., 2015).

Engendering high performance is one of the prime objectives of any business organization. Apart from tangible determinants, knowledge management has emerged as an important intangible factor contributing toward attainment of successful business performance (Lee & Sukoco, 2007). In recent time much of research attention has been devoted for investigating the role of KM in generating organizational performance (OP) (Cohen & Olsen, 2015; Maddan, 2009; Meihami & Meihami, 2014) with specific focus on KM capabilities (Jennex, et al., 2012).

KM capabilities refer to the capability of an organization for leveraging the available information and knowledge by means of continual learning for new knowledge creation (Bose, 2003), such that companies acquire, protect, use the knowledge for effective functioning (Liu et al., 2004). The integrated KM capability framework suggests that there are two different types of KM capabilities, KM infrastructure which influence through technology and culture (Gold et al., 2001; Zaied, 2012) and KM processes which influence through knowledge acquisition and knowledge application (Alavi, 1997; Gold et al., 2001; Rašula et al., 2012). It improves efficiency and effectiveness (Borho et al., 2012), enhance innovation (López-Nicolás & Meroño-Cerdán, 2011), help in gaining competitive advantage (Huang & Lai, 2012), improve the response time to customers (Lee et al., 2012) and develop knowledge intensive culture (Allameh et al., 2011). Hence, organizations are willing to manage the optimum level of KM capabilities and cultivate desired OP (Singh et al., 2006b).

Although, much research attention has been focused on relationship of KM capabilities and OP (Schiuma et al., 2012; Tanriverdi, 2005) yet the direct relationship offers a sketchy view of this complicated linkage (Cohen & Olsen, 2015). It is argued, mere focus on knowledge management is not enough until the organizations are capable of generating learning through it (Chinowsky & Carrillo, 2007; Ngah et al., 2016). It is further established that organizational learning (OL) embeds the available knowledge

throughout the organization (King, 2009) and results in effective organizational performance (Jiménez-Jiménez & Sanz-Valle, 2011; Ngah et al., 2016; Zhao et al., 2011). Hence, the current study aims to examine the impact of KM capabilities on OP through intervening role of OL in banks operating in public as well as private sector of Pakistan. The characteristics and functions of KM capabilities are complex in nature (Hoffman et al., 2005) and have observable differences with respect to culture and environment of place where implemented (Tseng, 2014). A KM capability that works well in one business environment may not work effectively for other business environments (Akhavan & Pezeshkan, 2014). Thus, including both sectors will offer a clear picture of KM capabilities that work well in both in public and private banks or either of them. The empirical investigation regarding the indirect effect of organizational learning can help managers to measure at what stage of organizational learning is best fit for their organizations to boost OP.

## 2. Literature Review

This research builds on the theory of dynamic knowledge creation given by Nonaka (1994) and knowledge based theory of firm given by Grant (1996), that postulate successful OP can be attained by effectively creating, managing and applying knowledge. An organization's KM capabilities can be defined as "*its ability to mobilize and deploy KM-based resources in combination with other resources and capabilities, leading to sustainable competitive advantage*" (Chuang, 2004, p. 460). KM capabilities are divided into knowledge management infrastructure and knowledge management processes (Aujirapongpan et al., 2010; Gold et al., 2001; Singh et al., 2006a). KM infrastructure capabilities encompass the structure and culture along with information and communication technologies (Gharakhani and Mousakhani, 2012; Gold et al., 2001; Zaied et al., 2012) and KM process capabilities include the acquisition, creation, dissemination, storage and protection of Knowledge (Hui et al., 2013; Lee and Choi, 2003). Recently, banking functions have become more complicated with increased reliance on information technology, resulting in large amount of information and knowledge. This makes it essential to have an effective capability to manage the available knowledge and applying it for successful operations (Ali and Ahmad, 2006; Ali, 2016; Zaim et al., 2015). Thus, we are interested in examining technological and cultural facets of KM infrastructure capabilities while application and application of knowledge are examined under the construct of KM process capabilities given their paramount importance in banking sector.

Technology refers to the mechanism within organizations that facilitates the effective transmission of information, knowledge and wisdom within and outside the organizations (Gold et al., 2001; Imran et al., 2016; Nonaka, 1994). Organizations used technology in different aspects i.e. gaining timely information, communication, knowledge dissemination (Sandhawalia & Dalcher, 2011). Similarly, technology make it possible to condense the response time to customers particularly in services businesses (Zaied, 2012) and a cost efficient tool for organizations (Rašula et al., 2012). In addition to this, knowledge structuring, disseminating and mapping is done with help of efficient technologies and used for conversion of tacit to explicit knowledge (Gold et al., 2001). Technology has become the prime mechanism of sharing and storing knowledge (Edvardsson & Durst, 2013) without which effective KM is not possible (Kiessling et al., 2009; Pettersson, 2009). On the other hand, culture is essential for developing KM

environment in an organization (Nonaka & Nishiguchi, 2001). It is defined as the set of shared values, attitudes, and norms that prevails in an organization and employees act in their accordance (Hauschild et al., 2001; Lal, 2002). Rasula et al. (2012) elaborated that knowledge culture provides the overall environment for all KM capabilities to properly function and generate benefits.

Most important element of KM process capability is knowledge acquisition that is the ability of an organization to acquire new knowledge within and outside the organization for addressing existing and new problems, innovation and gaining competitive advantage (Gold et al., 2001; Haas & Hansen, 2005; Nonaka, 1994). One of the most important outcome of knowledge acquisition is new knowledge generation that is considered as a vital resource for every organization as its results in innovation and subsequent competitive edge (Tseng, 2014; Zaied, 2012). Knowledge application is the ability of an organization to implement knowledge sources, that are generated from knowledge acquisition process, where required to get the desired results (Gold et al., 2001; Lee & Choi, 2003; Singh et al., 2006a; Zack et al., 2009; Zaied et al., 2012). Generating new knowledge is useless until it is effectively applied for creating positive organizational outcomes (Ngha et al., 2016).

Organizational learning concept is first introduced by Shrivastava (1983) in organizational context and suggested that it's the result of observation with construal. Later on, single and double loop learning concepts were emerged (Brown & Duguid, 1991; Crossan et al., 1999; Edmondson & Moingeon, 1998; Fiol & Lyles, 1985). Organizational performance is most important factor in determining organizational success comprising of financial performance, operational performance and organizational performance (Delaney & Huselid, 1996). Moreover, Vaccaro et al. (2010) argued that organizational performance is the cumulative form of individuals' performance. It is measured on the basis of productivity, innovation, competitive advantage, efficiency and effectiveness, organizational learning, response time to customers, market share growth and adoption of environmental changes (Borho et al., 2012; Delaney & Huselid, 1996; Gold et al., 2001; Lee et al., 2012; Tseng, 2014; Zaied, 2012).

Knowledge management is regarded as a strong predictor of OP (Ahn & Chang, 2004; Choi & Lee, 2000; Imran, 2014; Zaied et al., 2012). KM capabilities improves efficiency and effectiveness (Borho et al., 2012), enhance innovation (López-Nicolás & Meroño-Cerdán, 2011), improve consume response time (Lee et al., 2012) and develop knowledge intensive culture (Allameh et al., 2011). Such as Ngha et al. (2016) found positive impact of KM infrastructure capabilities (technology, culture and structure) and KM process capabilities (acquisition, creation, dissemination, storage and protection of knowledge) on OP. Technological capabilities allow easy sharing and storing of knowledge (Abdullah & Date, 2009) and organizations having Knowledge culture are found to be more innovative and creative in performing their operations (Sandhwalia & Dalcher, 2011). Additionally, organizations having high knowledge creation and application capacities are more competitive and outperform other (Tseng, 2014; Zaied, 2012) as employees have more capacity to provide error free and efficient services (Gold et al., 2001; Meihami & Meihami, 2014). Thus, generating high levels of organizational performance (Cohen & Olsen, 2015; Jennex et al., 2012; Ngha et al., 2016) and aid to gain competitive advantage (Huang & Lai, 2012). Hence, following hypotheses are proposed;

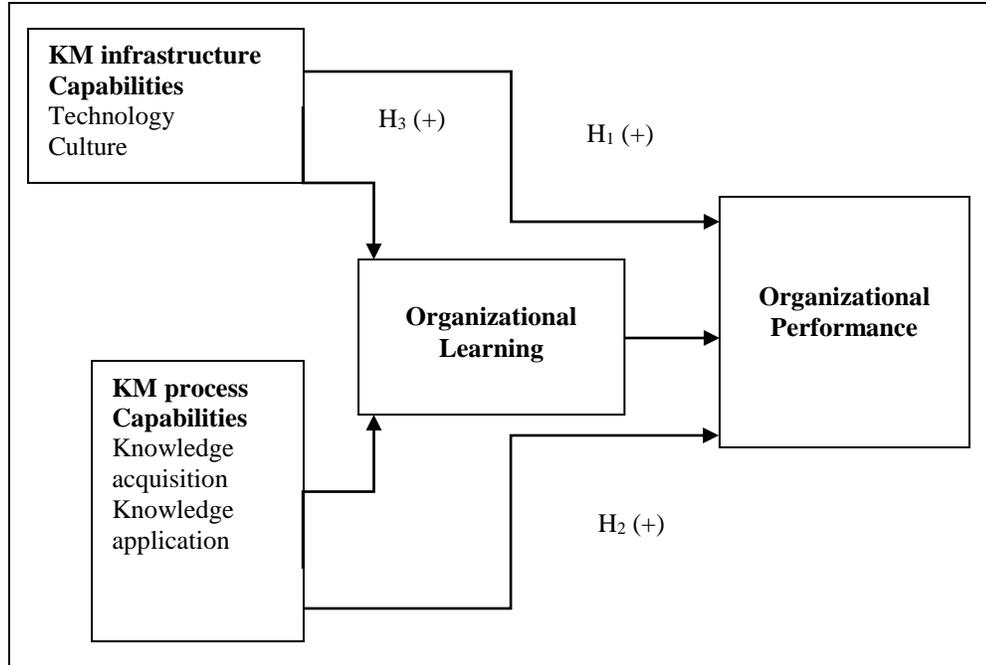
- **H<sub>1</sub>:** Organizational performance can be enhanced by employing KM infrastructure capabilities.
- **H<sub>2</sub>:** Organizational performance can be enhanced by employing KM process capabilities.

Much research literature has established the link of KM capabilities and effective OP (Schiuma et al., 2012; Tanriverdi, 2005) yet this is a complex association that cannot be fully explained by direct linkages (Cohen & Olsen, 2015). Just focusing on developing KM capabilities is not enough until the organizations are capable of generating learning through it (Chinowsky & Carrillo, 2007; Ngah et al., 2016).

According to Andrews and Delahaye (2000) KM capabilities are being used to create learning environments in modern organizations. Moreover, effective use of KM capabilities has been increasingly associated with generation of OL (Easterby-Smith & Lyles, 2011; King, 2009; King et al., 2008). Goh et al. (2012) explained that organizational learning is one of the basic pillars of high performance in era of globalization and intense competition. Thus we argue that organizational learning establishes right context and structure for application of KM capabilities for effective OP (Brandi & Iannone, 2015). It is further established that OL embeds the available knowledge throughout the organization (King, 2009) and results in effective organizational performance (Jiménez-Jiménez & Sanz-Valle, 2011; Ngah et al., 2016; Zhao et al., 2011). Therefore, we hypothesized the following:

- **H<sub>3</sub>:** Organizational learning mediates the KM capabilities-OP relationship

On the basis of contemporary literature, discussed above, the conceptual framework is formed. The conceptual framework contains KM capabilities (independent variables), organizational learning (mediating variable) and organizational performance (dependent variable). The model is formed to measure the indirect effect of KM capabilities on organizational performance through organizational learning.



**Figure 1: Conceptual Framework**

### 3. Research Methodology

#### 3.1. Participants and Organizational Settings

There are approximately thirty public and private banks operating in Pakistan. The participants were selected from both sectors to gain understating of the comparative impacts of KM capacities on performance of public and private sector banks.

#### 3.2. Research Paradigm, Design and Approach

This study is carried out under positivist paradigm, as it is based on existing literature and measure cause and effect relationship. Further, building on the deductive approach, hypotheses were drawn with the help of prevailing theory (Cooper et al., 2006). A quantitative cross sectional survey design is deemed to be appropriate for the present research study, as it is an appropriate design for research studies done under positivist worldview using deductive approach (Creswell & Clark, 2007).

#### 3.3. Sample Selection, Instrument Development and Data Analysis Techniques

Stratified sampling technique is adopted for present research, two strata are made i.e. public sector banks and private sector banks and random sample is drawn from each stratum. For an effective comparison, three banks from each stratum are selected as equal representation gives more strength to data analysis. The selected banks include National Bank of Pakistan (NBP), Bank of Punjab (BOP), Bank of Khyber (BOK) public sector and Habib Bank Limited (HBL), Allied Bank Limited (ABL), United Bank Limited (UBL) private sector.

A closed-ended questionnaire is employed as research instrument in current study using 5-points likert scale (1-Strongly Disagree to 5-Strongly Agree). Questionnaire of this

study is developed by adapting existing scales. Knowledge management capabilities were measured by adapting scale developed by Gold et al. (2001), scale developed by Bess et al. (2010) was adapted for organizational learning and organizational performance was measured using Delaney and Huselid (1996) scale. The items of the existing scales are discussed with a panel of banking experts and then molded according to the language, context and settings of the current study.

Exploratory Factor Analysis (EFA) is conducted for ensuring validity on first thirty responses and items that have above 0.4 factor loading are included in the study as per the criteria laid down by Hair et al. (2010). The items of Technology is reduced to nine from eight, Culture from thirteen to five, Knowledge Acquisition from thirteen to five, Knowledge Application from twelve to five, Organizational Learning from eleven to seven and Organizational Performance from twelve to eight.

Sample adequacy has been checked through Kaiser-Meyer-Olin (KMO) test that have value 0.827. The KMO value above then 0.8 is good and ensure the adequacy of the sample (Cerny & Kaiser, 1977; Hair et al., 2010). Meanwhile, Bartlett’s test has showed significant statistic (p= 0.000) that is confirming sphericity in the given sample (Hair et al., 2010; Rencher, 2003).

**Table 1: Discriminant and Convergent Validity of Scales**

<b>Construct</b>	<b>No. of Items</b>	<b>AVE*</b>	<b>CR**</b>
<b>Technology</b>	8	0.527	0.898
<b>Culture</b>	5	0.540	0.853
<b>Knowledge Acquisition</b>	5	0.510	0.838
<b>Knowledge Application</b>	5	0.519	0.843
<b>Organizational Learning</b>	7	0.502	0.875
<b>Organizational Performance</b>	8	0.506	0.890

\* Average Variance Explained \*\* Composite Reliability

The current study adopts the two-way procedure to ensure the reliability of the scale. At first the stance, the guidelines of Fornell and Larcker (1981) are used to confirm the reliability of each variable using composite reliability values. In Table 1, the values of composite reliability is stated that are ranged from 0.8 to 0.9 and fall with in the acceptable range defined by Fornell and Larcker (1981), i.e. above 0.7.

The viability of scales regarding convergent validity is tested by analyzing the values of Average Variance Explained (AVE). If the values of AVE is greater than 0.5, it indicates that scales have convergent validity (Fornell & Larcker, 1981; Nuechterlein et al., 2008). The values of AVE are lies from 0.502 to 0.540 which are appropriate to establish the convergent validity of the scales. According to Fornell and Larcker (1981), discriminant validity can be ensured if more than fifty percent variance is extracted from the scales. The values of AVE are clearly indicating that constructs have appropriate discriminant validity.

In second phase, inter-correlation is tested using cronbach alpha values. While comparing the Cronbach (1951) alpha values, it was found that all values lies in the acceptable criteria i.e. above 0.7 as defined by Hair et al. (2010).

**Table 2: Reliability Analysis using Cronbach Alpha Value**

<b>Construct</b>	<b>No. of Items</b>	<b>Alpha</b>
<b>Technology</b>	8	0.805
<b>Culture</b>	5	0.791
<b>Knowledge Acquisition</b>	5	0.787
<b>Knowledge Application</b>	5	0.863
<b>Organizational Learning</b>	7	0.825
<b>Organizational Performance</b>	8	0.774

### 3.3.1 Conformity Factor Analysis

To ensure the validity of the constructs and in commutative the validity of the instrument, Conformity Factor Analysis (CFA) has been conducted through AMOS 21. The instrument contains six latent variables (technology, culture, knowledge acquisition, knowledge application, organizational learning and organizational performance). The results of the modification indices suggest that instrument has appropriate validity to measure what it is intended to measure,  $CMIN/df=2.87 < 3.00$ ,  $CFI=0.912 > 0.90$ ,  $TLI=0.945 > 0.90$ ,  $RMSEA=0.64 < 0.80$ ,  $GFI=0.976 > 0.90$ ,  $AGFI=0.981 > 0.90$  (Kline, 2006; Ullman & Bentler, 2003).

**Table 3: Confirmatory Factor Analysis**

<b>Indices</b>	<b>RMSEA</b>	<b>CMIN/df</b>	<b>CFI</b>	<b>TLI</b>	<b>GFI</b>	<b>AGFI</b>
<b>Values</b>	0.64	2.87	0.912	0.945	0.976	0.981
<b>Standard</b>	<0.80	<3.00	>0.90	>0.90	>0.90	>0.90
<b>Appropriateness</b>	Yes	Yes	Yes	Yes	Yes	Yes

Research hypotheses are tested by employing correlation analysis, multiple regression analysis and Preacher and Hayes (2004) mediation test.

## 4. Data Analysis

In current study, a comparative analysis is conducted between public and private sector banks of Pakistan. The data is obtained from the managerial level employees of selected banks. Out of 390 distributed questionnaires 228 responses were valid as per the criteria laid down by Creswell (2013). Moreover, Table 1 explained the demographic statistics of the study. With respect to gender composition 99 & 94 males and 17 & 18 females were participated in the study from public and private banks respectively. Further, age-wise maximum participates were new entrants or have less than ten years of experience.

**Table 4: Demographic Statistics of the Study**

<b>Particulars</b>	<b>Public Sector</b>	<b>Private Sector</b>
<b>Gender Composition</b>		
Male	99	94
Female	17	18
<b>Age</b>		
21-30	52	29
31-40	28	50
41-50	28	18
51-60	8	15
<b>Number of Participants</b>	116	112

#### *4.1 Correlation Analysis*

Table 5, reports the correlation matrix that is depicting that KM capabilities facets has positive correlation with organizational performance as technology has 0.657, culture 0.662, acquisition 0.658, application 0.703 and organizational learning has 0.680 with significance level ( $p < 0.005$ ) at 0.01 level of significance in public sector banks and somewhat weak correlation exists in privates sector banks as technology respond 0.658, culture 0.389, acquisition 0.392, application 0.309 and organizational learning has 0.455 ( $p < 0.005$ ).

The correlation analysis showed that public sector banks have responsive to knowledge management with respect to performance in comparison with private sector banks as high correlation exist in public sector banks and moderate correlation exist is private sector banks.

**Table 5: Correlation Analysis of KMC, OL & OP**

	Correlation Matrix Public Sector Banks						Correlation Matrix Private Sector Banks					
	TC	CC	KA	KN	OL	OP	TC	CC	KA	KN	OL	OP
Technology (TC)	1						1					
Culture (CC)	.801*	1					.445*	1				
Knowledge Acquisition (KA)	.726*	.745*	1				.476*	.529*	1			
Knowledge Application (KP)	.643*	.669*	.821*	1			.361*	.589*	.631*	1		
Organizational Learning (OL)	.752*	.785*	.753*	.788*	1		.576*	.535*	.568*	.634*	1	
Organizational Performance (OP)	.657*	.662*	.658*	.703*	.680*	1	.568*	.389*	.392*	.309*	.455*	1

\*Correlation is significant at the 0.01 level (2-tailed)

#### 4.2 Multiple Regression Analysis

Regression analysis was conducted to measure the direct effect of KM capabilities on OP that is also the first step towards Preacher and Hayes (2004) mediation analysis. It is important to check the viability of the data before conducting multiple regression analysis. Normality test was conducted and it is revealed all the values of skewness and Kurtosis are lies between -1 and +1, that is clearly indicating that data is suitable for linear regression analysis as per the criteria laid down by Kline (2006). For further clarity of the linear effect, scatter plots were also checked along with normal probability plots of the regression residuals that also form a straight line. The results of linear effect and centrality of standardized residual to zero also indicating that there is homoscedasticity prevailed. In addition, to ensure collinearity, Tolerance was checked that have appropriate value of 0.44 with VIF=2.19 which is showing that there is no problem of multi-collinearity in the data. The significance of the Durbin-Watson test ensure that there no auto-correlation exist in the data. Researchers conduct the regression analysis to find out the impact of KM capabilities on OP after satisfying necessary assumptions to conduct the regression analysis i.e. linearity, normality, auto-correlation, multi-collinearity and outliers.

The results of multiple regression analysis showed that public sector banks have more variation in organizational performance in comparison with private sector banks (see table 6). In-depth analysis explained that knowledge application is public sector banks ( $\beta=0.422$ ,  $p<0.005$ ) and technology ( $\beta=0.539$ ,  $p<0.005$ ) in private sector banks were the critical capabilities to generate organizational performance.

**Table 6: Regression Analysis of Organizational Performance as Outcome Variable**

Particulars	Statistical Findings from Public Sector				Statistical Findings from Private Sector			
	Unstandardized Coefficients		Standardized Coefficients		Unstandardized Coefficients		Standardized Coefficients	
	B	S.E.E.	Beta	Sig.	B	S.E.E.	Beta	Sig.
Technology (TC)	.236	.114	.226*	Yes	.539	.101	.461*	Yes
Culture (CC)	.210	.120	.198*	Yes	.231	.118	.202*	Yes
Knowledge Acquisition (KA)	.201	.119	.194*	Yes	.199	.122	.189*	Yes
Knowledge Application (KP)	.422	.107	.431*	Yes	.237	.114	.226*	Yes
	<i>R</i>			0.760		<i>R</i>		0.594
	<i>R</i> <sup>2</sup>			0.578		<i>R</i> <sup>2</sup>		0.353
	<i>Adj. R</i> <sup>2</sup>			0.563		<i>Adj. R</i> <sup>2</sup>		0.329
	<i>Std. Error</i>			0.978		<i>Std. Error</i>		0.822
	<i>R</i> <sup>2</sup> Change			0.578		<i>R</i> <sup>2</sup> Change		0.353
	<i>F</i> Change			38.007		<i>F</i> Change		14.611
	<i>Sig. F</i> Change			0.000		<i>Sig. F</i> change		0.000

Note: *a.* Predictors: KC, CC, KA, KP; *b.* Dependent Variable: OP P-value in parentheses,\* indicate significance at the 0.05 S.E.E. = Standard Error of the Estimate

#### 4.3 Mediation Analysis

To test the mediation effect of organizational learning in between KM capabilities and organizational performance, Preacher and Hayes (2004) one-go analysis was used at 5000 bootstrapping. To test the model, four multiple paths are drawn to analysis the mediating effect and comparison of Path-C & C' is done. Table 7 is showing the facts and figures that is depicting that organizational learning is partially mediating the relationship. The results of Path-A reveal that there is positive association between technology and organizational learning, the responsiveness of technology in an KM system is better in public sector as compared to private sector banks ( $\beta_{pb}=0.475$ ,  $\beta_{pr}=0.412$ ). Further, cultural KM capabilities are better to generate organizational learning in private sector when compared with public sector banks ( $\beta_{pb}=0.373$ ,  $\beta_{pr}=0.387$ ). On the other hand, knowledge acquisition is helpful to produce organizational learning more efficiently in private sector ( $\beta_{pb}=0.358$ ,  $\beta_{pr}=0.476$ ) and effect of knowledge application on organizational learning are positive in both sectors banks ( $\beta_{pb}=0.487$ ,  $\beta_{pr}=0.534$ ). The finding of Path-B is reflecting the effects of organizational learning on organizational performance. The comparative analysis shows that if organizational learning orientation is prevailed, private sectors has more ability to excel the performance as compared to private sector banks ( $\beta_{pb}=0.398$ ,

$\beta_{Pr}=0.454$ ). The change in  $R^2$  found promising with  $p<0.005$  that has of evident that partial mediation occurs. The mediation results are more or less same in both sectors that mean that organizational learning in equally important for both the sectors.

**Table 7: Indirect effect of KM Capabilities on OP through OL (Public Sector Banks)**

Relationships	R <sup>2</sup>	Adj. R <sup>2</sup>	f-value	Path-A	Path-B	Path-C	Path-C'	p
TC→OL→OP	0.542	0.529	117.56	0.475	0.398	0.517	0.472	***
CC→OL→OP	0.447	0.431	89.61	0.373	0.398	0.343	0.304	***
KA→OL→OP	0.397	0.388	80.47	0.358	0.398	0.412	0.361	***
KP→OL→OP	0.563	0.548	123.34	0.487	0.398	0.457	0.395	***
<b>Indirect effect of KM Capabilities on OP through OL (Private Sector Banks)</b>								
Relationships	R <sup>2</sup>	Adj. R <sup>2</sup>	f-value	Path-A	Path-B	Path-C	Path-C'	p
TC→OL→OP	0.395	0.382	80.13	0.412	0.454	0.478	0.439	***
CC→OL→OP	0.423	0.410	94.65	0.387	0.454	0.401	0.357	***
KA→OL→OP	0.513	0.501	109.47	0.476	0.454	0.498	0.455	***
KP→OL→OP	0.549	0.532	118.98	0.534	0.454	0.507	0.462	***
Notes: TC= Technology, CC=Culture, KA= Knowledge Acquisition, KP= Knowledge Application, OL=Organizational Learning, OP=Organizational Performance, IV=Independent Variable, DV=Dependent Variable, MV= Mediating Variable. Path-A=IV→MV, Path-B=MV→DV, Path-C=IV→DV, Path-C'=IV→MV→DV, ***P<0.005								

**5. Discussion**

The present research aimed to investigate the association of KM infrastructure and process capabilities on OP through mediating role of OL in public and private sector banks of Pakistan.

Overall the research results revealed that KM capabilities play their role in enhancing OP of banks in both sector of Pakistan. The research has affirmed the theory of dynamic knowledge creation given by Nonaka (1994) and knowledge based theory of firm given by Grant (1996), that builds around the notion that successful OP can be attained by effectively creating, managing and applying knowledge. The results have confirmed the prior research studies that indicate KM capabilities as a significant predictor of generating OP (Ahmed et al., 2015; Cohen & Olsen, 2015; Ngah et al., 2016).

It was found that public sector banks are using KM capabilities in areas of culture, knowledge creation and application in more effective manner to generate OP as compared to private sector banks. In contrast, the private sector is only making effective use of KM infrastructure capabilities of technology and has almost same use of culture in generating OP. This shows that government’s investment in technology and information management infrastructure in banks is higher and being used more effectively in generating OL and OP. This is one of the possible reasons of better performance of public sector banks in Pakistan as compared to their private counterparts (Waleed et al., 2015).

Although, the direct relationship is proved yet it is not always the case, in certain cases the KM capabilities create environments and procedures that indirectly impact OP

(Seleim & Khalil, 2007). The present research has contributed to the KM literature by responding to the call of Chawla and Joshi (2011) for investigating the intervening mechanisms underlying KM capabilities and OP. Furthermore, Cho (2011) argued that KM capabilities must be integrated with procedures, culture and organizational infrastructure to create an impact on OP. Our research examined OL as a mediator between KM capabilities and OP. Partial support was found for these hypotheses, it implies that in addition to having a direct impact on OP, and KM capabilities create organizational learning that in turn creates higher level of performance. Ngah et al. (2016) postulated that unless the organizations are able to use KM capabilities as a tool of generating organization wide learning they cannot attain its full potential in generating OP. The mediating role of OL is supported by other research studies as well that state individual and team based learning is not as much effective in inculcating high OP until the learning is embedded in organization (Hung et al., 2011; Jiménez-Jiménez & Sanz-Valle, 2011; King, 2009; Liao & Wu, 2009).

## **6. Conclusion and Implications**

The current quantitative inquiry presents a comparative analysis between public and private sector banks of Pakistan. The results show that public sector banks are more responsive to knowledge management capabilities towards organizational performance as compared to private sector banks and organizational learning partially mediates the relationship between KM capabilities and OP of banks in Pakistan.

This research has theoretical as well as practical implications. Theoretically it has advanced and confirmed the application of dynamic knowledge creation theory of Nonaka (1994) and knowledge based theory of firm given by Grant (1996). In light of theoretical underpinnings the research states that firms can optimize the performance by successful creation, integration and application of knowledge. Furthermore, it has introduced OL as a mediating mechanism in KM capabilities and OP as the KM scholars are increasingly emphasizing the need to clarify the pathways that link KM capabilities to OP (Chawla & Joshi, 2011; Cho, 2011), thus offering an intervening mechanism that facilitates the use of KM capabilities for enhancing OP.

Practically, the research has implications for the management of public and private banks in Pakistan. First, banks in Pakistan have to work on maintaining up-to-date technology and apply knowledge in right direction for gaining better business performance. The focus should not only the creation of knowledge but its application should also be emphasized. (Akhavan & Pezeshkan, 2014). In addition, the top management and managers should support a knowledge and learning culture in banks so that the knowledge capabilities can result not only in individual level learning but embed as an organizational level asset. The findings suggest that organizational learning is a critical element that can be generated from effective knowledge management capabilities and eventually it contributes to organizational performance. The management should pay attention toward arranging training workshops and on-the-job mentoring for facilitating OL and encourage and motivate employees for effective creation and application of knowledge. Previously, the research studies in area of KM capabilities are carried out in manufacturing sector and SMEs (Cohen & Olsen, 2015; Gharakhani & Mousakhani, 2012; Hung et al., 2011; Meihami & Meihami, 2014) so we contributed by examining this concept in settings of banking sector. We also include the comparison of public and private sector banks, because the KM practices that work well in one sector might not

work as effectively in other sectors (Akhavan & Pezeshkan, 2014). Our findings suggest the management of public sector to build on the application and acquisition of Knowledge and create environments that facilitate learning in order to attain better performance. On the other hand these KM capabilities of technology and culture were more strong predictors of OP in private sector so they should divert more attention toward adoption of modern technology and manifestation of knowledge intensive culture for better OP.

### **7. Limitations and Future Directions**

First of all, this study has used subjective measures for measuring the organizational performance that may be misleading. In future, it is suggested that objective performance measures must be included i.e. ROA, ROE, earning per share and price-earnings ratio. Second, this study used cross sectional data at one point in time that may raise causality issue with common method bias. For future inquiries, it is suggested that to use more than one method to collect data at different timings that may mitigate common bias issues. Mixed method research or experimental studies can also be conducted to enhance the rigor of research results. This research has used regression based techniques for data analyses; future research studies can use SEM as a more rigorous analytical method. The scope of this study is restricted to the banking sector due to time and cost constraints. In future, studies may be spread over more than one sector that will resolve the issue of generalizability. Furthermore, we just included technology, culture, application and acquisition of knowledge as KM capabilities, the forthcoming studies can use other KM capabilities such as structure, knowledge conversion, knowledge storage and knowledge sharing as predictors of OP (Cohen & Olsen, 2015; Ngah et al., 2016). The research can be extend by examining other mediating mechanisms such as knowledge culture (Alavi, Kayworth, & Leidner, 2005; Maddan, 2009), readiness for technology adoption (Tanriverdi, 2005) and innovation (Chen & Huang, 2009; Darroch, 2005). Lastly, in order to understand the conditional impacts in which KM capabilities work best to generate OP, moderating variables such as KM performance can be investigated (Imran, 2014).

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