*IOSR Journal of Business and Management (IOSR-JBM)*
*e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 17, Issue 7.Ver. III (July. 2015), PP 39-45*
*www.iosrjournals.org*

# Model Development of Knowledge Management System At Hasanuddin University

Nirwan[1], Muhammad Asdar[2], Rakhman Laba[2], Indrianty Sudirman[2]
[1](Department of Mathematics, Hasanuddin University, Indonesia)
[2] (Department of Management, Hasanuddin University, Indonesia)

***Abstract:*** *This research is aimed to analyze the direction and the level of significance on the influence of the implementation of knowledge management in Hasanuddin University covering policy, information technology, and culture toward knowledge sharing performance either directly or indirectly through transfer mechanism and motivation. The design of this research is an explanatory research using cross sectional approach with survey, then further analyzed using structural equation modelling (SEM). The sample in this research is 327 respondents taken from a total population of 1690 faculty members using a proportional sampling method. Based on the test results, twelve hypotheseswere proven and three hypotheses were not proven. There are three interesting findings against the initial hypotheses as follows: 1) information technology is not directly influenced knowledge sharing performance significantly; 2) information technology has significant but negative influenced toward transfer mechanism, and 3) the influence of information technology toward motivation*

***Keywords:*** *Culture, Information technology, Knowledge sharing, Motivation, Policy, and Transfer mechanism.*

## I. Introduction

The implementation of knowledge management system (KMS) in higher education institutions (HEIs) has evidently brought positive impacts to the quality improvement in HEIs in terms of either academic knowledge that's the business core of HEIs or organizational knowledge as a management tool (Ramakrishnan and Yasin, 2012) as well ashas proven in improving creativity and innovation (Lee et. al., 2004, Matthews, 2003). In Indonesia, the implementation of KMS has not received adequate attention from either profit or not profit organizations including HEIs as reflected by the rareness of publications on this issue, which is really paradox with the core business as a knowledge creation.

Currently, the implementation of KMS in Indonesia's HEIs is still limited into the form of repository serving as a data storage. In many cases, organizations assume that the application of Knowledge Management System (KMS) such as repository and information system would automatically improve the performance since the presence of the system enables to mechanically transfer and share knowledge (Gray and Mayster, 2006). Therefore, the function of KMS in creating innovation and increasing competitive advantage could not be optimized. However, as stated by Jasperson et.al. (2005), knowledge transfer and sharing in an organization will not be happened if the presence of the system is underutilized. The application of KMS will be success if the system is utilized by all elements within the organization, starting from top management and down into the bottom level. According to Taylor (2004), the key success of KMS application in an organization is how to mobilize all elements in the organization to use KMS constantly. Thomas (2001) suggested that the dominant factor in creating such an effective knowledge sharing is motivation. Therefore, it is very important to study more comprehensive on what factors influencing the performance of knowledge sharing in Indonesia's HEIs.Hasanuddin University, the biggest university in eastern part of Indonesia, has initiated to develop KMS. This effort has been initiated since 2004 through project grant then continuously developed and strengthened by university's policy in the beginning of the year of 2010 as explicitly written in University Strategic Plan 2011-2015. However, opproaching the end of the period of strategic plan, the result achievedby the program is still less than expected. Despite the fact that the university has successfully developed information system, repository, Learning Management System (LMS), and global development learning network (GDLN) during the last four years, but those four systems have not properly functioned as a KMS in general sense.

The main purpose of this paper is to address the direction and significant influence of policy, information technology, and culture to accelerate the performance of knowledge sharing directly or indirectly through transfer mechanism and motivation.

## II. Literature Review

Knowledge sharing in an organization has been proven enable to improve the organizational capacity in perform learning and leverage organizational competitiveness (Argote and Ingram 2000, Alony and Whymark, 2006). Therefore, knowledge sharing is a great challenge for organizations to distribute individual knowledge to become a collective knowledge that will lead to the improvement of organizational performance.

In higher education, knowledge sharing has been one of the mission statement implicitly embedded in the three mandates of higher education. Hasanuddin University itself has explicitly stated that one of the missions is to conserve, to develop, to invent, and to create knowledge, technology, art and culture. For that reason, the important role of higher education in developing the society is to maintain the balance between knowledge input and output.

Knowledge sharing in an organization is a complex activity influenced by variety factors. The improvement of knowledge management performance is not separated from policy framework. As stated by De Brún (2005) that it is required a policy to assure the implementation of knowledge management through a system regulation or knowledge transfer mechanism. Policy is one of very important aspects to assure the implementation of KMS. The policy will govern the system itself and the mechanism of knowledge transfer (De Brún, 2005) which is also supported by a research conducted by Bruno Lapporte at 10 cities in Latin Amercia and Caribia. The manager of Knowledge and Learning Service at the World Bank found that a good policy between CoPs clients and local government is an example of knowledge transfer mechanism with a good knowledge partnership model implemented in KMS (Rao, 2005).

Ardichvili et al. (2003) described that a trust would be a motivation for individual within the organization in sharing their knowledge. Connely and Kelloway in Baharim (2008) defined that knowledge sharing as an activity involving information sharing in an organization to improve the performance of organization. Dyer and Nobeoka (2000) also added that appreciation to any individual contributing in knowledge sharing any effort to prevent free rider to take advantage in knowledge sharing is a dimension of how a motivation becoming the driver of knowledge sharing.

Knowledge sharing in an organization will be difficult without assistance of information technology. In general, either community or a group of employees in an organization use an email and other information technology applications to share their knowledge in performing their team works in the organization (Hansen, 1999; Owen-Smith and Powell, 2004; Stenmark, 2000). This has also been appointed by Ardichvili et.al, (2003), stating that technology has given a dominant factor in the successfulness of knowledge sharing. Providing repository only will give a smaller impact on the performance of knowledge sharing than any effort to integrate all elements within the organization in collaborative teamwork with the assistance of information technology.Furthermore, De Brun (2005) also convinced that in addition to easy and relevant access to be used among the members within the organization connecting to the information system and sources, organizational culture is also very important in knowledge management. In order to create knowledge environment, it needs value, culture, and changing of attitude and work pattern of organizational members. In line with De Brun (2005), Marsick and Watkins (2003) also stated that organizational culture supporting learning could drive the improvement of organizational performance. Learning culture is benefit as a tool to create trust, value, and organizational behavior of the members within the organization to become learners that could contribute in improving the knowledge of members in the organization as well as to drive innovation that would affect the improvement of organizational performances.

Furthermore, Agoston, et.al. (2013) explained that knowledge transfer can be classified as knowledge transfer mechanism personally and knowledge transfer mechanism using information technology. According to Geuna and Muscio (2008) and Hubig and Jonen (2006), personal transfer knowledge is conducted by educated people from university to society in industrial society in the form of presentation, education and training. In addition to knowledge transfer, the utilization of information technology is also important to ensure that all individual within the organization could improve the quality and accuracy of services.

In line with that, recently the utilization of internet and information system network becomes more intense in knowledge sharing. To support the mechanism of knowledge sharing, it is required for supporting facilities of knowledge transfer. Ciabuschi (2005) also pointed out that information technology is a key success in supporting the knowledge transfer within the organization. Supporting facilities used for knowledge sharing among others are internet, center for education and training, library and canteen.

The performance of knowledge sharing can be measured from variety dimensions such as: number of distributed knowledge, the frequency of knowledge sharing, level of knowledge utilization, level of available useful knowledge, and how any activity has knowledge sharing content (Levin and Cross, 2004; Hansen, 1999; Dyer and Nobeoka, 2000; Spencer, 2003). This condition is very relevant with the mission and objectives of higher education mandates covering learning, research and community services.

The conceptual framework of this research is presented in figure 1.

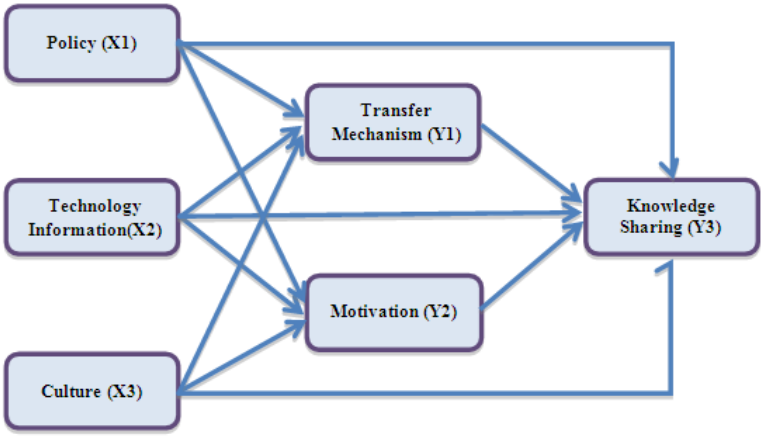


**Figure 1.** Conceptual Framework of Knowledge Sharing

## III. Research Method

The design of this research is an explanatory research using cross sectional approach with survey method (Malhotra et.al, 2002). The data obtained is further analyzed through a statistical test on the functional relations among variables of policy, information technology, and culture toward knowledge sharing performance in Hasanuddin University mediated by variables of transfer mechanism and motivation.

**Population, Samples, and Sampling Techniques**

The population in this research consisted of all academic staff with total number of 1690 persons (per December 2013). The criterion of the sample used is as follows:

i. Minimumworking length as faculty members for 5 years, and
ii. Having functional rank.

To determine the size of sample (*n*), Slovin formula is used as follows:

$$n = \frac{N}{Na^2 + 1}$$

WhereN = number of population, and α = significant level. Using the value of α = 5%, therefore the number of sample in this research is$n$ = 324.45 ≈ 325.

Based on the objectives of this research, the data analysis technique in this research is a combination of descriptive and inferential statistics using structural equation modeling (SEM).

## IV. Analysis and Discussion

At the early stage of this research, the distribution of respondent to each research variable is tabulated as represented in table 1.

**Table 1 . Summary of Validity test and Realibilty test of Research variable**

| Variable | Amount | | Correlation | | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items |
|---|---|---|---|---|---|---|
| | Indicator | N | Min | Max | | |
| Policy | 12 | 45 | 0.553 | 0.835 | 0.899 | 0.900 |
| Information Technology | 18 | 45 | 0.437 | 0.850 | 0.762 | 0.946 |
| Culture | 10 | 45 | 0.493 | 0.758 | 0.752 | 0.864 |
| Transfer Mechanism | 10 | 45 | 0.291 | 0.668 | 0.709 | 0.753 |
| Motivation | 5 | 45 | 0.858 | 0.930 | 0.822 | 0.953 |
| Knowledge Sharing | 6 | 45 | 0.702 | 0.884 | 0.793 | 0.910 |
| | 61 | 45 | 0.291 | 0.930 | | |

Table 1 shows that the variable of transfer mechanism is the highest response especially the indicator of mostly respondent obtaining their knowledge from online sources while the smallest source obtain from peer through information network. Furthermore, the variable which having lowest average score is information technology. The respondent stated that the availability of information technology is insufficient to provide them obtaining benefits of knowledge distribution. The respondent pointed out that the utilization of information technology is inadequate to upload their scientific products of academic society.

The initial model of this research is represented in figure 2.

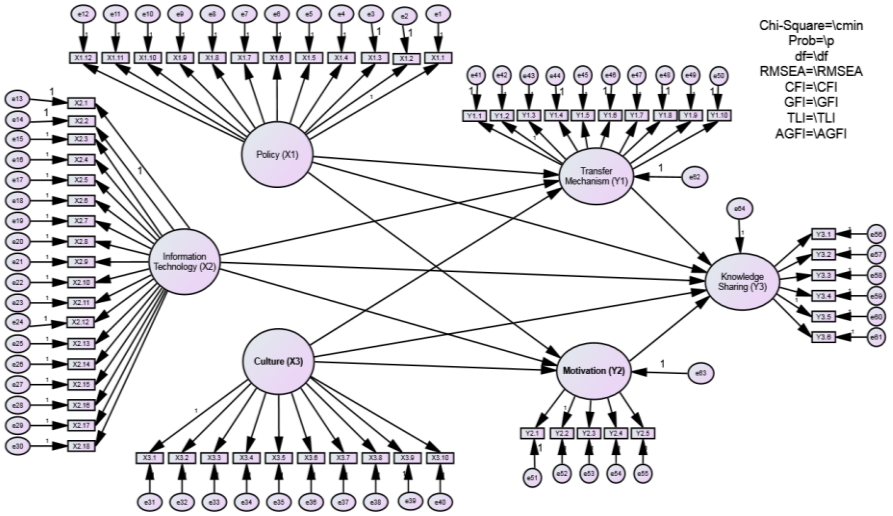


**Figure 2.** The diagram of research model

Based on this model, it can be further develop 15 research hypothesis in accordance with figure 2.

A confirmatory factor analysis is then carried out to develop a measurement model to verify validity and reliability of each indicators to measure each variable. At the beginning of measurement, the goodness of fit indices of the model does not meet with fit criteria; therefore model modification is performed. The results of measurement for each variable is represented in figures below.

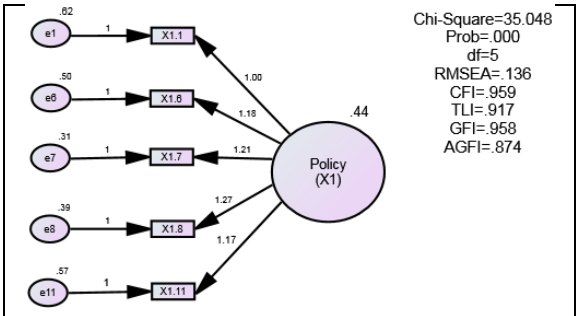


**Figure 3.** Final CFA Test for Policy

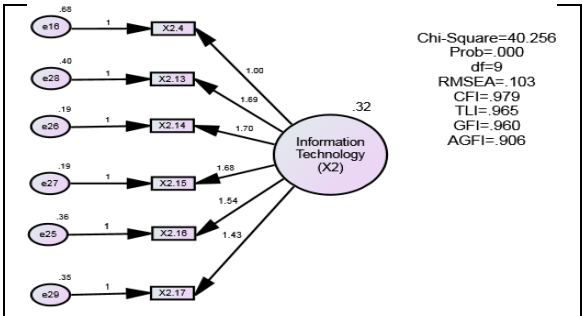


**Figure 4.** Final CFA Test for IT

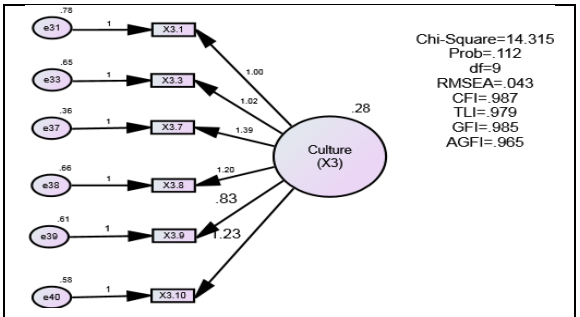


**Figure 5.** Final CFA Test of Culture

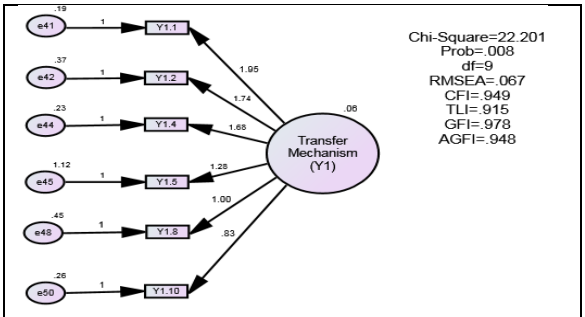


**Figure 6.** Final CFA Test of Transfer Mechanism

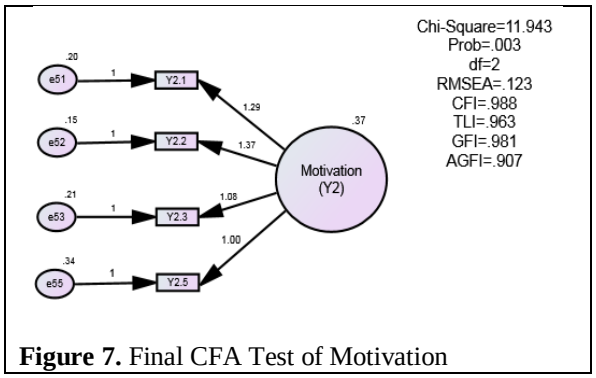


**Figure 7.** Final CFA Test of Motivation

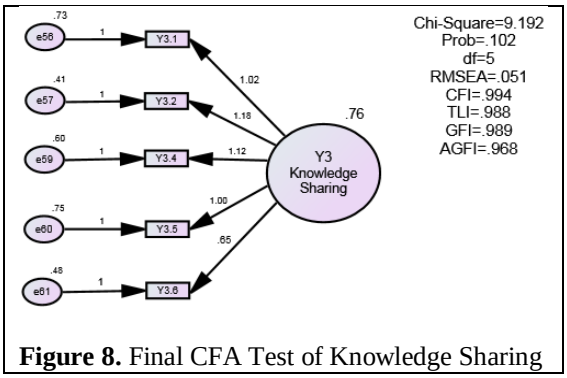


**Figure 8.** Final CFA Test of Knowledge Sharing

The conceptual model is then further performed to analyze the relationships among variables to determine the relevancy of the model as well as addressing the research hypothesis.

The final confirmatory factor analysis (CFA) of the complete model is presented in Figure 9, while the result of hypothesis test is summarized in Table 2.

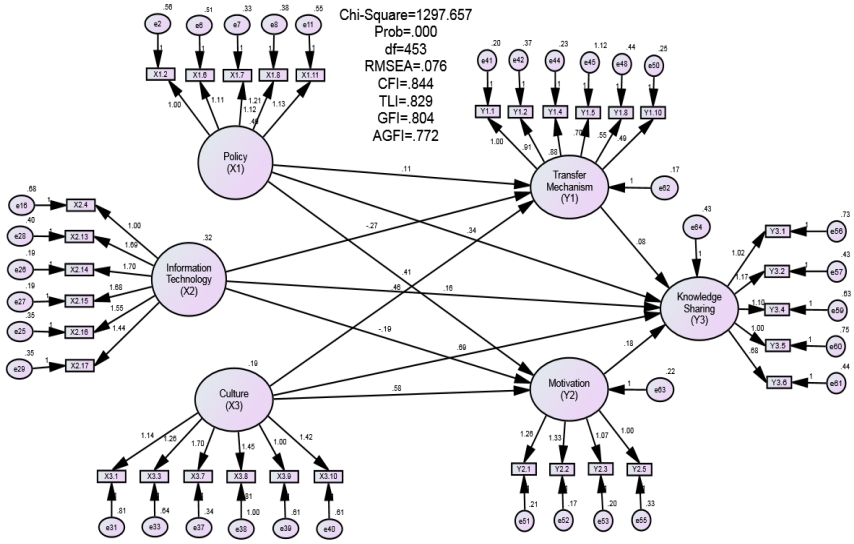


**Figure 9.** Final CFA Test of Complete Model

**Table 2. The result of hypotheses test**

| No | Independent Variable | Dependen Variable | Direct Effect | | | |
|---|---|---|---|---|---|---|
| | | | Standardized | CR | P-value | Remarks |
| 1 | Policy | Transfer mechanism | 0.1598 | 2.3856 | 0.0170 | Significant |
| 2 | Information Technology | Transfer mechanism | -0.3114 | -3.8682 | <0.001 | Significant |
| 3 | Culture | Transfer mechanism | 0.4083 | 4.0788 | <0.001 | Significant |
| 4 | Policy | Motivation | 0.4652 | 7.3464 | <0.001 | Significant |
| 5 | Information Technology | Motivation | -0.1728 | -3.3205 | <0.001 | Significant |
| 6 | Culture | Motivation | 0.4093 | 5.6486 | <0.001 | Significant |
| 7 | Policy | Knowledge sharing | 0.2883 | 3.9030 | <0.001 | Significant |
| 8 | Information Technology | Knowledge sharing | 0.1132 | 1.8419 | 0.0655 | Not Sign. |
| 9 | Culture | Knowledge sharing | 0.3711 | 4.0868 | <0.001 | Significant |

| | Independent Variable | Dependent Variable | Indirect Effect | | |
|---|---|---|---|---|---|
| | | | Intervening Variable | Standardized | Remarks |
| 10 | Policy | Knowledge sharing | Transfer Mechanism | 0.2078 | Significant |
| 11 | Policy | Knowledge sharing | Motivation | 0.6043 | Signifikan |
| 12 | Information Technology | Knowledge sharing | Transfer Mechanism | 0.6043 | Significant |
| 13 | Information Technology | Knowledge sharing | Motivation | -0.2625 | Significant |
| 14 | Culture | Knowledge sharing | Transfer Mechanism | -0.0337 | Significant |
| 15 | Culture | Knowledge sharing | Motivation | 0.4572 | Significant |

As shown on the above table, 12 of 15 hypothesis were accepted, and there were 3 test results against the hypothesis. Based on the test results, there are three distinct findings against hypothesis as follows: 1) information technology has no directly significant influence toward ~~of~~ knowledge sharing performance; 2) information technology has significant influence toward transfer mechanism in negative direction, as well as 3) the influence of information technology toward motivation. These facts indicate that the capability of information technology available in Hasanuddin University is contra productive in encouraging transfer mechanism and motivation. These findings is against previous findings that information technology is (Ardichvili et.al, 2003), who stated that technology has given a dominant factor in the successfulness of knowledge sharing. However, these findings were supported the statement of (De Brun, 2005) that easiness and relevancy of technology information to be used among the members are very important aspects in implementing KMS. Empirically, based on the interview, it is stated that faculty members find ~~it~~ difficulties in distributing their knowledge due to unreliable internet accessibility and unequally distributed in the campus. In addition, the university policy is insufficient in playing an important role to drive motivation and transfer mechanisms due to lack of socialization and consistently implemented reward and punishment system to encourage knowledge sharing among faculty members. The dominant variable in driving knowledge in Hasanuddin University is culture. However, culture is embedded in each individual of each academic staff such that the implementation of knowledge sharing has not equally distributed to all academic staff, therefore it needs to strengthen policy.

## V. Implication

The result indicates the importance of implementing policy consistently in knowledge sharing. In developing HEIs where KMS has not been implemented consistently, it is required to develop a complete policies covering all activities related the mission of HEIs related to knowledge sharing including learning, research, and community services activities. The implementation of KMS consistently is able to capitalize individual knowledge into organizational knowledge in order to accelerating competitiveness and supporting the implementation of the university missions. Any effort to implement individual knowledge need strengthening of policy implementation related knowledge sharing.

## VI. Recommendations

The implementation of KMS in needs to design more integrated to govern the system completely and comprehensively. Therefore, the university needs to develop policy and Standard Operating Procedures (SOP) related to KMS including etiquette and procedures to utilize the KMS. Consistently implementation of the policies related to KMS will build a culture of knowledge sharing through law enforcement from the university level. The negative direction of information technology toward transfer mechanism and motivation reflecting the urgency and the need for updating and adjusting information technology to the culture, decision making system, and organizational type of Hasanuddin University.

## References

[1]. Ramakrishnan K. and Mohd Yasin N, Knowledge Management System and Higher Education Institutions, International Conference on Information and Network Technology (ICINT), IACSIT Press, Singapore, IPCSIT vol. 37. 2012.
[2]. Kun Chang Lee, Sangjae Lee, In Won Kang, KMPI: Measuring knowledge management performance, Information and Management Vol 42. 2004, 469-482.
[3]. Matthews, Judy H. Knowledge Management and Innovation: How are they related? In Timbrell, Greg, Eds. Proceeding KM Challenge 2003 Knowledge Management Conference, Melbourne, Australia. 2003, 1-7.
[4]. Gray, P.H., and Meister, D.B. Knowledge sourcing methods, Information & Management (43:2). pp. 142-156. 2006.
[5]. Jasperson, J. et.al. A Comprehensive Conceptualization Of Post-Adoptive Behaviors Associated With Information Technology Enabled Work System, (MIS Quartely, vol. 29:3). 2005. 525-557.
[6]. Taylor, W.A. Computer-mediated knowledge sharing and individual user differences: An explaratory study. European Journal of Information Systems (13), 2004. 52-64
[7]. Thomas, J.C., Kellogg W.A., and Erickson, T. The knowledge management puzzle: Human and social factors in knowledge management, IBM Systems Journal, 2001, (40:4).
[8]. Argote, L., and Ingram, P. "Knowledge Transfer: A Basis for Competitive Advantage in Firms," Organizational Behavior and Human Decision Processes Vol.82:No.1, 2000, 150-169.
[9]. Alony, I., Whymark, G. and Jones, M. Sharing tacit knowledge: A case study in the Australian film industry. Informing Science Journal 10: 2007 41–59.
[10]. De Brun, Caroline, ABC of knowledge Management, Freely extracted from the NHS National Library for Health at http://www.library.nhs.uk/knowledgemanagement/ by Géraud Servin. Creator: NHS National Library for Health: Knowledge Management Specialist, 2005
[11]. Rao, M.. Knowledge Management Tools and Techniques, Practitioners and Experts Evaluate KM Solutions, (Elsevier Butterworth–Heinemann, London, UK, 2005).
[12]. Ardichvili A., Vaughn Page and Tim Wentling. Motivation and barriers to participantion in virtual knowledge-sharing communicaties of practice. Journal of Knowledge Management 2003. pg. 64
[13]. Baharim, S.B. The influence of knowledge sharing and motivation to transfer training: A Malaysian public sector. Doctoral thesis, Department of Management, University of Victoria, Melbourne, Australia. 2008
[14]. Dyer, Jeffrey H. and Kentaro Nobeoka. Creating managing a high performance Knowledge Sharing Network: The Toyota Case. Strategic Management Journal 21:2000 345-367.

[15]. Hansen, M. T., Nohria, N., and Tierney, T. "What's Your Strategy for Managing Knowledge?," Harvard Business Review(77:2), 1999, 106-116.
[16]. Owen-Smith, J. and Powell, W.W., Knowledge Networks as Channels and Conduits: The Effects of Spillovers in the Boston Biotechnology Community, Organization Science, Vol. 15, No. 1, January–February 2004, 5–21.
[17]. Stenmark, D. , Company-wide Brainstorming: Next Generation Suggestion Systems?, presented at IRIS-23, Uddevalla, Sweden, August 12-15, 2000.
[18]. Marsick, V. J., and Watkins, K. E. Informal and incidental learning in the workplace. (New York, NY: Routledge, 2013).
[19]. Agoston S, Ivona Orzea, Alina Mihaela Dima and Simona Vasilache. Knowledge Transfer in Romanian Universities. Bucharest Academy of Economic Studies, (Academic Publishing International Limited, Reading, UK. 2013).
[20]. Geuna, A. and Muscio, A. "The Governance of University Knowledge Transfer" SPRU Electronic Working. Paper Series, Paper no. 173. 2008.
[21]. Hubig, L., Jonen, A. Hindrances, Benefits and Measurement of Knowledge Transfer in Universities -Should Be Done More in the Light of Corporate Social Responsibility?" Available at SSRN: http://ssrn.com/abstract=939390, 2006
[22]. Ciabuschi, F., IT Systems' Contribution to Knowledge Sharing in MNCs.: A Lesson from Siemens AG, Knowledge Management Research and Practice, Vol. 3, No 2, 2005.
[23]. Levin, D.Z. and Cross, R., The Strength of Weak Ties You Can Trust: TheMediating Role of Trust in Effective Knowledge Transfer, Management Science, Vol. 50, No. 11, 2004, 1477–1490.
[24]. Spencer, J.W., Firms' knowledge-sharing strategies in the global innovation system: empirical evidence from the flat panel display industry,Strategic Management Journal, Volume 24, Issue 3, 2003, 217–233.
[25]. Malhotra, Yogesh and Galletta, Dennis F, Role of Commitment and Motivation in Knowledge Management System Implementation: Theory, Conceptualization and Measurement of Antecedents Success: 2002.