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Impact of Knowledge Management Capability on Innovation Capability

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Abstract:

Consumer demands change unpredictably, so having up-to-date consumer knowledge is the key to stay ahead of competition. This study investigates the impact of knowledge management capability on innovation capability. Using survey research technique, 186 responses have been obtained from managerial level bankers by self-administered questionnaires. The sample has been selected on convenience basis. The findings suggest that knowledge management acquisition has a positive impact on product, service and marketing innovation. Similarly, knowledge management diffusion also positively relates with product, service and marketing innovation. The findings would help managers in understanding how knowledge management capability becomes a source of competitive edge for the firm that cannot be imitated. Further, the study would enable them to realize the role of systematic acquisition and dissemination of consumer knowledge for delivering unique solutions to their needs and demands.

Keywords: Knowledge management capability, knowledge acquisition, knowledge diffusion, innovation capability

1. Introduction

The base of any business activity is customer; the banking sector today is driven by market responsiveness which calls for well management of customer profile. This means that the banks need systematic collection and dissemination of information regarding consumer needs and wants so that they can tailor their offers and come up with new ones. Innovation has any facets that include innovation in products, services and marketing. Product innovation is introduction of a differentiated product to the target consumer in terms of quality, function or appearance (Liao, Fei and Chen, 2007). Service innovation is delivering superior and unique service to consumers by understanding their needs and preferences (Hwang and Xu, 2008). Marketing innovation is market research, segmentation strategy, advertising, retailing and price-setting by incorporating marketing information system (Weerawardena, 2003). All these forms of innovation are possible only when consumer related knowledge is managed and made available for decision making. Knowledge management (KM) acquisition is collection and organization of valuable consumer knowledge that becomes a rare asset for the firm and allows for quick response and adaptation to the market changes (Shi and Yip, 2007). Knowledge management (KM) diffusion is timely dissemination of needed knowledge to the relevant decision makers. KM capability turns to a source of competitive advantage because that is usually difficult to copy. Companies utilize external information systematically to develop creative options that enhance productivity and leads to new ideas (Al-Hakim and Hassan, 2011). Previously the focus had always been on importance of technology based systems for achieving customer satisfaction; the critical role of knowledge management has lately gained recognition in research (Lambe, 2008). There is less significant work available on understanding the prediction role of knowledge management capability for innovation capability (Lin, Chen and Chiu, 2010); this gap is filled by current investigation. Therefore, the objectives of the study are a) to investigate the impact of knowledge management acquisition on innovation capability that is product, service and marketing innovation and b) to measure the effect of knowledge management diffusion on various dimensions of innovation such as product, service and marketing innovation.

2. Literature Review

Knowledge is considered to be the central factor in innovation literature (Camison and Fores, 2010; Zahra and George, 2002). Firms collect and utilize external knowledge for bringing out innovation (Xu, Houssin, Gaillaud and Gardoni, 2010) and this integration of knowledge and unique solutions is done by many firms for long term and sustainable competitive advantage (Al-Hakim and Hassan, 2011). Organizational innovation is observed in the presence of knowledge accumulation, regardless of the methods whether gaining external knowledge or enhancing internal knowledge option, the result of achieving differentiation for adaption to the consumer demands is fulfilled (Lai, Wang and Huang, 1997). Liu, Tsai and Chung (2001) explain how external knowledge is effectively absorbed for supporting creativity in existing techniques i.e. new products or new management for capturing innovation strategy (Chen, 2002). Knowledge management has a major role in shaping core competencies and learning capabilities in to competitive advantage and rejuvenate organizational development (Adams and Lamont, 2003). Herkema (2003) states that innovation is a knowledge directed exploitation of viable commercial solutions, purposely undergone for creating new knowledge for better services

and products. Innovation is an acceptance of behaviour or an idea that is new; it can be in tangible or intangible form. Every organization has absorption capacity which refers to understanding the value of new information for commercial application (Cohen and Levinthal, 1990), it is also used for describing the organizational environment in terms of how much capable it is for innovation. Organizations are considered competitive when they are high on scale of relative competitive advantage and innovation; having a sustainable competitive advantage calls for sound knowledge base (Nonaka and Takeuchi, 1995). Implicit as well as explicit knowledge is found to have an important role in organizations from innovation perspective. Alavi and Tiwana (2003) states that the interactive activity between individuals, any repository and individuals and between data warehouses is for expressing the information transfer process and how this information can be further used for making knowledge for innovation function. Innovation process is defined in terms of knowledge that is acquired shared and absorbed with the purpose of creating new knowledge. Leiponen (2006) states on the basis of case studies that different types of knowledge perform different roles in innovation process. If an organization has innovation capability, it will enable it to stand strong against competitors in the dynamic environment and exploit new opportunities generated from this competitive advantage and income (Carmeli and Azeroual, 2009; Collins and Smith, 2006). Knowledge is the central source for bringing something new to the market, but it depends on how effectively the knowledge sources have been managed & the complication of rich knowledge sources have been managed. The organizational ability of filtering and using knowledge may decide how much newness it can bring to the market and consumer; many studies claim that knowledge sharing increases ability to do something new including rapid problem solving and pro-active approach to new information (Leibowitz, 2002; Lin, 2006). Gloet and Terziovski (2004) outlines that a significant positive relation exists between knowledge management practices and innovation performance which builds a base for approaching KM activities as a part of the corporate culture. Thus knowledge accessibility and transfer practices will give rise to knowledge enhancement and leads to crating something different from competitors. Accessible knowledge that has been transferred to a profitable new idea ready for commercialization in an ongoing mode is of much interest of academicians and industrialists (Xu, Houssin, Gaillaud and Gardoni, 2010). Because of its complicated nature, there is no such proper definition which can define knowledge; high tech companies take advantage of knowledge gained from their customers in uplifting their product image (Lin, Che and Ting, 2012). However Darroch and McNaughton (2002) mention a mixed evidence of a relationship between knowledge management process and innovation; this makes the relationship between knowledge management process and innovation vague. We have understood that knowledge and innovation are related however, less significant work is available on investigating the direct role of KM acquisition and diffusion on various dimensions of innovation i.e. product, service and marketing innovation, which leads to the development of hypotheses H_1 to H_6 .

2.1. Hypotheses of the Study

Keeping in view the above discussion, following hypotheses are developed for the study:

- H_1 : KM acquisition has a positive impact on product innovation
- H_2 : KM acquisition has a positive impact on service innovation
- H_3 : KM acquisition has a positive impact on marketing innovation
- H_4 : KM diffusion has a positive impact on product innovation
- H_5 : KM diffusion has a positive impact on service innovation
- H_6 : KM diffusion has a positive impact on marketing innovation

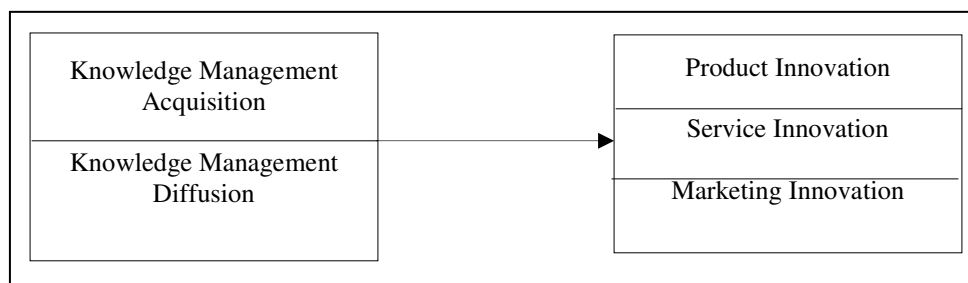


Figure 1: Conceptual Framework

3. Research Methodology

This is a descriptive study and unit of analysis is 'individual'. The type of investigation is co-relational and time horizon is cross-sectional with minimal researcher interference. The population for current investigation includes all managerial level bankers working in various public and private banks in Lahore. The sample consisted of 186 managerial level bankers selected by convenience sampling technique. Following survey research method, primary data was collected by using self-administered questionnaires. The questionnaire consisted of two parts. First part included demographic questions i.e. gender, age, qualification and professional experience. The second part of the questionnaire involved questions for measuring knowledge management capability and innovation capability. The KM acquisition is measured by using 8 items that are adopted from Moreno & Melendez (2011); KM diffusion is measured by 3 items adopted from Moreno & Melendez (2011); items for product innovation are 5, taken from Damanpour (1992), service innovation is measured by 4 items taken from Mathe and Shapiro (1993) and finally marketing innovation is measured by using 5 items from Ibarra (1993) and Hammer (2004).

4. Data Analysis & Discussion

4.1. Demographic Characteristics of Respondents

Sr #	Variables	Category	Status	
			Frequency	Percentage %
1.	Gender	Male	138	74.2
		Female	48	25.8
2.	Age	20-30	107	57.5
		31-40	58	31.2
		41 and above	21	11.3
3.	Qualification	Graduate	75	40.3
		Post graduate	111	59.7
4.	Professional Experience	0-5 years	92	49.5
		6-10 years	61	32.8
		11-15 years	14	7.5
		Above 16 years	19	10.2

Table 1: Demographic Characteristics of the Respondents

It is observed (Table 1) that majority of the respondents are males (74.2%) with maximum belonging to age group 20-30 years (57.5%) followed by 31 to 40 years (31.2%) and then 41 and above (11.3%) respectively. Most of the respondents are post- graduates (59.7%) and their professional experience is seen from 0-5 years (49.5%) for majority followed by 6-10 years (32.8%) and above 16 years (10.2%) subsequently.

4.2. Descriptive Statistics & Reliability

Variables	Mean	SD	Cronbach's Alpha
1. KM Acquisition	5.497	0.690	0.784
2. KM Diffusion	5.470	0.859	0.723
3. Product Innovation	5.766	1.033	0.700
4. Service Innovation	5.476	0.860	0.811
5. Marketing Innovation	5.470	0.806	0.806

Table 2: Descriptive Statistics & Reliability

The descriptive statistics for the study variables are presented in Table 2. The mean value for KM acquisition is 5.497 with standard deviation of 0.690, mean of KM diffusion is 5.470 with standard deviation of 0.859, mean of product innovation is 5.766 with standard deviation of 1.033, mean of service innovation turns out to be 5.476 with standard deviation of 0.860 and finally mean of marketing innovation is 5.470 with standard deviation of 0.806. The Cronbach's Alpha value is calculated for checking the internal consistency of scales. It is observed from Table 2 that, for all the variables the alpha value is above 0.7 which indicates that all variable scales are reliable.

4.3. Bi-Variate Correlation

Variables	1	Sig.	2	Sig.	3	Sig.	4	Sig.	5
1. KM Acquisition	1								
2. KM Diffusion	.344	0.000	1						
3. Product Innovation	.366	0.000	.152	0.000	1				
4. Service Innovation	.443	0.000	.348	0.000	.267	0.000	1		
5. Marketing Innovation	.429	0.000	.296	0.000	.247	0.000	.580	0.000	1

Table 3: Bi-Variate Correlation

All variables significantly correlate (Table 3) at $p < 0.01$. There is significant correlation of KM acquisition with product innovation (0.366), service innovation (0.443) and marketing innovation (0.429), thus providing initial support for $H_1 - H_3$. Similarly, KM diffusion significantly correlates with product innovation (0.152), service innovation (0.348) and marketing innovation (0.296), hence providing initial support for $H_4 - H_6$. Also, significant correlation exists between KM acquisition and KM diffusion (0.344), product innovation and service innovation (0.267), product innovation and marketing innovation (0.247) and finally between service innovation and marketing innovation (0.580).

4.4. Regression Analysis

Hypotheses	IV	DV	R ²	B	Std. Error	T	Sig.	F	Sig.
H ₁	KM Acquisition	Product Innovation	0.134	0.366	0.964	5.336	0.000	28.470	0.000
H ₂	KM Acquisition	Service Innovation	0.196	0.443	0.773	6.700	0.000	44.888	0.000
H ₃	KM Acquisition	Marketing Innovation	0.184	0.429	0.730	6.440	0.000	41.476	0.000
H ₄	KM Diffusion	Product Innovation	0.023	0.152	1.024	2.083	0.039	4.337	0.039
H ₅	KM Diffusion	Service Innovation	0.121	0.348	0.808	5.039	0.000	25.395	0.000
H ₆	KM Diffusion	Marketing Innovation	0.088	0.296	0.771	4.208	0.000	17.704	0.000

Table 4: Regression Analysis

The regression analysis for testing hypotheses is provided in Table 4. It is observed that KM acquisition has positive impact on product innovation (0.366, $p < 0.01$); R^2 value indicates 13.4% change in product innovation caused by KM acquisition, thus H_1 is supported. Next, KM acquisition has positive impact on service innovation (0.443, $p < 0.01$); R^2 value shows that 19.6% change is caused in service innovation by KM acquisition, thus supporting H_2 . Further, KM acquisition has significant association with marketing innovation (0.429, $p < 0.01$) and there is 18.4% change in marketing innovation produced by KM acquisition, hence supporting H_3 . There is positive impact of KM diffusion on product innovation (0.152, $p < 0.05$) with 2.3% change caused in product innovation by KM diffusion, this supports our H_4 . Also KM diffusion positively associates with service innovation (0.348, $p < 0.01$) indicating 12.1% change in service innovation by KM diffusion, hence supporting H_5 . Finally, the KM diffusion significantly affects marketing innovation (0.296, $p < 0.01$) with 8.8% change produced in marketing innovation by KM diffusion, hence H_6 is supported. The F value for all hypotheses are significant ($p < 0.01, 0.05$) which indicates that the regression model predicts the response variable better than the mean of response. Also the T values for all hypotheses give significant value ($p < 0.01, 0.05$) indicating difference in dependent variable caused by independent variable.

5. Conclusion

This research concludes that it is important for firms to deliver new products and services with marketing innovation techniques to remain competitive in the market and manage customer relationships well. Banks manage knowledge by acquiring from various sources and then perform its application & diffusion when they work for innovation. The results suggest that KM acquisition positively affects product, service and marketing innovation. Also KM diffusion is found to have a positive significant impact on innovation capability i.e. product, service and marketing innovation.

5.1. Implications of Study

The current study has important academic and managerial implications. Study is beneficial for research scholars as it has investigated knowledge management for prediction role for innovation, a dimension that has been tapped less in the previous investigations. The findings would be helpful for managers in setting focus on how important it is to set knowledge management structures for proper acquisition and dissemination of knowledge so that timely decisions can be taken for better consumer demand fulfillment and superior service. For implementing innovation strategy, a sound knowledge base is necessary for striving constantly in the race of distinguished solutions.

5.2. Limitations & Future Directions

Current study has certain limitations which lead to future directions. This study is conducted in banking sector which is a service sector, future investigation may be carried in different sectors for more generalizability of results. Next, the effect of KM capability may be investigated on other dimensions of innovation such as process innovation and administrative innovation. Further, the outcomes of innovation capability may be explored, such as firm's performance and market share.

Overall, the study contributes by examining the crucial role of knowledge management capability in affecting various dimensions of innovation, without which an organization cannot sustain market position or grow further.

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