

A CRITICAL REVIEW OF A TYPICAL KNOWLEDGE MANAGEMENT PROCESS: IBM CASE STUDY

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ABSTRACT

We live in a world of a constant fast-changing global market, where in order to attain a competitive advantage the organisation needs to effectively exploit their resources, which initially eliminates redundancy and makes complete use of every resource available to the company. This in turn, develops processes which would be able to meet business goals of the organization. Success is no longer initiated or linked to traditional inputs such as land, labour and capital, instead it is based on the capabilities of the employees and their "Knowledge". Although, it has often been said that balance sheet represents true value of a firm, however it does not really reflect some the organizations most valuable assets. Knowledge being either tangible or intangible is and extremely valuable asset to the company as well as its employees. The experience, expertise and knowledge of its employees have an effect on the companies' competitiveness, its status in the market, its earning and the companies share attractiveness to shareholders and stakeholders. Further on, Knowledge could be used as a strategy, being the company's assets. Majority of organizations are primarily knowledge-focused, where data and information is collected in order to produce either a product or service. During the production process the organization would use its own attained (and various others) knowledge and information. This information in an enterprise would usually come from their employees, therefore it is important for the organization to hire the proper and correct individuals. Lotus and IBM is an ideal platform for Knowledge Management (KM) due to the fact that it allows individuals to not only interact but as well collaborate in ways that add business value, which would help people capture and categorized the knowledge being provided, hence making it available to the rest of the businesses in order for the business to have an advantage. IBM had developed a set of solutions which are applied to specific challenges faced by KM systems which are all field of integrated expertise in areas of Information Technology.

Keywords— Knowledge management, Tacit, Explicit, Knowledge assets, Lotus.

Introduction

This chapter is to presents a background of knowledge management, tacit and explicit knowledge. This chapter begins with the background how to use knowledge management in organizations. Next the chapter presents detailed sections of the research problem, research, scope and significance of the study.

Study Background

Today's current market is extremely competitive, where the main concern of many businesses is reducing their costs and increasing their sale numbers in order to gain higher profits and advantage competitive-wise. The constant increasing amount of competition in business has led firms to look for effective ways to gain an advantage in the market (Argote, 2000). Therefore, firms are in constant need to gain and use new knowledge continuously, throughout the year. Moreover, it should be noted that the increasing changes in information technology has caused the demands of customers to create a need for experts, who would be able to lead the company in right direction, and would be able to adopt to all the environmental changes which are ongoing (Lubit, 2001).

Knowledge management (KM) is said to be the extent of the organizations capability to fully utilize its employee's knowledge and expertise, in vast and various was such as either creating, sharing, or making efficient use of their knowledge in order to increase productivity in the work environment, and cut out such activities which could be repetitive or "reinvent the wheel" which has been moved to the forefront of many corporate agendas (Fontaine and Lesser, 2002).

KM is the discipline of enabling individuals, teams and entire organizations to collectively and systematically create, share and apply knowledge, to better achieve their objectives (Alnashri,2015).

KM can be addressed from two different perspectives:

1. More people-oriented as it focuses on people and organization.
2. Places the emphasis on information technologies as enabling technologies (Rollett,2012).

The difference between these two perspectives is the level at which knowledge management is applied:

In people-oriented KM, the focus is on the people, the organisation and the associated working and communication processes rather than on the technology.

The objective of technology-oriented KM is to support knowledge workers in companies at an operational level. That is, information technology is used as enabling technology to provide the knowledge.

The two major forms of knowledge are said to be tacit and explicit knowledge.

Tacit knowledge is automatic, it is usually used by an organization to determine how the company would govern the collective behavior and such of its employees. It basically requires little to no time or even though (Liebowitz and Beckman, 1998).

On the other hand, *explicit knowledge*, which has been said to be stored in the hierarchy of databases in a system, is knowledge which is carefully put down and codified. It can be accessed through high quality, reliable, and fast information retrieval systems. Once it has been codified, it allows individuals to reuse the information in order to solve any problems, or even to interact and connect with other individuals with useful and valuable information as such. This type of sharing process of knowledge, often does require an immense investment in the systems and resources available need to support the information system required (Hansen et al., 1999).

There should be a daily virtual importance on knowledge, especially in the commercial life, in all areas by organizations, since all fields and aspects of knowledge are said to be vital for the success of any organization at any level, in a sense knowledge is power, and it should be a widely applied, preserved, and efficiently used by both individuals and organizations. Knowledge is an intangible, identifiable asset of any organization, even if it is intangible it does provide an extreme value to the company, one way or another.

On the other hand, knowledge capital is the term given to intangible assets which are combined and are able to enable the company to function, an example could be either, service capability and customer capability (Yogesh, 2000).

Knowledge management is not only of importance to the success and growth of an organization, as previously mentioned, with the knowledge being attained it also aids in the development and growth of a community. This is only because knowledge is the core and foundation as well as the cause of any economic progress of a community (Ragab and Arisha, 2013). In order to be up to the par with the ongoing demands of globalization, each nation has the need to provide such knowledge to the people of all communities, and ensure that there are knowledge related facilities widely available to them, all of which would be managed by KM (Wiig, 2007). The management of such a knowledge such as capturing, creating, and the transfer of it key to an innovative company (Nonaka et al, 1995).

The process of knowledge management it said to be essential in order for the system to be effective, and to genuinely work, where personal knowledge is taken and is used for the organization, making it corporate knowledge which would be shared to other individuals, and widely applies in other departments. The daily implementation of the process, in work activities enables the companies' sustainability in the constantly changing market (Daud and Yusuf, 2008).

Many organizations have been seen to develop their own processes, breaking from the norms and not following the usual process, this would be based on their already existing resources and IT strategies, extending in the IT infrastructure department (mostly in the manufacturing and market technology companies). For a successful company and application, the comprehension of both knowledge branches being tacit and explicit knowledge should be clearly understood by the organization, how it is being created and even shared across the board throughout the entire organization.

Downsizing staff could often create a gap of missing information, therefore causing there to be a need for such missing informal knowledge attained through individuals, to be replaced with formal methods, through this it could be seen that each employed individual is a genuine asset to the success of the company. In situations of early retirements, or even where there is an increase in the mobility of the work force and turnover which in conclusion could cause there to be a loss of employees, KM is vital because it stores such informal knowledge and is able to pass it on. The lack of necessary missing information could cause a lot of issues in the companies, therefore KM prevents all this.

The management of knowledge could be capable of cutting costs, and have a significant and obvious impact in the employee's performance, as well as the company's position in the market (Omotayo, 2015). IBM face that 47% of Gen X would leave their current job for another offering more money and a more innovative environment compared to only 42% of Millennials (IBM Survey, 2014); this research paper focused on the relationship between tacit and explicit, and emphasized on suggestions for improving the effectiveness of both fields.

In this paper, will focus on enhancement of knowledge management process in organizations and the two major forms of knowledge which are (Tacit and Explicit knowledge). This research will use a case study which is one type of qualitative research method (IBM). Whereby this research addressed how IBM use knowledge management to support the decision making. By using SECI model, Nonaka (1994).

Related Works

Becerra-Fernandez et al. (2004) was of the view that knowledge should come first above all, and all formal data's being places in systems and such should come last. This thinking suggests that knowledge is in essence information which should lead all actions, and decisions being taken within in a company. According to Davenport and Prusak 1998 where they have stated a different meaning of it: "Knowledge is a group of information and mix of all experiences and values which are given to evaluating and fusing the whole things to become one thing and applied in the people minds. Like the reports or storehouses as well as in hierarchical schedules, procedures, practices, and standards in the organization."

The management of knowledge is basically a concept with various of opinion and views, where there have been many statements of definitions being made on the process in literature, therefore there has been bound to be some differences between authors which will be discussed.

Professor Michael Sutton (2008) of the Gore School of Business at Westminster College reported at the ICKM (International Conference on Knowledge Management) meeting in 2008 that he had assembled a library of more than 100 of them (McInerney and Koenig, 2011). Where he was essentially of the view that (KM) has two definitions.

In the start of the existence of such a process Davenport (1994) made the following statement: “*knowledge management is the process of capturing, distributing, and effectively using knowledge*”, being a clear and straightforward statement and point of view of the process.

Down the line, after a couple of years came along Gartner Group whom come up with another meaning of the process, being the most frequently cited (Carlucci et al. (2004) suggested that knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise’s information assets with others over the long term. These assets may include databases, documents, policies, procedures, and previously un-captured expertise and experience in individual workers. Both definitions share a very organizational, a very corporate orientation. KM, historically at least, is primarily about managing the knowledge of and in organizations”.

There have been various criticisms of the process of “Knowledge Management” which have generally arisen from misunderstanding or even a lack of clear understanding of the objectives of the entire process, all arguments are said to be unconvincing. Knowledge management could also be called “Knowledge Sharing” based on suggestion, or even ‘knowledge flow management,’ which was used by (Leistner, 2010) in his book “Mastering Organizational Knowledge Flow”.

Therefore, in the end we can say the process of knowledge management would involve both the preservation and the extraction of informal knowledge from individuals, including intellectual assets (knowledge assets) based on enforcement (Blair, 2002). Another author is of the view that the practical applications of knowledge management includes processes for data management, strategically leveraging instructional and information technologies and tools, and governance structures (Ardichvili and Yoon, 2009).

Executives and senior leaders have point of view, they agree that the knowledge their employees hold is the most valuable asset to an organization; therefore, it is of grave importance to be able to point of the most uniquely valuable knowledge just in case the company would be in the midst of having the information be perished or lost forever through either the individual retiring or leaving work or such situations (Dalkir, 2011).

The literature that will be provided will show that there are two types of knowledge in an organization, tacit and explicit. Nonaka explains that the process of tacit knowledge is technically the transfer of knowledge being from one individual to another through interaction between colleagues, the outside world and such (Nonaka & Takeuchi, 1995). Tacit knowledge is the knowledge or information rooted in action or experience that is formed around intangible factors (Ansari et al., 2009). On the other hand, Grant, 2007 defined tacit knowledge (TK), as being based on a person’s experiences in life and such and cannot actually be extracted or kept in any way.

According to Johnson, 2007 “we know more than we can tell” TK which could be seen as subjective and to an extent personal, in way it is able to be managed through the use of certain tools. Nonaka goes on to explain knowledge as being explicit, being able to be moved on or transferred through combination, such information could be seen through emails, data bases and every information being keyed on or into a system. It basically needs the proper collection of the wide range of information, making it understandable then widely accessible to individuals. This process gives way for knowledge to rotate amongst individuals throughout the organization (Nonaka and Takeuchi, 1995) making it easier for everyone.

Other authors whom have similar points of view such as, James and Lindsay, 2005 says that explicit knowledge is the knowledge or information stored in documents or other form of media. The stronger the integration between these three knowledge types the greater the chances of an organization to succeed. The method in which both types of knowledge could be classified is that explicit knowledge (EK) can be stored and codified on a system or even database and can never be lost (Stevens et al., 2010). This is where most individuals are of the view that information technology plays a vital role in storing such information in a company (Sanchez, 2004).

The sharing of knowledge occurs through a dynamic process where organization are in continuous interactions with customers and suppliers and in order to innovate or creatively imitate (Lall, 2000). The determination of whether or not the sharing of information or learning actually occurs within a company is largely based on whether or not there is a transfer of knowledge between colleagues or even departments, in which such information is shared between them, through this it could be seen whether or not the organization is capable of being successful in such terms (Cummings, 2002). The ideas and methods of exchanging ideas, such a theory, is said to be based on (Settoon et al., 1996) “assumption from perceived organizational support theory” (Eisenberger et al., 1986), “Time frame” which has been adopted from (Amabile, 2002), as well as “the culture of sharing information and ideas” which has been adopted from (Ruppel and Harrington, 2001) and many other methods which are used to build confidence between employees. In addition, Louw (2013) were of the view that the higher administrative individuals should be able to push and support such users to use collaboration technology which would be done through either holding trainings or motivation.

Research methodologies

This research will use a case study which is one type of qualitative research method. In manufacturer and market computer companies like Lenovo, Dell, HP and IBM these large companies have technically built their knowledge management system through years of feedback and based on the international organization which could have so much impact.

The company is an American multinational technology, it was originated in 1924 as International Business Machines. Applying IBM to this research to show how the company try to preserve intellectual assets, their approach was basically to transform and change the company into being based on knowledge management, where such “connection Lotus Notes” have been specifically designed for the purpose of sharing such knowledge and information and the development of the department of IT. This could

result in the achievement or the accomplishment of the sharing of information and experience at IBM, being not only for the purpose of administration but also for external individuals such as clients, through providing them with better solutions to IT.

Company background of (IBM)

"International Business Machines" (IBM) is a globally company "which basically manufactures and sells computer services software and hardware as well as financing services in support of its computer business". It offers its products globally in more than 170 countries, worldwide with over 380,000 employees and \$ 81,741 billion revenue and derives more than half of its revenues from sales outside the United States (IBM annual report,2015).

IBM provides services regarding social networking which claims to be able to add on to the enterprise in such ways as improving search tools, time efficiency's well as the ability to share documents and templates that are required daily (Zaffar&Ghazawneh 2011).

Knowledge management efforts in IBM are within four areas: internal, offerings and services, and research. The internal focus started in IBM as early as 1994 within the Global Services Software Group business units. In 1998, a corporate KM effort (KM Blue) was established under the auspices of Human Resources with the goal of raising awareness of KM within the business units States (Nandeshwar and Jayasimha ,2010).

Nonaka's Model of Knowledge

Based on Nonka (1994) there is said to be theory of organizational knowledge which is divided into two dimensions. The first dimension is related to the transfer or even the exchange of knowledge from the level of tacit level to explicit level, and vise versa, while the second dimension is said to be related to the conversion of knowledge from individuals to groups. He further on makes an assumption based on the "SECI model", the assumption being that knowledge is done through the conversion of tactic and explicit knowledge which basically then branches out to four different "modes" of knowledge conversion:

The first process from tacit to tacit, of creating tacit knowledge through shared experience has been called socialization. The second process from explicit to explicit, which is done through social interaction between individuals by talking and using words, which is technically a process called combination. The third process is externalization being the conversion of tactic knowledge into explicit knowledge (Toyama, & Byosiere, 2001) & (Nonaka, 1994, p.14).

The fourth process of internalization, which basically involves the change of explicit knowledge into tacit knowledge, where explicit knowledge is basically embodied as tacit knowledge. These four process are basically models and a framework for the relevant process for the management of knowledge in IBM.

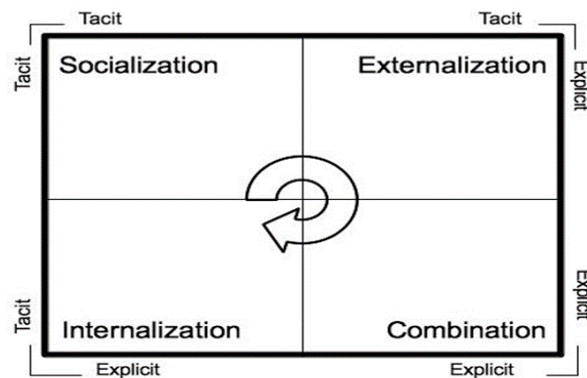


Figure 1: Conversion of knowledge between tacit and explicit forms (Nonaka,1995)

Discussion

The KM program in IBM has been said to extract and make the exchange of knowledge easier between individuals and different departments (Murray, 2010). The main focus of KM is the management of such information, and ensure that all individuals within a company are able to participate ad share their knowledge in order to support and contribute to such a system, it has caused there to be an awareness between individuals.

In order to ease the reuse of knowledge assets, each unit comprises of a different asset management program. The "asset-reuse" program is across the board in the company aiding in re-using such information globally, and internationally (Stephens, 2006).

Which basically is said to be the exchange of a lot of personal individual things such as thoughts, and information (Chiu et al., 2006). Through the provided system being the "IBM Connection system", the employees are able to efficiently and quickly access all information on one database. Moreover, the sharing of knowledge could also be external, it could be attained by getting customers opinions and so one in order to build a larger knowledgeable database.

As discussed IBM's Knowledge management activities are based either explicit or tacit, and which could be widely available or only available to one individual. IBM defines explicit knowledge as that is being on database and is easy to access. On the other

hand, tacit knowledge is said to be intangible and is instilled in the employees of the company. All explicit and tacit knowledge, should be able to exchanged amongst all individuals within a company (Mertins et al. 2003).

In this study, will focus deeply to see what are IBM steps to use knowledge management in their works process.

How IBM use Knowledge management

Knowledge Strategy of IBM: 'chooses the correct individuals in order to extract and spread knowledge in company'. According to Nonaka model 1995, first, IBM created a group for individuals within the same department or individuals that basically do the same job in IBM labelled as 'knowledge networks'. Being held responsible to collect such information and store it and then spread it. Such network consists of "methods, procedures, tools, experiences and documentation", achieving socialization.

Second process is Externalization, knowledge networks acquired a set of roles for handling the data. Where the is a team leader and a team, as well as router which will go through the knowledge and information being placed on the database, then there is an individual being chosen to read and evaluate (Fontaine and Millen, 2004).

Third process is Combination, the knowledge processed in IBM would be either classified as "operational data, knowledge resources, intellectual assets, examination and exploration, material obtained" via the intranet and the data available on the internet, all of which have been collected from previous projects and such. Organization is necessary and is done through certain methods, and is then place in a databank, "the knowledge assets repository".

Finally, in Internalization process, IBM daily encourages their teams to share such information and knowledge and to reuse it, where IBM offer the and uses the customized software like Lotus Notes/Domino which is application platform ' client-server collaborative ' (Lotus Notes and Domino).

Hence, we can have noted that IBM apply (Nonaka,1995) steps to collect work process of the knowledge to use it in proper way. IBM achieved the objectives by using tacit and explicit knowledge.

IBM Collaboration and Knowledge, leads 10 employees who focus on KM from a corporate perspective. The integration of collaboration and knowledge into portals and the way people learn is a major focus for IBM. It's very much an evolution to bring that learning right to the work experience.

As for the retirement issue, IBM has come with a solution basically offering them to cut their hours by 40% and their pay by 30% which is pretty smart as well as increasing the shareholders EPS to \$20 by 2015 which IBM calls Roadmap 2015 and workers internally call Road Kill 2015 (Annual report,2014).

IBM uses tools to sustain and keep information through such methods:

First tool, "K-station Porta", which provides information about IBM's competition and even lists down their products, where it could be used to gather information and aid in proposals. (Indu ,2009). Second tool, "ICM AssetWeb" being based on "Lotus Notes" which distributes information within departments and organization (Mack et al., 2001). Third tool, "Knowledge Café" acting as a storehouse where all data is being stored into categories and such. When used, you are able to look through all information or even add your own opinion and such, due to the fact that it is globally connected, employees from around the world are able to interact (Ruppel and Harrington ,2001). "On Demand Workplace" is the last tool, where IBM created it as an online training for individuals emphasizing on the important positions at work, so the individuals could have access to any trainings going on in their field of interest, where it would also record and suggest the trainings (IBM On Demand Workplace) (Robert ,2004).

Conclusion and future direction:

In conclusion, organizations should encourage and develop a method for their employees to share knowledge, unless expected by the organization, the employees should share it regardless, especially explicit knowledge due to the fact that it would be easier to put down into the system code. This process technically helps in managing information making it easier to understand and causes the efficient use of all the available resources, it also has individuals interact on a personal level, due to the fact that the information and expertise would be available at any time, for individuals to make use of it efficiently in their work. IBM, as previously discussed, strongly promotes the exchange of knowledge and has even built a vast storehouse of knowledge. Due to the fact that this system is extremely efficient anyone anywhere is able to access the information (Indu, &Govind, 2009). This study, finding that IBM created a business solution by closing the gap s of (downsizing staff, early retirements and turnover) which are involved hardware, and software in order to provide international exchange of knowledge, focusing on the main idea to make knowledge easier in order to make the business successful.

The limitation of this study is IBM recently has a new technology which is Watson. It does not point in this paper. It is a significant role in evolution of applications that automate knowledge creation by providing the intelligence answer. It will reduce the manual overhead of traditional KM for organizations. They will recognize the knowledge solutions. It is recommended to use this technology in future researches to share that how much is helpful for the organizations.

References

- Amabile, T.M., Hadley, and C. Kramer, S. (2002). Creativity under the gun. *Harvard Business Review*, 80(8): 52-63.
- Ansari, F.C., Khobreh, M., Nasiri, S., & Fathi, M. (2009). Knowledge Management Support for Quality Management to Achieve Higher Customer Satisfaction. University of Siegen, Institute of Knowledge Based Systems.
- Alnashri, A.A., 2015. Application reality of knowledge management processes practice in leaning resources centres: case study of learning resources centres in Makkah al-Mukarramah schools in Saudi Arabia. *Procedia Computer Science*, 65, pp.192-202
- Ardichvili, & Yoon, S.W. (2009). Designing integrative knowledge management systems: theoretical considerations and practical applications. *Advances in Developing Human Resources*, 11(3), 307-319.
- Argote, L. & Ingram, P., (2000). Knowledge Transfer: A Basis for Competitive Advantage in Firms., 82(1), pp.150–169.
- Becerra-Fernandez, I., Gonzalez, A. & Sabherwal. (2004). Knowledge Management: Challenges, Solutions, and Technologies, New Jersey, Natalie E. Anderson.
- Blair, D. (2002). Knowledge management: Hype, hope or help? *Journal of the American Society for Information Science and Technology* 53(12): 1019 – 1028
- Carlucci, D., Marr, B. and Schiuma, G. (2004). The knowledge value chain: how intellectual capital impacts business performance. *International Journal of Technology Management*, 27, (6/7), 575- 590.
- Chiu, C.M., Hsu, M.H., & Wang, E.T.G. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, 42, 1872-1888.
- Cummings, J. L. (2002). Knowledge transfer across R&D units; An empirical investigation of the factors affecting successful knowledge transfer across intra- and inter-organizational units, unpublished Ph.D. dissertation, George Washington University, Washington, DC.
- Dalkir, K. (2011). Knowledge management in theory and practice (2nd Edition). Cambridge, MA: MIT Press.
- Daud, S. and Yusuf, W.F.W. (2008), "An empirical study of knowledge management processes in small and medium enterprises", *Communications of the IBIMA*, Vol. 4 No. 22, pp. 169-177.
- Davenport, Thomas H., and Lawrence Prusak. (1998). *Working Knowledge: How Organizations Manage What They Know*. Cambridge, MA: Harvard Business School Press.
- Duhon, B. (1998); It's all in our heads, *Inform*, Vol. 12, No. 8, September, 1998, p8-13.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71, 500–507.
- Fontaine, M. A., & Millen, D. R. (2004). Understanding the Benefits and Impact of Communities of Practice. In P. Hildreth, & C. Kimble, *Knowledge Networks: Innovation through Communities of Practice* (pp. 4-10). London: Idea Group Publishing.
- Fontaine, M. A., E. Lesser, 2002. Creating Value with Knowledge: 'Challenges in Managing Organizational Knowledge.' IBM Institute for Knowledge Based Organizations.
- Grant, K. (2007). "Tacit knowledge revisited we can still learn from Polanyi". *The Electronic Journal of Knowledge Management*, Vol. 5, pp. 173-180.
- Hansen, M.T., Nohria, N. and Tierney, T. (1999), "What's your strategy for managing knowledge?", *Harvard Business Review*, March-April, pp. 106-16
- IBM CEO Study,2014 'Myths, exaggerations and uncomfortable truths' IBM Institute for Business Value. Executive Report IBM, Annual report,2015 [Online] available at www.ibm.com/annualreport/2015/assets/img/2016/02/IBM-Annual-Report-2015.pdf Accesses on 08/08/2016
- Indu, P., & Govind, S. (2009). Knowledge Management Initiatives at IBM. Hyderabad: IBSCenter for Management Research.
- James, R.E. & Lindsay, W.M. (2005). *The Management and Control of Quality*. South Western Educational Publishing.
- Johnson, W. (2007). "Mechanisms of tacit knowing: pattern recognition and synthesis". *Journal of Knowledge Management*, Vol. 11, pp. 123-139.
- Lall, S. (2000). "Technological change and industrialization in the Asian newly industrializing economies: Achievements and challenges," Chapter 2 in L. Kim and R.R. Nelson, editors, *Technology, learning, and innovation: Experiences of newly industrializing economies*, Cambridge, UK: Cambridge University Press.
- Leibowitz, J. and Beckman, T. (1998), *Knowledge Organizations: What Every Manager Should Know*, CRC Press, Boca Raton, FL.
- Leistner, F. (2010). *Mastering organizational knowledge flow: How to make knowledge sharing work*. Hoboken,NJ:John Wiley & Sons. Inc.
- Liebowitz, J. & Beckman, T. (1998). *Knowledge organisations: What every manager should know*, Boca Raton: FL: St. Luice Press.
- Louw, R.L., (2013). Guiding principles for adopting and promoting the use of Enterprise 2. 0 collaboration technologies within the enterprise environment by., (November).
- Lubit, R., 2001, Tacit Knowledge and Knowledge Management: The Keys to Sustainable Competitive Advantage, *Elsevier Science*, 29(4), pp. 164–178
- Mack, R., Ravin, Y., & Byrd, R. (2001). Knowledge portals and the emerging digital knowledge workplace. *IBM Systems Journal*, 40(4), 925-955
- McInerney, C.R., & Koenig, M.E.D. (2011). Knowledge Management (KM) Processes in Organizations: Theoretical Foundations and Practice. *Synthesis Lectures on Information Concepts, Retrieval, and Services*, 3(1), 1-96.
- Mertins, Kai, Peter Heisig, and Jens Vorbeck. *Knowledge Management: Concepts and Best Practices*. Berlin: Springer, 2003. ISBN 978-3-540-24778-4.
- Murray, Jenne E. Smolnik, Stefan. *Strategies for Knowledge Management Success: Ex-ploring Organizational E_cacy*. Publisher: IGI Global, Hershey, Pennsylvania, USA. 1 edition. August 31, 2010. 350 pages

- Nandeshwar, R. and JAYASIMHA, B., (2010) Change and Knowledge Management Second Edition. Excel Books. India.
- Nonaka, I. & Takeuchi, H. (1995). The knowledge creating company: How Japanese Companies Create the Dynamics of Innovation. New York: Oxford University Press.
- Nonaka, I. (1994) "A dynamic theory of organizational knowledge creation", Organization Science, Vol.5, No.1, February, p. 14
- Omotayo, F.O., (2015). Knowledge Management as an important tool in Organisational Management: A Review of Literature.
- Philip, T., (2010). Enterprise 2.0 Adoption in Italian Companies: Analysis of the Maturity Level. PhD diss., polo regionale di como, 2009/2010. politecnico di Milano: department of management, economics and industrial engineering.
- Ragab, Arisha, A. and Amr,A. (2013). "Knowledge Management and Measurement: A Critical Review." J of Knowledge Management Journal of Knowledge Management 17, no. 6: 873-901
- Robert, L. Cross, (2004). The Hidden Power of Social Networks: Understanding How Work Really Gets Done in Organizations. 1St Edition. Harvard Business Review Press.
- Rollett, H., 2012. *Knowledge management: Processes and technologies*. Springer Science & Business Media.
- Ruppel, C., & Harrington, S. (2001). Sharing knowledge through intranets: A study of organizational culture and intranet implementation. IEEE Trans. Profess. Common. IEEE Transactions on Professional Communication, 44(1), 37-52.
- Sanchez, Ron (2004). "Creating modular platforms for strategic flexibility," Design Management Review, Winter 2004, 58-67.
- Settoon, R.P., Bennett, N. & Liden, R.C., 1996. Social Exchange in Organizations: Perceived Organizational Support, Leader-Member Exchange, and Employee Reciprocity., 81(3), pp.219-227.
- Sharif, M.N.A., Zakaria, N.H., Ali N.M., & Rozan, M.Z.A. (2005). Preliminary Study: Knowledge Management (KM) Practices in The Small Medium Software Companies. Journal of Knowledge Management Practice.
- Stephens, K.,2006, 'Web services and asset reuse' Available at: <http://www.irishtimes.com/newspaper/ireland/2011/0505/1224296146826.html>. Access [5 May 2016].
- Stevens, R., Millage, J. & Clark, S. (2010). "Waves of Knowledge Management: The Flow between Explicit and Tacit Knowledge". American Journal of Economics and Business Administration, Vol. 2, pp. 129-135.
- Toyama, R., Nonaka, I., Byosiere, Ph. (2001) "A theory of organizational knowledge creation: understanding the dynamic process of creating knowledge", in: Dierkes, M., Antal, A.B., Child, J., Nonaka, I. (eds.) Handbook of organizational learning and knowledge, pp.487-491, Oxford University Press, Oxford
- Wiig, K. M. (2007). "Effective societal knowledge management". Journal of Knowledge Management, Vol. 11, pp. 141-156.
- Yogesh,M. (2000), Knowledge Assets in the Global Economy: Assessment of National Intellectual Capital Journal of Global Information Management July-Sep, 2000, 8(3), 5-15
- Zaffar, F., & Ghazawneh, A. (2011). Enterprise 2.0: Knowledge -sharing and collaboration through emergent social software platforms (ESSP) (The case of IBM), Jonkoping University business school, p. 2

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