CHAPTER ONE

1.0 Introduction

This study examines the factors that affect employees attitude towards knowledge sharing , the banking sector in Sudan will be the target of this study.

This introductory chapter presents the importance of knowledge management and knowledge sharing in financial institutions followed by a brief history about banks in Sudan, followed by the problem statement, research questions and objectives. It also highlights the significance and scope of the study, and finally concludes with the definitions of the terms and organization of the chapters.

Knowledge is one of the most important organizational resources, the one sure source of lasting competitive advantage (Nonaka and Takeuchi, 1995)[1]. Internal knowledge, such as operational procedures, special skills, and technical know-how, makes the most valuable asset for organizations (Spender, 1996)[2]. Knowledge sharing among organization members, as well as between the organization and its customers, suppliers, and alliance partners, plays a critical role in improving the quality of customer service, reducing production

[1] Nonaka, I. & H. Takeuchi (1995): The knowledge-creating company: how Japanese companies create the dynamics of innovation. New York, Oxford University Press.

[2] Spender, J.C. (1996): "Making knowledge the basis of a dynamic theory of the firm", Strategic Management Journal, Vol. 17, pp. 45-62 (special issue).

cycles, increasing the cooperation among different department units, and consolidating the relationships with alliance partners.

Research on knowledge management has shown that knowledge sharing is a key as well as a challenge to the success of knowledge management both in theories and in practice (Grant, 1996)[1]. It is well-known that organization members may be hesitating in sharing their knowledge, especially key knowledge, in part due to the pursuit of individual benefits, which often leads to huge loss of valuable organizational knowledge once employees retire or leave the organization, rending the knowledge generated in the organization less useful. In order to increase knowledge sharing within organizations and to better manage the process of knowledge generation, transfer, and storage, it is necessary to have a better understanding of the mechanism of knowledge sharing as well as the factors that influence this process.

There is an increasing emphasis on the importance of knowledge sharing for organizational performance and effectiveness in both the private and public sectors. Knowledge-sharing activities create opportunities for private organizations to maximize their ability to meet customers' changing needs and to generate solutions to gain competitive advantage (Argote, Beckman and

[1] Grant, R.M. (1996): "Toward a knowledge-based theory of the firm", Strategic Management Journal, Vol. 17 No. 4, pp. 109-22.

Epple 1990[1]; Baum and Ingram 1998;[2] Beckman 1997[3]). As a result of their focus on performance- and results-oriented government services, researchers in public administration have emphasized the necessity that government agencies coordinate and enable the integration, sharing, and transfer of information and knowledge within agencies and governmental networks (Fountain 2003[4]; Hale 1996[5]; Holzer and Callahan 1998;[6] Linden 1994[7]; Popovich 1998[8]). Beckman (1997) specifically argues that knowledge sharing is one of the most important factors affecting organizational agility and performance. Argote, Beckman, and Epple (1990) and Baum and Ingram (1998) are among several research teams to observe that organizations with more effective knowledge-transfer channels are more productive. As knowledge is a central resource in government service, effective knowledge sharing among employees is a significant public

[1]Argote, L., Beckman, S.L. and Epple, D. (1990): "The persistence and transfer of learning in industrial settings", Management Science, Vol. 36 No. 2, pp. 140-54.

[2] Baum, Joel A. & Paul Ingram (1998): Survival Enhancing Learning in the Manhattan hotel Industry 1898-1980. Management Science 44(7): 996-1016.

[3] Beckman, Tom (1997): A Methodology for Knowledge Management. Paper presented at the International Association of Science and Technology for Development AI and Soft Computing Conference, Banff, Canada.

[4]Fountain, Jane E. (2003): Information, Institutions and Governance: Advancing a Basic Social Science Research Program for Digital Government.

[5] Hale, Sandra J. (1996): Achieving High Performance in Public Organizations. In Handbook of Public Administration, 2nd Ed. edited by James L. Perry, 155-66. San Francisco, Jossey-Bass.

[6] Holzer, Marc, and Kathe Callahan (1998): Government at Work: Best Practices and Model Programs. Thousand Oaks, CA: Sage Publications.

[7] Linden, Russell M. (1994): Seamless Government: A Practical Guide to Re-engineering in the Public sector. San Francisco: Jossey-Bass.

[8] Popovich, Mark G., Ed. (1998): Creating High Performance Government Organizations: A Practical Guide for Public Managers. San Francisco: Jossey-Bass.

management challenge for providing high-quality government services to constituencies at all levels.

1.1 Knowledge sharing in financial institutions

"It's accepted wisdom that banking is a business of information, not just a business of money" (Lamb, 2001)[1]. The change in the global business environment has led banks to rationalize their products and services and have also looked into KM in order to improve their competitiveness (Dzinkowski, 2001)[2]. Managing knowledge is as important to banking institutions as it is for any other kind of organization. Hubert Saint-Onge (quoted in Lamb, 2001) points out that: "the last open frontier for banks to create competitive advantage may very well reside in their ability to leverage knowledge". Supporting this suggestion, Craig Kaylor (quoted in Lamb, 2001) of the Hampden Savings Bank, claims that banks do not sell goods, but rather services and more specifically knowledge.

Ramona Dzinkowski (2001) explains the two basic categories of KM initiatives in financial services companies:

First, knowledge management is seen as an integral part of the overall corporate strategy, and aims to grow, extract and exploit the company's

[1]Lamb, E.C. (2001)" ,Knowledge management: how to mine the information treasures inside your bank. A tale of measuring and managing the potential within ,"Community Banker ,Vol. 10 No. 9, pp. 24-6 .

[2] Dzinkowski, R. (2001): "Knowledge management in the financial services", Financial Times, available at: www.ftmastering.com/mmo/mmo10_2.htm (accessed 15 December 2004).

knowledge to increase shareholder value. The second focuses on improving upon the knowledge necessary to carry out specific business processes and thereby improving efficiency.

Despite the significance of implementing a KM initiative, there are very few banking institutions formally engaged in a fully integrated KM program. Dzinkowski (2001)[1] points out that the most sophisticated strategies in the field, however, can encountered in the insurance field, as a partial result of the long-term focus of that industry to costumers. Financial success and growth depend heavily on how well managers understand customer needs and subsequently diffuse and exploit that knowledge to the benefit of the organization. Having this in mind, it is obvious that dismissing KM in an interrelated field, i.e. banking, can lead to perilous results (Lamb, 2001)[2]. Practically, it is certain that even bankers without a clear approach to KM are readily engaged in some informal implementation of it. However, Dzinkowski (2001) stresses on the necessity to manage knowledge systematically:

Little quantitative data exist on how managing something intangible as knowledge directly impacts on the bottom line. However, a large number of anecdotal evidence suggests that managing knowledge systematically matters.

[1]Dzinkowski, R. (2001): "Knowledge management in the financial services", Financial Times, available at: www.ftmastering.com/mmo/mmo10_2.htm (accessed 15 December 2004).

[2]Lamb, E.C. (2001" ,(Knowledge management: how to mine the information treasures inside your bank. A tale of measuring and managing the potential within ,"Community Banker ,Vol. 10 No. 9, pp. 24-6 .

The World Bank however, breaking new ground in the field, launched a knowledge sharing initiative in 1997 (Egan and Kim, 2000)[1]. The bank was determined to transform itself into a knowledge bank, while until that time thought itself mainly in traditional (2004) banking terms (Cummings, 2003;[2] Cohen Laporte)[3] Reports that ,by 2000, The World Bank had a range of knowledge-sharing programmers in place: communities of practices, helpdesk and advisory services, extensive knowledge collections on the web, tacit knowledge debriefings, indigenous knowledge programmers, and a platform to share knowledge with the development community through the Development Gateway website.

Learning from the benefits these financial institutions have realized from implementing knowledge KM initiatives, financial institutions should recognize the importance of systematic management of knowledge.

[1] Egan, M. and Kim, J. (2000): "Knowledge-sharing at the World Bank: building a better knowledge-sharing tool with the Your Net intranet", Knowledge Management Review, Vol. 3 No. 3, pp. 24-7.

[2] Cummings, J. (2003): Knowledge Sharing: A Review of the Literature, The World Bank Operations and Evaluations Department, OECD

[3] Cohen, D. and Laporte, B. (2004): "The evolution of the knowledge bank", KM Magazine, Vol. 7 No. 6, available at: http://siteresources.worldbank.org/WBI/Resources/volutionoftheKnowledgeBank.pdf (accessed 10 December 2004)

1.2 History of Central Bank of Sudan (source: website of Sudan central bank)[1]

In the past, some of the functions of the Central Bank of Sudan were divided between the Ministry of Finance, Sudan Currency Board and the National Bank of Egypt .The Ministry of Finance maintained part of the official foreign exchange balances through two accounts, one in USD and the other in Sterling Pounds which were managed respectively by the National Bank of Egypt and Barclays Bank D.C.O. As to the currency Board it used to perform the task of issuing and managing the currency and to keep a part of the country's balance in foreign currency as a cover to the national currency.

Also the branch of the National Bank of Egypt used to manage the banking activities of the government besides discharging its main role as the bank of commercial banks (bank of the banks) at the same time. During this period, the Egyptian and British currencies were prevailing until the first national currency was issued.

After the independence of Sudan, the need for having a Central Bank to replace the existing bodies and to perform its functions of regulating the process of the issuance of the national currency , formulating and directing monetary and finance policies to serve various economic sectors , build up a strong , efficient and effective banking system that meet the development

[1] http://www.cbos.gov.sd/en

needs of the country, maintain government accounts , act as adviser for the government on financial affairs and provide foreign currency for the development projects adopted by the government at that time. To achieve the above-mentioned objectives, a committee of three experts from the USA Federal Reserve was formed in December 1956.

The Committee was requested to conduct a study on the possibilities of establishing a Central Bank in Sudan. It submitted its report in March 1957. This was followed by the issuance of the Bank of Sudan Act of 1959. The Bank opened for business on February 22, 1960.

The Act stipulated that the Bank of Sudan shall have an independent corporate personality, legal personality and a perpetual succession and a common seal and may litigate in its own name as a plaintiff defendant. Following the establishment of the Bank of Sudan, Sudanese officials were appointed to replace Egyptian officials, while the junior staff that used to work for the National Bank of Egypt were retained due to the especial nature and purpose of the Central Bank, a number of qualified employees with university degrees were recruited, in addition to those who were seconded from the Ministry of Finance.

1.3Nature of Banking System in Sudan

After concluding the Comprehensive Peace Agreement (CPA), the Central Bank of Sudan Act 2002 was amended in 2006, wherein the nature of the banking system, the Bank and its branches, were specified in Section (5) from the Act as follows:

The Sudanese banking system shall consist of dual banking system; one of which is Islamic, in Northern Sudan, and the other Conventional, in Southern Sudan.

The headquarters of the Bank shall be in Khartoum, and may establish branches, or agencies inside the Sudan, and appoint correspondents outside the Sudan.

The Bank of Southern Sudan shall be established as a branch of the Bank to render, in addition to its other tasks, conventional banking services, in Southern Sudan, including the issue of license, as the Board may issue. There shall assume management of the conventional banking system, in Southern Sudan, as one of the windows of the Bank, and in accordance with its laws, policies and safeguards.

The Bank shall have an independent corporate personality, perpetual succession, a common seal, and the right to litigate, in its power name.

After the secession of Southern Sudan, the Bank of Southern Sudan (BOSS) became the central bank of the State of Southern Sudan on the 9th of July 2011. All branches of Central Bank of Sudan in the previously southern

states became affiliated to it. Topics related to Item no (14) of the Protocol of wealth sharing, concerning the monetary policy, banking, currency, and lending has been frozen. In addition to this, policies of the traditional banking system in southern Sudan, and all circulars of the Central Bank of Sudan related to the dual system has been suspended, until the amendment of the law of the Central Bank of Sudan for the year 2002 .

Barriers of knowledge sharing

There are various reasons why people hoard their knowledge and the contexts are often multi-dimensional. Andreas Riege (2005)[1] presents an extensive overview of over three-dozen potential sharing barriers (categorized in individual, organizational and technology barriers). Note that the sequence of barriers examined provides no clues as to their relative impact or effectiveness on knowledge sharing practices.

[1] Riege, A. (2005): Three-dozen knowledge-sharing barriers managers must consider. Journal of Knowledge Management, 9(3), 18-35.

1.4Potential individual barriers

At the individual level, barriers are manifold and this review has identified the importance of well over a dozen barriers to sharing knowledge, shown below:

1. General lack of time to share knowledge, and time to identify colleagues in need of specific knowledge;

2. Apprehension of fear that sharing may reduce or jeopardize people's job security.

3. Low awareness and realization of the value and benefit of possessed knowledge to others.

4. Dominance in sharing explicit over tacit knowledge such as know-how and experience that requires hands-on learning, observation, dialogue and interactive problem solving.

5. Use of strong hierarchy, position-based status, and formal power (''pull rank'').

6. Insufficient capture, evaluation, feedback, communication, and tolerance of past mistakes that would enhance individual and organizational learning effects.

7. Differences in experience levels.

8. Lack of contact time and interaction between knowledge sources and recipients.

9. Poor verbal/written communication and interpersonal skills.

10. Age differences.

11. Gender differences.

12. Lack of social network.

13. Differences in education levels.

14. Taking ownership of intellectual property due to fear of not receiving just recognition and accreditation from managers and colleagues.

15. Lack of trust in people because they may misuse knowledge or take unjust credit for it

16. Lack of trust in the accuracy and credibility of knowledge due to the source; and

17. Differences in national culture or ethnic background; and values and beliefs associated with it (language is part of this).

Note that barriers are discussed separately, although many barriers are intertwined. That is, it is most likely that different combinations of knowledge-sharing barriers would be found in organizations.

Numerous researchers and practitioners noted that the ability of employees to share knowledge depends first and foremost on their

communication skills. Effective communication, both verbal (the most common vehicle of sharing tacit knowledge), and written, is fundamental to effective knowledge sharing (e.g. Davenport and Prusak, 1998)[1].

There also have been several prominent studies on social network issues (e.g. Argote et al., 1990[2]; Baron and Markman, 2000[3]; Ingram and Baum,1997[4]; Nahapiet and Ghoshal, 1998)[5] that highlighted, for example, a clear correlation between employees' social networks, their direct personal contacts within and outside accompany, their personalities (introverted vs. extroverted), and their ability to interact with others.

Another potential barrier is employees' national culture, commonly recognized as an interrelated set of values, practices and symbols, that are learned and shared by individuals and whose meanings provide orientation to members of an organization. While several studies outlined cross-cultural sharing barriers based on organizational culture

[1] Davenport, T. H. & L. Prusak (1998): Working knowledge: how organizations manage what they know. Boston, Mass, Harvard Business School Press.

[2] Argote, L., Beckman, S.L. and Epple, D. (1990): "The persistence and transfer of learning in industrial settings", Management Science, Vol. 36 No. 2, pp. 140-54.

[3] Baron, R.A. & Markman, G.D. (2000): "Beyond social capital: how social skills can enhance entrepreneurs", The Academy of Management Executive, Vol. 14 No. 1, pp. 106-16.

[4] Ingram, P. & Baum, J.A.C. (1997): "Opportunity and constraint: organizations learning from the operating and competitive experience of industries", Strategic Management Journal, Vol. 18, special summer issue, pp. 75-98.

[5] Nahapiet, J. and Ghoshal, S. (1998): "Social capital, intellectual capital, and the organizational Advantage", Academy of Management Review, Vol. 23 No. 2, pp. 242-66.

(e.g. Ives et al., 2000;[1] Chow et al., 2000;[2] McDermott and O'Dell, 2001[3]), there are few empirical studies that investigated the impact of national cultures on knowledge-sharing practices. Further, Terpstra and David (1991)[4] argued that the large diversity of cultures and especially spoken languages in the world economy could restrict business operations. Other authors focused further on the role of verbal language in knowledge transfers. Obstacles related to national culture and language barriers have little relevance on a domestic scale but are certainly a factor that cannot be ignored by companies that rely on sharing practices between international subsidiaries, irrespective of their size. Information or knowledge power, inequalities in status, and perceived lack of job security can also be potential barriers. In the old school of thinking where profitability was reflected by an organization's output, knowledge hoarding rather than sharing was believed to benefit career advancement. Sharing of knowledge often was regarded as weakening an employee's corporate position, power or status within the company. Even today, there often is a fear amongst employees that sharing knowledge reduces job security because people are uncertain about the sharing objectives and intent of their senior management

[1] Ives, W., Torrey, B. & Gordon, C. (2000): "Knowledge sharing is a human behavior", in Morey, D. et al. (Eds), Knowledge Management, MIT Press, Cambridge, MA

[2] Chow, C., Deng, J.F. & Ho, J. (2000): "The openness of knowledge sharing within organizations: a comparative study in the United States and the PRC". The Journal of Management Accounting Research, Vol. 12, pp. 65-95.

[3] McDermott, R. and O'Dell, C. (2001): "Overcoming culture barriers to sharing knowledge", Journal of Knowledge Management, Vol. 5 No. 1, pp. 76-85.

[4] Terpstra, V. & David, K. (1991): The Cultural Environment of International Business, 3rd Ed. South-Western Publishing, Cincinnati, OH.

(Lelic, 2001)[1]. Also, lower and middle level employees often hoard their knowledge intentionally, expecting that their superiors may not promote them if they appeared to be more knowledgeable than them.

The lack of contacts and interactions between knowledge sources and recipients, both of which often do not work side by side or in the same team, is another possible barrier to knowledge sharing. Further, some employees like to take ownership of their work to receive accreditation and/or recognition from colleagues and peers (Jarvenpaa and Staples, 2001;[2] Murray, 2002; [3]Rowley, 2002).[4] As well, many employees only seem to share their knowledge voluntarily, if they perceive the process to be important to their work, if they feel encouraged to share and learn, or if they wish to support a certain colleague (Wheatley, 2000)[5].O'Dell and Grayson (1998)[6] highlighted the lack of time as a common sharing barrier, concluding that even though managers are aware of the benefits of knowledge sharing, they often struggle to implement it due to time constraints. Time restrictions are also a reason why people may

[1] Lelic, S. (2001): "Creating a knowledge-sharing culture'', Knowledge Management, Vol. 4 No. 5, pp. 6-9.

[2] Jarvenpaa, S.L. & Staples, D.S. (2001): "Exploring perceptions of organizational ownership of information and expertise", Journal of Management Information Systems, Vol. 18 No. 1, pp. 151-84.

[3] Murray, P. (2002): "Knowledge management as a sustained competitive advantage", Ivey Business Journal, Vol. 66 No. 4, pp. 71-7.

[4] Rowley, J.E. (2002): "Reflections of customer knowledge management in e-business", Qualitative Market Research, Vol. 5 No. 4, pp. 268-81.

[5] Wheatley, M. (2000): "Can knowledge management succeed where other efforts have failed?", in Morey, D. et al. (Eds), Knowledge Management, MIT Press, Cambridge, MA.

[6] O'Dell, C. and Grayson, C.J. (1998): "If only we knew what we know: identification and transfer of internal best practices", California Management Review, Vol. 40 No. 3, pp. 154-74.

potentially hoard their knowledge rather than spend time to share knowledge with others. Instead people naturally focus on those tasks that are more beneficial to them. As such the time to share knowledge can be seen as a cost factor, either in transferring it from one person to the next or from a tacit into an explicit format (Grant, 1996)[1]. Consequently, it is important that work processes offer enough space to allow people to take time to generate and share knowledge and then also identify those who may be interested in sharing it. A deficiency of formal and informal spaces where employees can interact often creates barriers (Gold et al., 2001).[2] Several authors noted that formal and informal environments enhance employees' opportunities to share their knowledge and capture new knowledge but all too often are a rare commodity in companies, because there still is a perception amongst many managers that if people are not constantly ''busy doing something''.they are not be working productively (Probst et al., 2000;[3] Skyrme, 2000)[4].

It is also impossible to discuss knowledge sharing without mentioning the word trust. Most people are unlikely to share their knowledge without a

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[1]Grant, R.M. (1996): "Toward a knowledge-based theory of the firm", Strategic Management Journal, Vol. 17 No. 4, pp. 109-22.

[2] Gold, A.H., Malhotra, A. and Segars, A.H. (2001): "Knowledge management: an organizational capabilities perspective", Journal of Management Information Systems, Vol. 18 No. 1, pp. 185-214.

[3]Probst, G., Raub, S. & Rombhardt, K. (2000): Managing Knowledge, John Wiley & Sons, Chichester

[4]Skyrme, D.J. (2000): "Developing a knowledge strategy: from management to leadership", in Morey, D. et al. (Eds), Knowledge Management, MIT Press, Cambridge, MA.

feeling of trust: trust that people do not misuse their knowledge, or trust that knowledge is accurate and credible due to the information source. A detailed assessment of the quality of external tacit or explicit knowledge is often impossible due to source and time constraints. It is mostly in informal networks that people trust each other, voluntarily share knowledge and insights with each other, and collaborate actively and willingly. Sharing activities can neither be supervised nor forced out of people (Stauffer, 1999)[1], but the level of trust between a company, its sub-units, and its employees seems to have a direct influence on the communication flow and thus the amount of knowledge sharing within and between business functions or subsidiaries (De Long and Fahey, 2000;[2] McAllister, 1995).[3]

Another potential barrier is managers' tolerance towards employees making mistakes and learning from them. De Long and Fahey (2000, p. 122)[4] concluded that capturing, evaluating, and learning lessons from past mistakes affects best practices in the future. However, rather than recognizing and correcting mistakes, they all too often are covered up, blamed on others, explained away, punished or ignored. It seems that the national culture can be a

[1] Stauffer, D. (1999): "Why people hoard knowledge", Across the Board, Vol. 36 No. 8, pp. 16-21.

[2] De Long, D.W. and Fahey, L. (2000): Diagnosing cultural barriers to knowledge management", The Academy of Management Executive, Vol. 14 No. 4, pp. 113-27.

[3] McAllister, D.J. (1995): "Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations", Academy of Management Journal, Vol. 38 No. 1, pp. 24-59.

[4] De Long, D.W. and Fahey, L. (2000): Diagnosing cultural barriers to knowledge management", The Academy of Management Executive, Vol. 14 No. 4, pp. 113-27.

limiting factor in learning from actions, for instance, whilst many Russians do not talk about problems and mistakes outside their workplace, some Asian and Western cultures believe that positive reflection on mistakes assists individual and organizational learning and development (Michailova and Husted, 2003;[1] Nonaka and Takeuchi, 1995;[2] Spender, 1996[3]).

As well, some employees seem to experience a level of uncertainty over the value of their possessed knowledge to others. That is, neither the knowledge source nor the recipient is too concerned with who requires knowledge or who possesses knowledge. Szulanski (noted in O'Dell and Grayson, 1998)[4] argued that this ''ignorance on both ends'' is one of the biggest sharing barriers in most companies.

Another potential barrier is the dominance in sharing explicit knowledge over tacit knowledge. Several researchers suggested that companies need to emphasis core reasons for sharing, particularly tacit knowledge (e.g. know-how, experience, and intuition that require hands-on learning, observation, dialogue and interactive problem solving), and at the same time increase

[1]Michailova, S. and Husted, K. (2003): "Knowledge-sharing hostility in Russian firms", California Management Review, Vol. 45 No. 3, pp. 59-77.

[2]Nonaka, I. & H. Takeuchi (1995): The knowledge-creating company: how Japanese companies create the dynamics of innovation. New York, Oxford University Press.

[3]Spender, J.-C. (1996): "Making knowledge the basis of a dynamic theory of the firm", Strategic Management Journal, Vol. 17, Special Winter issue, pp. 45-62.

[4] O'Dell, C. and Grayson, C.J. (1998): "If only we knew what we know: identification and transfer of internal best practices", California Management Review, Vol. 40 No. 3, pp. 154-74.

awareness that tacit knowledge cannot be transferred easily (e.g. Nonaka and Takeuchi, 1995; O'Dell and Grayson, 1998). Finally, there are some other possible impediments such as employee age and gender, and well as their level of education and experience that may affect effective knowledge sharing (Sveiby and Simons[1], 2002; Sveiby, 2003)[2]

1.5 Potential organizational barriers

One of the key issues of sharing knowledge in an organizational context is related to the right corporate environment and conditions. The introductory discussion suggested that there are various ways of sharing individual and social or organizational knowledge effectively. Thus far, the literature outlined at least a dozen organization-based barriers to knowledge sharing, illustrated below, which the following discussion outlines in brief:

1. Integration of knowledge management strategy and sharing initiatives into the company's goals and strategic approach is missing or unclear.

2. Lack of leadership and managerial direction in terms of clearly communicating the benefits and values of knowledge sharing practices.

3. Shortage of formal and informal spaces to share, reflect and generate (new) knowledge.

[1] Sveiby, K. E. & Simons, R. (2002): "Collaborative climate and effectiveness of knowledge work", Journal of Knowledge Management, Vol. 6 No. 5, pp. 420-33

[2]. Sveiby, K. E. (2003): personal conversation, Griffith Business School, Brisbane, 8 October

4. Lack of a transparent rewards and recognition systems that would motivate people to share more of their knowledge.

5. Existing corporate culture does not provide sufficient support for sharing practices.

6. Knowledge retention of highly skilled and experienced staff is not a high priority.

7. Shortage of appropriate infrastructure supporting sharing practices.

8. Deficiency of company resources that would provide adequate sharing opportunities.

9. External competitiveness within business units or functional areas and between subsidiaries can be high (e.g. not invented here syndrome).

10. Communication and knowledge flows are restricted into certain directions (e.g. top-down).

11. Physical work environment and layout of work areas restrict effective sharing practices.

12. Internal competitiveness within business units, functional areas, and subsidiaries can be high.

13. Hierarchical organization structure inhibits or slows down most sharing practices.

14. Size of business units often is not small enough and unmanageable to enhance contact and facilitate ease of sharing.

The misallocation of human or process-oriented resources such as skilled personnel, finance, and information and communication technology, can impact on creating an effective knowledge-sharing environment. Providing an appropriate infrastructure and sufficient resources to facilitate sharing practices within and between functional areas is the basis of a successful KM program (Coleman, 1999;[1] Schlegelmilch and Chini, 2003)[2] , but sharing practices are often doomed to fail before they begin due to the absence of basic infrastructure and sharing capabilities (Gold et al., 2001)[3]. Organizations also grow and evolve with time and as a result some processes and structures that were integrated successfully to serve a certain purpose in the past become obsolete due to their inefficiencies. Davenport (1997)[4] emphasized the importance of financial commitment to KM practices, which in many cases can be expensive. Hence, adequate resources to support knowledge flows and collaboration need to be allocated. Further, the success or failure of a

[1] Coleman, D. (1999): "Groupware: collaboration and knowledge sharing", in Liebowitz, J. (Ed.), Knowledge Management Handbook, CRC Press, Boca Raton, FL, pp. 12-15.

[2]Schlegelmilch, B.B. & Chini, T.C. (2003): "Knowledge transfer between marketing functions in multinational companies: a conceptual model", International Business Review, Vol. 12 No. 2, pp. 215-32.

[3]Gold, A.H., Malhotra, A. and Segars, A.H. (2001): "Knowledge management: an organizational capabilities perspective", Journal of Management Information Systems, Vol. 18 No. 1, pp. 185-214.

[4]Davenport, T.H. (1997): "Ten principles of knowledge management and four case studies", Knowledge and Process Management, Vol. 4 No. 3, pp. 187-208.

knowledge sharing strategy is dependent on its integration into the goals and strategy of the organization (Doz and Schlegelmilch, 1999;[1] Hansen et al., 1999)[2]. Master (1999, p. 21)[3] emphasized the importance of this integration noting that ‘‘regardless of how a knowledge-sharing program begins or what structure it takes, the most successful programs are those that are inextricably tied to the business and its strategic objectives’’. It is the responsibility of senior management to communicate those goals and strategies to all employees in a transparent fashion to obtain support. However, all too often, this communication and managerial directions are either too vague or detailed with neither providing a clear picture and guideline to employees.

There are numerous studies on the benefits and pitfalls of diverse organization structures, and it is not the objective of this discussion to suggest which particular organizational structure would best support knowledge sharing practices. Some studies, however, have argued that an open and flexible organizational structure supports the sharing of knowledge best and that organizational structure was more important for effective knowledge sharing

[1] Doz, Y. & Schlegelmilch, B.B. (1999): "Global knowledge management as a strategic resource", Annual Meeting of the Academy of International Business, Charleston, SC, 21-24 November.

[2] Hansen, M.T., Nohria, N. & Tierney, T. (1999): "What’s your strategy for managing knowledge", Harvard Business Review, Vol. 77 No. 2, pp. 106-16.

[3] Master, M. (1999): "Making it work", Across the Board, Vol. 36 No. 8, pp. 21-4.

than organizational culture and IT (Zhou and Fink, 2003)[1]. In contrast, a strong focus on hierarchies and internal regulations creates a business environment and workplace climate where employees are expected to rigorously perform according to organizational rules and procedures, thereby constraining effective knowledge sharing practices by, for instance, punishing mistakes and failures.

Another organizational barrier could be the lack of formal and informal mechanisms that typically provide continuous support to, and improvement of, diverse sharing activities. Whilst formal groups tend to be limited in size and focus on selected topics that a company considers important, informal groups are unlimited in size, concentrate on special topics of interest and can be established and steered by anyone. A combination of human networks often is the key to knowledge sharing, hence one of the first steps to knowledge sharing is to support and leverage knowledge in those networks that already exist and that already share knowledge about certain topics (McDermott, 1999; McDermott and O'Dell, 2001)[2]. In reality, a knowledge sharing strategy may not necessarily need any formal mechanisms to perform well, because many people collaborate, share information and teach one another naturally in

[1] Zhou, A.Z. and Fink, D. (2003): "Knowledge management and intellectual capital: an empirical examination of current practice in Australia", Knowledge Management Research & Practice, Vol. 1 No. 2, pp. 86-95.

[2] McDermott, R. and O'Dell, C. (2001): "Overcoming culture barriers to sharing knowledge", Journal of Knowledge Management, Vol. 5 No. 1, pp. 76-85

informal situations, not because managers tell them or forces them to do so but because internal business environments have become more competitive and faster moving and people increasingly depend on each other‘s knowledge to complete their jobs (e.g. marketing teams) or complete them faster (e.g. new product development teams).

Some studies also suggested that the size of organizations and functional areas influences the effectiveness of knowledge-sharing activities in and between business functions. Recommended sizes for formal knowledge-sharing groups can range from firm to firm, for example at Asea Brown Boveri, an independent business unit averages 50 employees. No supported suggestions are made here because it seems impossible to provide a solution that will work every company. In addition, Ellis (2001)[1] suggested that, rather than have people contribute individually, managers may wish to assign people to small groups, get them to meet regularly, and give them collective responsibility for knowledge sharing.

Furthermore, a lack of managerial direction and leadership can limit knowledge sharing practices. Since knowledge sharing is effectively voluntary and conscious sharing is a new behavior to learn for some people that may require training and ongoing support, clear guidelines seem to be an obvious prerequisite for effective sharing on all organizational levels (Ives et al.,

[1] Ellis, K. (2001): "Dare to share", Training, February, pp. 74-80

2000)[1]. The challenge to managers is to create an environment in which people both want to share what they know and make use of what others know. People cannot always be expected to share their knowledge and insights simply because it is the right thing to do. Managers need to reassure employees that they should not sit on ideas or concepts for fear of their intellectual property being stolen. The solution is to develop that idea or concept in collaboration with other people (Gurteen, 1999)[2]. Hence, the emphasis of managers' expectations, long-term commitment and supportive role are fundamental to creating a knowledge-centric sharing culture (McDermott and O'Dell, 2001; O'Dell and Grayson, 1998)[3].

Stemming from the competitive instincts of human nature, incentives are one method of optimizing employee performance and corporate results. Whilst the ultimate driver of most companies is the prospect of making a profit, for employees it is the remuneration package, incentives and just recognition. For several years, there has been a debate about the effectiveness of both reward and recognition systems to motivate people to share knowledge. Several authors argued that the introduction of a reward system or changes in compensation incentive policies rarely have an effect on the corporate culture,

[1] Ives, W., Torrey, B. & Gordon, C. (2000): "Knowledge sharing is a human behavior", in Morey, D. et al. (Eds), Knowledge Management, MIT Press, Cambridge, MA.

[2] Gurteen, D. (1999): "Creating a knowledge-sharing culture", Knowledge Management, Vol. 2 No. 5.

[3] O'Dell, C. and Grayson, C.J. (1998): "If only we knew what we know: identification and transfer of internal best practices", California Management Review, Vol. 40 No. 3, pp. 154-74.

nor does it enhance long-term knowledge sharing because the process needs to be natural. In addition, Michailova and Husted (2003)[1] argued that the use of encouragement, stimulation or incentives is inadequate in hostile sharing environments, suggesting that any kind of rewards evaporate quickly and do not increase motivation for knowledge sharing. Hence, managers many have to force people to transform their organization into knowledge-embracing cultures. No matter which reward and recognition system is chosen, if any, it seems to be one way to emphasize the significance of knowledge sharing.

Another barrier that is often overlooked relates to company floor layout or spatial arrangements of work areas that commonly do not favor knowledge-sharing activities. Traditionally, offices and even departments tend to be arranged along hierarchies or management seniority rather than focusing on who needs to work together regularly and identifying which person benefits the most from the exchange of knowledge (Probst et al. ,2000)[2]. In particular, for large companies with entities in distant geographical locations, there are real knowledge sharing obstacles because basic communication becomes more difficult and the creation of trust-based relationships is harder without face-to-face contact.

[1] Michailova, S. and Husted, K. (2003): "Knowledge-sharing hostility in Russian firms", California Management Review, Vol. 45 No. 3, pp. 59-77.

[2] Probst, G., Raub, S. & Rombhardt, K. (2000): Managing Knowledge, John Wiley & Sons, Chichester.

The challenge is intensified further if cross-functional teams need to be formed and functional areas are located in different regions. As outlined later, IT systems such as groupware applications can enhance the convenience and effectiveness of sharing between spaces. Finally, an often-noted barrier for any knowledge-seeking and learning organization is the retention of high quality staff. Given that when an employee is absent for longer periods of time or leaves an organization, the individual and organizational knowledge they contain and impart leaves the organization with them. Indeed, ‘‘given that knowledge people use their minds, which means they own their means of production, when they leave, they take this means of production with them’’ (Stauffer, 1999, p. 20)[1]. Also, in today’s global and dynamic business world, more and more skilled workers are highly mobile and aware of their value in the marketplace. Hence, for organizations to improve their KM approach, knowledge retention strategies need to be higher on the priority list of knowledge or human resource professionals.

1.6 Potential technology barriers

Knowledge sharing is as much a people and organizational issue as it is a technology challenge. The term ‘‘hybrid solutions’’ refers to necessary interactions between people and technology to facilitate sharing practices

[1] Stauffer, D. (1999): "Why people hoard knowledge", Across the Board, Vol. 36 No. 8, pp. 16-21.

(Davenport, 1997)[1]. Similarly, Ruddy (2000, p. 38) [2]argued that improving knowledge sharing in a meaningful way requires a ‘‘delicate marriage of technology with a keen sense of cultural or behavioral awareness’’. Most companies find it challenging to create an environment in which people both want to share what they know and make use of what others know. Technology has the ability to offer instant access to large amounts of data and information and to enable long distance collaboration that facilitates a team approach, both in and between business functions and subsidiaries. For example, 79 percent of 150 Fortune 1,000 executives surveyed believed that self-managed teams would enhance a company’s productivity (TMA Journal, 1999). Riege and O’Keeffe (2003).[3]

There is little doubt that technology can act as a facilitator to encourage and support knowledge sharing processes by making knowledge sharing easier and more effective. The key issue, however, is to choose and implement a suitable technology that provides a close fit between people and organizations. Technology that works effectively in some organizations may fail in others. The list below is of potential technology barriers to knowledge sharing:

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[1] Davenport, T.H. (1997): "Ten principles of knowledge management and four case studies", Knowledge and Process Management, Vol. 4 No. 3, pp. 187-208.

[2] Ruddy, T. (2000): "Taking knowledge from heads and putting it into hands", Knowledge and Process Management, Vol. 7 No. 1, pp. 37-40.

[3] Riege, A. & O’Keeffe, M. (2003): "Influences of human resources on knowledge management and its contributions on faster speed to market time", Annual Meeting of the European International Business Academy, Copenhagen, 10-13 December 2003.

1. Lack of integration of IT systems and processes impedes on the way people do things;

2. Lack of technical support (internal or external) and immediate maintenance of integrated IT systems obstructs work routines and communication flows;

3. Unrealistic expectations of employees as to what technology can do and cannot do.

4. Lack of compatibility between diverse IT systems and processes ;

5. Mismatch between individuals' need requirements and integrated IT systems and processes restricts sharing practices;

6. Reluctance to use IT systems due to lack of familiarity and experience with them.

7. Lack of training regarding employee familiarization of new IT systems and processes.

8. Lack of communication and demonstration of all advantages of any new systems over existing ones

Irrespective of the size of a firm, many formal knowledge-sharing practices depend on an IT infrastructure that includes some kind of shareware from one of the many providers such as Fuji-Xerox, IBM, or Microsoft. There are numerous infrastructures available, offering support in data acquisition, organization, storage, retrieval, search, presentation, distribution and

reproduction. Hence, it is not necessarily a case of merely building a KM and sharing strategy based on a comprehensive database or sophisticated e-mail system (Sarvary, 1999).[1] Hendriks (199 recommended the use of new systems, arguing that the use of new sharing technology may enhance people's motivation for knowledge sharing, as it often removes temporal, physical and social distance barriers, by improving the process and locating knowledge carriers and seekers. Even if technology is rarely the ultimate solution to, or driver of, a knowledge sharing strategy, the integration of the right technology is important. There is little doubt that numerous technologies such as the Internet and Intranet, e-mail systems, or inclusive groupware software assist greatly in reducing formal communication barriers. Technology is multi-faceted; hence it is necessary for an organization to integrate an infrastructure that supports various types of communication. There are several technological dimensions, such as business intelligence technologies to assess competitive and economic environments, collaboration and distributed learning technologies to overcome structural and geographical hurdles, knowledge discovery technologies to find new internal and external knowledge, knowledge mapping technologies to track sources of knowledge about

[1] Sarvary, M. (1999): "Knowledge management and competition in the consulting industry", California Management Review, Vol. 41 No. 2, pp. 95-107.

employees suppliers, distributors, subcontractors and customers, and security technologies (Gold et al., 2001).[1]

Mismatches with employees' need requirements can also cause barriers. Software systems should support work-related processes of individuals, who decide which information to access and store, or forward to other people. Existing and new technologies are often quite capable of supporting effective knowledge sharing processes, however, unless there is a close fit between employees' need requirements, technology in itself can become a barrier. Not because of technical problems but because actual problem solutions do not match people's need requirements (O'Dell and Grayson, 1998)[2]. Another potential barrier to developing or maintaining the right IT infrastructure is the compatibility of technology, the integration of existing and new systems. This issue arises when existing hardware and software components suited for one purpose need to be used in conjunction with another new system or a different system in another location. It appears that the selection of a system that suits all functional areas within global organizations is almost impossible. Technology now is a main driver in most companies and industry sectors that most day-to-day activities highly depend on. Therefore more complex technology is called

[1]Gold, A.H., Malhotra, A. and Segars, A.H. (2001): "Knowledge management: an organizational capabilities perspective", Journal of Management Information Systems, Vol. 18 No. 1, pp. 185-214.

[2]O'Dell, C. and Grayson, C.J. (1998): "If only we knew what we know: identification and transfer of internal best practices", California Management Review, Vol. 40 No. 3, pp. 154-74.

upon to play a greater role in streamlining business processes whilst maximizing outputs.

Companies and employees need to take on the challenge of this greater complexity in the workplace, which in some cases may result in a reluctance to use modified or newly introduced systems. Whilst most people are not reluctant to use technology, the familiarity or unfamiliarity of IS/IT systems can be a potential sharing barrier. Some people also exaggerate or misstate the role of technology, which can cause confusion about what technology should do, can do, or cannot do. Furthermore, unrealistic expectations often tend to be placed on technology, which could result in a reluctance to use a system. Therefore, it seems necessary to involve users in designing or choosing new and modifying existing systems.

Finally, a trouble-free application and operation of technology to fulfill their daily work routines and communicate with others is another key issue for many operators. No hardware or software package seems to come without its problems, and crashing systems can be just as frustrating as they are time-consuming and expensive. Hence, an ongoing and immediate technical support function, internal or external to the organization, not only needs to support timely solutions for any kind of problem but also needs to anticipate potential problems and pitfalls. There is an expanding market for outsourced software services and remote maintenance, which nevertheless needs to ensure that

technical problems are dealt with quickly and resolved effectively, thereby not creating sharing barriers based on malfunctioning or not functioning technology.

1.7 The statement of the problem

Knowledge management (KM) is a discipline that is still evolving. Also, the KM concept is still understood as information management and is associated with technological solutions, such as intranets and databases (Marr, 2003)[1]. Many organizations perceived knowledge management (KM) initiatives at the information technology (IT) level. Consequently, these organizations would invest heavily in KM tools and place them on their Intranet server. The underlying assumption is that when these technologies are in place, employees will willingly share their knowledge (Geraint, 1998)[2]. Unfortunately, this approach has lead to many disappointments. Companies, in particular, are disappointed when the IT systems could not deliver what they claimed. What these companies failed to realize was that other factors were not taken into consideration when the technology was implemented (Reimus, 1997).[3]Geraint (1998) succinctly stated: It should come as no surprise . . . that

[1]Marr, B. (2003): "Known quantities", Financial Management Journal, Vol. 3/4, pp. 26-7.

[2] Geraint, J. (1998): "Share strength", People Management, Vol. 4 No. 16, p. 44.

[3] Reimus, B. (1997): "The IT system that couldn't deliver", Harvard Business Review, Vol. 75 No. 3, pp. 22-4.

chief among these is the realization that too much faith has been invested in technology at the expense of people issues.

Davenport (1994)[1] argues that though "many managers still believe that once the right technology is in place, appropriate information sharing will follow," the reality is that people do not share knowledge and information easily. The common mistake executives and organizations make is the assumption that employees from different departments, professionals, consultants or line workers will know how to use and are willing to use the technology to share knowledge.

Studies indicate that the focus of most KM studies was on organization culture and technology from the executive management perspective with few studies examining issues such as trust, interaction, rewards, and motivation system from non-executive employee's perspective. It is unfortunate that an unbalance emphasis of technology over other factors such as organization culture, individual employee's attitude, and availability of networking facilities has led to many failures an unsuccessful implementation of KM systems (Davenport, 1998)[2]. Garvin (1997) [3]notes: If people don't want to share, they

[1] Davenport, T. (1994): "Saving IT's soul: human-centered information management", Harvard Business Review, Vol. 72 No. 2, pp. 119-31.

[2] Davenport, T. (1998): "Enterprise systems", Harvard Business Review, July-August, p. 121.

[3]Garvin, D. (1997): A Note on Knowledge Management Harvard Case Study No. 9-398-031, Harvard Business School Publishing, Boston, MA.

are not going to do it even if you have the best technology in the world. People won't share if they don't see what's in it for them.

Geraint (1998)[1] asserts that what really matters in KM ". . . is getting employees to share their insights and experience." A successful KM system goes beyond using technology to capture knowledge (Sage and Small, 2000)[2]. As such, it is important for organizations to understand from employees' perspective the factors that motivate them to share before implementing any KM program In order to increase knowledge sharing within organizations and to better manage the process of knowledge generation, transfer, and storage, it is necessary to have a better understanding of the mechanism of knowledge sharing as well as the factors that influence this process.

The main studies in knowledge sharing field have been carried out in Western and South-East Asian countries. Clearly, only few studies have been conducted in Arab organization .also few studies have been conducted in knowledge sharing in banking industry. Hence, a study on knowledge sharing dimensions can uncover many implications for both practitioners and

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[1] Geraint, J. (1998): "Share strength", People Management, Vol. 4 No. 16, p. 44.

[2] Sage, A.P. & Small, C.T. (2000): "A simulation perspective on knowledge management and sharing, and conflict and complexity in social systems management", HICSS33, IEEE Computer Society, Washington DC.

managers. Such a research especially in banking industry in emerge economy that need to provide a variety of skills and expertise, can help providing appropriate conditions for organizational knowledge sharing. The aim of this study was to explore, in this concrete organizational setting, the employees' perceptions of information sharing and the different factors that may encourage or inhibit their information sharing attitudes. Focusing on individual factors (social trust, social network, shared goals),organizational factors(rewards system, leadership support)and technological factor(ICT usage) with empirical data based on employees' perspective rather than that of management.

1.8 Objectives of the Study

The main objectives of the study:

1-To determine the relationship between the individual factors (social trust, social network. Shared goals) and attitude towards knowledge sharing.

2-To explore how technology, incentives system and leadership style can influence employees attitude towards knowledge sharing .

3- To assess the possible relationship between individual. Organizational and technological factors, and employees intention to share knowledge with relationship with attitude towards knowledge sharing as mediating variables

1.9 Research Questions

This research attempts to answer the following questions:

- To what extent does social trust influence employees knowledge sharing?
- What is the impact of social network on the employees knowledge sharing?
- What is the relation between shared goals and employees knowledge sharing?
- To what extent leader ship style influence employees knowledge sharing?
- What is the impact of rewards system on the employees knowledge sharing?
- To what extent does technology influence employees knowledge sharing?

1.10The significance of the Study:-

Several studies in knowledge management investigated factors that affecting knowledge sharing, most of these studies had been carried out in Western and South-East Asian countries. Clearly, only few studies have been conducted in less developed world so this study can provide theoretical basis for future researches as well as practical implications for managers and practitioners.

The study contribution is on the form of:

1-Abetter understanding of the factors affecting employees‘ knowledge sharing behavior may provide managers with a set of tools that could be used to improve organizational knowledge sharing.

2-Research may be used to integrate human resource values to organizational values.

3-This study tests the impact of the social capital i.e. (social trust. social network. shared goals)on the employees attitudes towards knowledge sharing

4-This study determines how can technology and leadership style affect employees knowledge sharing.

1.11 Scope of the Study:

This study limits itself to banking sector in Sudan. It focused on the employees attitudes towards knowledge sharing.

1.12 Definition of Terms

The purpose of defining important terms is to help the reader understand the words used in the study. Words often assume operational meanings within the context of a research study:

Knowledge

Davenport and Prusak (1998),[1] define knowledge as "a fluid mix of framed experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information."

Knowledge management

"Knowledge management (KM) covers any intentional and systematic process or practice of acquiring, capturing, sharing and using productive knowledge, wherever it resides, to enhance learning and performance in organizations." (OECD 2003).[2]

Explicit knowledge

Is defined as factual, objective knowledge that can readily be stored, accessed, understood within its contexts, and more easily transmitted (Nonaka 1994)[3]. It can readily be stored electronically (e.g. in databases, manuals, documents and procedures) and transmitted to others.

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[1] Davenport, T. H. & L. Prusak (1998): Working knowledge: how organizations manage what they know. Boston, Mass, Harvard Business School Press.

[2] OECD (2003): Organization for Economic Co-operation and Development. The Learning Government: Introduction and Draft Results of the Survey of Knowledge Management Practices in Ministries/Departments/Agencies of Central Government. Paper presented to the 27th section of Public Management Committee, April 3-4, Paris.

[3] Nonaka, I. (1994): A dynamic theory of organizational knowledge creation. Organization Science, 5(1), 14-37. Retrieved from; http://www.jstor.org/stable/2635068.

Tacit knowledge

On the other hand, is subjective and since it resides within the individual it is more difficult to articulate and codify. In order to transfer tacit knowledge effectively, personal contact and trust are necessary.

Knowledge sharing

For the purposes of this study, knowledge sharing is defined in accordance with Van Den Hooff and De Ridder's (2004)[1] conceptualization; as a process where individuals mutually exchange their implicit (tacit) and explicit knowledge to create new knowledge.

1.13 Organization of the study:

The study consists of five chapters. The beginning chapter presents the brief introduction on the background of the study, introduces the study problem, objectives, significant and the knowledge management ,knowledge sharing. Barriers to knowledge sharing. Chapter two presents the literature review Chapter three illustrates the theoretical framework and research methodology. Chapter four presents the survey findings and the analysis. Chapter five concentrates on the discussion of the findings and conclusion

[1] Van Den Hooff, B. & De Ridder, J.A. (2004): "Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC usage on knowledge sharing", Journal of Knowledge Management, Vol. 8 No. 6, pp. 117-30.

CHAPTER TWO

LITERATURE REVIEW

The review of literature of this research study will begin with exploring the fundamentals knowledge, which includes the difference between information and knowledge, types of knowledge, knowledge creation, Knowledge Sharing (KS), and Knowledge Sharing behavior. Also reviewed are the unique characteristics of KS such as: KS and trust; KS and personal relationships; motivation and KS; and organizational KS culture. The implementation of IT and knowledge management systems (KMS) as enhancements to organizational KM will also be include This chapter will conclude with a discussion of current literature gap and how this research study will partially fill this gap.

2.1 Information versus Knowledge

Before going into the subject areas of KM and KS, it is essential to explore the diverse aspects of knowledge, and to differentiate between the terms information and knowledge, even though these two terms have been used interchangeably by many researchers (Wang & Noe, 2010)[1].

[1] Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. Human Resource Management Review, 20, 115-131.

2.1.1Information

Information is different from data. According to T. H. Davenport and Prusak (2000),[1]"data is a set of discrete, objective facts about events" (p. 2); data become information when they are contextualized, categorized, calculated, corrected, or condensed (T. H. Davenport & Prusak, 2000). Information is data put in context forming the basis for knowledge (Nonaka & Toyama, 2007)[2]. Unless the things learned are put into action, they will remain information and never become knowledge (Drucker &Maciariello, 2008)[3]. Information is meaningful and processed data (Handzic & Zhou, 2005).[4] Within an organization, information is needed on an operational level and is normally not the subject of further intellectual investigation (Frank, 2002)[5]. Cortada (1998)[6] argued that, throughout history, people recognized the value of collecting and using information; the collections of information normally led to the creation of

[1] Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

[2] Nonaka, I. & Toyama, R. (2007): Why do firms differ? The theory of the knowledge creating firm. In K. Ichijo & I. Nonaka (Eds.), Knowledge creation and management: New challenges for managers (pp. 13-31). New York, NY: Oxford University Press.

[3] Drucker, P. F., & Maciariello, J. A. (2008): Management (Rev. ed.). New York, NY: Collins

[4] Handzic, M., & Zhou, A. Z. (2005): Knowledge management: An integrative approach. Oxford, England: Chandos.

[5] Frank, U. (2002): A multi-layer architecture for knowledge management systems. In S. Barnes (Ed.), Knowledge management systems: Theory and practice (pp. 97-111). London, England:Thomson Learning.

[6] Cortada, J. W. (1998): Where did knowledge workers come from? In J. W. Cortada (Ed.), Rise of the knowledge worker (pp. 3-22). Woburn, MA: Butterworth-Heinemann

knowledge. When information is used to address novel situations with no direct precedent, it becomes knowledge (Frappaolo, 2006).[1]

2.1.2 Knowledge

Knowledge is different from information. Nonaka (1994)[2] defined knowledge as justified true belief, while Tiwana (2002)[3] defined knowledge as "a fluid mix of framed experience, values, contextual information, expert insight, and intuition that provides an environment and framework for evaluating and incorporating new experiences and information" (p. 4). Knowledge is information that is actionable (Handzic & Zhou, 2005)[4]. Information is transformed into knowledge by humans through (a) how information compares between one situation with other known situations, (b) what decisions and actions does the information lead to, (c) how this bit of knowledge relates to others, and (d) what other people think about this information (T. H. Davenport & Prusak, 2000)[5]. Knowledge and decision are

[1] Frappaolo, C. (2006): Knowledge management. West Sussex, England: Capston

[2] Nonaka, I. (1994): A dynamic theory of organizational knowledge creation. Organization Science, 5(1), 14-37. Retrieved from; http://www.jstor.org/stable/2635068

[3] Tiwana, A. (2002): The knowledge management toolkit: Orchestrating IT, strategy, and knowledge platforms (2nd Ed.). Upper Saddle River, NJ: Prentice Hall.

[4] Nonaka, I. (1994): A dynamic theory of organizational knowledge creation. Organization Science, 5(1), 14-37. Retrieved from; http://www.jstor.org/stable/2635068

[5] Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

strongly linked, according to Jones (2006),[1] "not only is knowledge a requirement for making a decision, but the decision itself then becomes a piece of knowledge" (p. 116). Knowledge emerges from decision. Knowledge also emerges from the application, analysis, and productive use of data and information (Hislop, 2005)[2].Nonaka, Toyama, and Hirata (2008)[3] argued that knowledge is created by human beings; therefore knowledge is subjective, process-related, aesthetic, and created through practice. Gilbert (2007)[4] observed that knowledge is constructed by the learner to maintain an equilibrium with prior knowledge and experience. Knowledge is affected by one's values and beliefs, according to T. H. Davenport and Prusak (2000),[5] because "people with different value 'see' different things in the same situation and organize their knowledge by their values" (p. 12). The authors labeled the higher-order concepts of knowledge as insight and wisdom. In contrast to knowledge, wisdom is concerned with enduring universal truths, as well as apprehends "how the various aspects of reality are related to each other"

[1]Jones, K. (2006): Knowledge management as a foundation for decision support systems. Journal of Computer Information Systems, 46(4), 116-124.

[2] Hislop, D. (2005): Knowledge management in organizations: A critical introduction. New York, NY: Oxford University Press.

[3] Nonaka, I., Toyama, R., & Hirata, T. (2008): Managing flow: A process theory of the knowledge-based firm. New York, NY: Palgrave MacMillan.

[4] Gilbert, X. (2007): Globalizing local knowledge in global companies. In K. Ichijo & I. Nonaka (Eds.), Knowledge creation and management: New challenges for managers (pp. 215-228). New-York, NY: Oxford University Press.

[5]Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

(Csikszentmihalyi & Rathunde, 1990, p. 28)[1]. Thierauf and Hoctor (2006)[2] defined wisdom as "the ability to judge soundly" (p. ix), and stated that "wisdom requires an intuitive ability, born of experience, to look beyond the apparent situation in order to recognize exceptional factors and anticipate unusual outcomes" (p. 5). Two words are frequently used by scholars to describe the relationship between knowledge and wisdom: episteme and phronesis. Episteme is the discovery of truth and certain knowledge (Eisner, 2002)[3]. Phronesis is an Aristotelian concept of practical wisdom, which could also relate to prudence, and intelligence; practical wisdom is acquired with experience (Breier & Ralphs, 2009)[4].

Knowledge is considered an individual's power and privilege and the desire to hold on to power hinders the sharing of knowledge (Khairah & Singh, 2008)[5] . Knowledge is commodity, and ownership is very important (Dalkir, 2005)[6] .

[1]Csikszentmihalyi, M., & Rathunde, K. (1990): The psychology of wisdom: An evolutionary interpretation. In R. J. Sternberg (Ed.), Wisdom: It's nature, origins, and development. New York, NY: Cambridge University Press.

[2]Thierauf, R. J., & Hoctor, J. J. (2006): Optimal knowledge management: Wisdom management systems, concepts and applications. Hershey, PA: Idea Group.

[3] Eisner, E. W. (2002): From episteme to phronesis to artistry in the study and improvement of teaching. Teaching and Teacher Education, 18, 375-385.

[4] Breier, M., & Ralphs, A. (2009): In search of Phronesis: Recognizing practical wisdom in the recognition (assessment) of prior learning. British Journal of Sociology of Education, 30(4), 479-493

[5]Khairah, N., & Singh, K. P. (2008): Knowledge management in corporate organizations. In I. V. Malhan & S. Rao (Eds.), Perspectives on Knowledge Management (pp. 295-307).

[6]Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann

Spender (2007)[1] presented three types of knowledge: knowledge-as-data, knowledge-as-meaning, and knowledge as- practice. Knowledge is often viewed from different perspectives. For example, scholars "have drawn on philosophy to define knowledge, economics to discuss the role of knowledge in organizations, and psychology to explain human motivation/interaction patterns" (Nonaka & Peltokorpi, 2006, p. 18)[2]. Alvesson (2004)[3] argued that "knowledge is better understood as a social process than as a functional resource" (p. 233). Thus, "knowledge is usually associated with a higher level of abstraction" (Frank, 2002, p. 99)[4].

The unique feature of knowledge is that "use of knowledge does not consume it" (Dalkir, 2005, p. 2)[5]; for that reason, knowledge does not diminish when shared. D. W. DeLong and Fahey (2000)[6] classified organizational knowledge into three distinct types (a) human knowledge—what individuals know or know how to do, (b) social knowledge—knowledge exists only in relationships between individuals or within groups, and (c) structured

[1]Spender, J.-C. (2007): Data, meaning and practice: How the knowledge-based view can clarify technology's relationship with organizations. International Journal of Technology Management, 38(1/2).

[2] Nonaka, I., & Peltokorpi, V. (2006): Objectivity and subjectivity in knowledge management: A review of 20 top articles. Knowledge and Process Management, 13(2), 73-82

[3] Alvesson, M. (2004): Knowledge work and knowledge-intensive firms. New York, NY: Oxford University Press.

[4]Frank, U. (2002): A multi-layer architecture for knowledge management systems. In S. Barnes (Ed.), Knowledge management systems: Theory and practice (pp. 97-111)

[5] Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann.

[6] De Long, D.W. and Fahey, L. (2000): Diagnosing cultural barriers to knowledge management", The Academy of Management Executive, Vol. 14 No. 4, pp. 113-27.

knowledge—knowledge embedded in an organization's systems, processes, tools, and routines. Christensen (2007)[1] identified four types of organizational knowledge (a) professional knowledge—knowledge that enables an employee to perform the job of an operation supporter; (b) coordinating knowledge. Knowledge stipulated in rules, standards, and routines for how tasks are to be performed (c) object-based knowledge—knowledge related to a certain object (such as a patient, a machine, or a customer) passing through the production line; and (d) know-who— knowledge about who might know. Organizational knowledge can be stored, embedded, or represented as knowledge-resource components, which consist participants' knowledge, culture, infrastructure, knowledge artifacts, purpose, and strategy (Holsapple & Joshi, 2002)[2].

2.2 Explicit and Tacit Knowledge

Knowledge is of two forms: explicit—codified knowledge, documented knowledge, content that has been captured; and tacit—private knowledge, resides only within individuals (Dalkir, 2005;[3] Frappaolo, 2006;[4] Khairah & Singh, 2008)[5]. Explicit knowledge (also known as declarative knowledge) is objective and formal knowledge, is tangible information, is capable of being

[1] Christensen, P. H. (2007): Knowledge sharing: moving away from the obsession with best practices. The Journal of Knowledge Management, 11(1), 36-47.

[2] Holsapple, C. W., & Joshi, K. D. (2002): Understanding knowledge management solutions: The evolution of frameworks in theory and practice. In S. Barnes (Ed.), Knowledge management systems: Theory and practice (pp. 222-241).

[3] Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann.

[4] Frappaolo, C. (2006): Knowledge management. West Sussex, England: Capston

[5] Khairah, N., & Singh, K. P. (2008): Knowledge management in corporate organizations. In I. V. Malhan & S. Rao (Eds.), Perspectives on Knowledge Management (pp. 295-307).

codified, is consciously accessible, can be easily networked, and can be easily communicated (Sallis & Jones, 2002)[1]. Tacit knowledge, a term coined by Polanyi (1967)[2], is personal knowledge that relates "to hunches, insights, intuitions, feelings, imaginary and emotions" (p. 13), and is deeply rooted in an individual's experience and consciousness (Sallis & Jones, 2002).[*] Tacit knowledge can be described as "complex knowledge, developed and internalized by the knower over along time" (T. H. Davenport & Prusak, 2000, p. 70)[3]; and tacit knowledge "is almost impossible to reproduce" (p. 70), hence its abstract characteristics. Alvesson (2004)[4] argued that no knowledge is entirely explicit or entirely tacit. It is tacit knowledge that puts explicit knowledge to work (Maznevski & Athanassiou, 2007).[5] Knowledge in an organization is both explicit and tacit.

Due to the tacit aspects, sharing knowledge within an organization is not so easy (Ichijo, 2007).[6] "The effective management of tacit knowledge–t

[1] Sallis, E., & Jones, G. (2002): Knowledge management in education: Enhancing learning & education. Sterling, VA: Stylus

[2] Polanyi, M. (1967): The tacit dimension. New York, NY: Doubleday von Krogh, G. (1998). Care in knowledge creation. California Management Review, 40(3), 133-152.

[3] Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

[4] Alvesson, M. (2004): Knowledge work and knowledge-intensive firms. New York, NY: Oxford University Press.

[5] Maznevski, M., & Athanassiou, N. (2007): Bringing the outside in: Learning and knowledge management through external networks. In K. Ichijo & I. Nonaka (Eds.), Knowledge creation and management: New challenges for managers (pp. 69-82). Oxford University Press..

[6] Ichijo, K., & Nonaka, I. (Eds.). (2007): Knowledge creation and management. New-York, NY:

unwritten memory of the firm–is essential to the success of modern firms" (Holste & Fields, 2010, p. 135).[1] In addition to tacit and explicit knowledge, Frappaolo (2008)[2] discussed an additional category: implicit knowledge. In contrast to tacit knowledge, which is knowledge impossible to codify, implicit knowledge is knowledge not yet transformed into explicit. The author proposed organizations to position implicit KM within the KM framework by employing tools and methodologies to capture and transform implicit knowledge because when knowledge is explicit, technology can make it more accessible.

Nonaka and Takeuchi (1995)[3] presented four modes of knowledge conversion to illustrate the interaction between explicit and tacit knowledge (a) *socialization* is a process of sharing experiences resulting in tacit knowledge created from tacit knowledge, (b) *externalization* is a process of articulating tacit knowledge into explicit concepts, (c) *combination* is a process of systemizing concepts into a knowledge system by combing different bodies of explicit knowledge, and (d) *internalization* is a process of embody inexplicit

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[1] Holste, J. S., & Fields, D. (2010): Trust and tacit knowledge sharing and use. Journal of Knowledge Management, 14(1), 128-140. (1), 24-59.

[2] Frappaolo, C. (2008): Knowledge management. West Sussex, England: Capstone

[3] Nonaka, I. & H. Takeuchi (1995): The knowledge-creating company: how Japanese companies create the dynamics of innovation. New York, Oxford University Press.

knowledge into tact knowledge. Magnier-Watanabe and Senoo (2009)[1] found that *combination* appeared as an important source of competitive advantage related to technical knowledge, and *socialization* contributed to a competitive advantage related to affective knowledge. In addition to categorizing knowledge types as tacit, explicit, individual, and social, Alavi[2] proposed the following knowledge taxonomies: (a) declarative—know-about, (b) procedural—know-how, (c) causal—know-why, (d) conditional—know-when, (e) relational—know-with, and (f) pragmatic—useful knowledge for an organization.

2.3 Knowledge Creation

Graziano and Raulin (2007)[3] used six words to define knowledge acquisition (a) tenacity is accepting ideas as valid because they have been accepted for so long that they seem true, (b) intuition is accepting ideas without intellectual effort, (c) authority is accepting ideas because some respected authority claims that the ideas are valid, (d) rationalism is developing valid ideas using existing principles of logics, (e)empiricism is gaining knowledge through observation, (f) science is a process that combines the principles of

[1] Magnier-Watanabe, R., & Senoo, D. (2009): Congruent knowledge management behaviors as discriminate sources of competitive advantage. Journal of Workplace Learning, 21(2), 109-124.

[2] Alavi, M., & Leidner, D. E. (2001): Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. MIS Quarterly, 25(1), 107-136.

[3] Graziano, A. M., & Raulin, M. L. (2007). Research methods: A process of inquiry (6th Ed.). Boston, MA: Pearson Education.

rationalism with the process of empiricism, using rationalism to develop theories and empiricism to test the theories. It is universally recognized that knowledge is created by human because "knowledge-creating activities take place within and between humans" (T. H. Davenport & Prusak, 2000, p. 6)[1]. Similarly, organizational knowledge is created by employees .According to von Krogh (1998)[2], effective knowledge creation is influenced by how employees care for each other. The author argued that care gives rise to trust, active empathy, lenient judgment among employees, and the courage that employees exhibit toward each other. Care also translates to real help among employees.

When there is care in organizational relationships, "organization member will *bestow* knowledge on others, as well as, receive active help from others" (von Krogh, 1998, p. 141, emphasis in original) resulting in greater amount of knowledge creation.

Any theory of the knowledge-based organization has to address the reality of human beings as individuals because knowledge is created by human beings (Nonaka et al., 2008)[3]. Thus, KS behavior is the focus of this research study. Practitioners in many occupations are undertaking more of their own research, in and from their practice, creating practical knowledge; practical

[1] Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

[2] Von Krogh, G. (1998): Care in knowledge creation. California Management Review, 40(3), 133-152.

[3] Nonaka, I., Toyama, R., & Hirata, T. (2008): Managing flow: A process theory of the knowledge-based firm. New York, NY: Palgrave MacMillan.

knowledge is always pragmatic for the practitioner (Jarvis, 1999).[1] McNiff and Whitehead (2006)[2] argued that "*practitioner knowledge* is central to practical and theoretical sustainability".

Practical sustainability is the interdependent creation of renewable practitioners' personal theories while theoretical sustainability is development of new theory and creation of new knowledge.

2.4 Knowledge Sharing

KS is different from knowledge creation because KS is "the process intended at exploiting existing knowledge" (Christensen, 2007, p. 37)[3], and KS is one of the processes in overall KM framework (Alavi & Leidner, 2001)[4]. Bartol and Srivastava (2002)[5] identified four *KS mechanisms* (a) knowledge contributions to databases, (b) KS in formal interactions, (c) KS in informal interactions, and (d) CoPs. KS involves an aspect of unselfishness (von Krogh, 1998)[6].

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[1] Jarvis, P. (1999 .(*The practitioner-researcher: Developing theory from practice* .San Francisco, CA: Jossey-Bass .

[2] McNiff, J., & Whitehead, J. (2006 .(*All you need to know about action research*. Thousand Oaks, CA: SAGE Publications

[3] Christensen, P. H. (2007): Knowledge sharing: moving away from the obsession with best practices. The Journal of Knowledge Management, 11(1), 36-47.

[4] Alavi, M., & Leidner, D. E. (2001): Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. MIS Quarterly, 25(1), 107-136.

[5] Bartol, K. M., & Srivastava, A. (2002). Encouraging knowledge sharing: The role of organizational reward systems .*Journal of Leadership and Organization Studies*1)*9* , 76 Retrieved from http://intl-online.sagepub.com.

[6] Von Krogh, G. (1998): Care in knowledge creation. California Management Review, 40(3), 133-152.

Matsuo and Easterby-Smith (2008)[1] presented the following five main factors that facilitate or inhibit KS or knowledge transfer within and between organizations: (a) the motivation of the sender and the recipient, (b) the relationship that exists between the sender and the recipient, (c) the technical ease of transfer, (d) the absorptive capacity of the recipient, and (e) the characteristics of knowledge. Employees' self-efficacy has a positive influence on KS mechanism (Cho,Li, & Su, 2007;[2] Endres, , Chowdhury, & Alam, 2007)[3] because employees of highself-efficacy and an *action orientation* are more likely to overcome the impediment in KS (Kuo & Young, 2008)[4]. For example, from an empirical study in a software firm (one type of KIF), Bryant (2005)[5] found that KS can be enhanced by increasing employees' beliefs about their capability through peer mentor training. Similarly, employees are highly motivated to share their knowledge if they are confident in their ability to

[1] Matsuo, M., & Easterby-Smith, M. (2008): Beyond the knowledge sharing dilemma: The role of customization. Journal of Knowledge Management, 12(4), 30-43.

[2] Cho, N., Li, G. Z., & Su, C.-J. (2007). An empirical study on the effect of individual factors on knowledge sharing by knowledge type. The Journal of Global Business and Technology, 3(2), 1-15.

[3]Endres, M. L., Endres, S. P., Chowdhury, S. K., & Alam, I. (2007): Tacit knowledge sharing, self-efficacy theory, and application to the open source community. Journal of Knowledge Management, 11(3), 92-103.

[4]Kuo, F.-Y., & Young, M.-L. (2008): A study of the intention–Action gap in knowledge sharing practices. Journal of the American Society for Information Science and Technology, 59(8), 1224-1237

[5]Bryant, S. E. (2005): The impact of peer mentoring on organizational knowledge creation and sharing. Group and Organization Management, 30(3), 319-338.

contribute knowledge that will enhance the success of their organization (Cho et al., 2007)[1]. To enhance the knowledge-culture within the organizations,

H.-F. Lin (2007)[2] proposed that organizations can establish a highly self-efficacious staff by recruiting and selecting employees who (a) are proactive, (b) have high cognitive aptitude and self esteem, and (c) are intrinsically motivated.

The *stickiness* of knowledge is the difficulty of separating knowledge from its source (Ichijo & Nonaka, 2007b)[3]. The transfer of knowledge that requires more efforts are said to be stickier; thus stickiness is often thought to slow down the movement of knowledge (Szulanski & Cappetta, 2003).[4] Gupta and Govindarajan (2000)[5] recommended that the best ways to maximize KS are (a) to ban knowledge hoarding and turn knowledge giver into champions, (b) rely on group-based incentives by reinforcing KS as a cultural norm, (c) invest in codifying tacit knowledge, and (d) match knowledge transfer mechanisms

[1]Cho, N., Li, G. Z., & Su, C.-J. (2007): An empirical study on the effect of individual factors on knowledge sharing by knowledge type. Journal of Global Business and Technology, 3(2), 1-15.

[2] Lin, H.-F. (2007): Knowledge sharing and firm innovation capability: An empirical study. International Journal of Manpower, 28(3/4), 315-332. Retrieved from; http://www.emeraldinsight.com/0143-7720.htm.

[3] Ichijo, K., & Nonaka, I. (Eds.). (2007): Knowledge creation and management. New-York, NY: Oxford University Press..

[4] Szulanski, G., & Cappetta, R. (2003): Stickiness: Conceptualizing, measuring, and predicting difficulties in the transfer of knowledge within organizations. In M. Easterby-Smith & M. A. Lyles (Eds.), The Blackwell handbook of; Organizational Learning and Knowledge Management (pp. 513-534). Malden, MA: Blackwell.

[5] Gupta, A. K., & Govindarajan, V. (2000): Knowledge management's social dimension: Lession from Nucor Steel. Sloan Management Review, 42(1), 71-80.

(such as the exchange of conversations, training, and documents; and relocate teams and people) to types of knowledge in order to ensure the receiver actually receives what the sender has sent, as well as to lower the cost and enhance the speed of the transmission channels.

For organizations to master KS, Widén-Wulff and Suomi (2007)[1] recommended organizations to (a) allocate resources to sustain adequate people and time to conduct KS, (b) exploit such resources efficiently, (c) install the metaphor of organizational learning into the organization, (d) create an organizational atmosphere that supports and awards KS, (e) include information sharing in the process of business re-engineering, and (f) value KS as one important component in business success.Wang and Noe (2010) [2]argued that the success of KM and KS initiatives depend on organizations (a) sustaining a culture that emphasizes trust and innovation, (b) requiring and rewarding managers to provide the support needed for encouraging KS among employees, (c) shaping and facilitating employee perceptions of knowledge ownership, (d) paying close attention to cultural characteristics in developing human resource practices that will facilitate KS.

[1] Widén-Wulff, G., & Suomi, R. (2007): Utilization of information resources for business success: The knowledge sharing model. Information Resources Management Journal, 20(1), 46-67. Retrieved from; http://www.igi-global.com.

[2] Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. Human Resource Management Review, 20, 115-131.

One of the obstacles that hinder KS within an organization is the belief that knowledge is property (Dalkir, 2005).[1] However, sharing knowledge is different from the common perceptions of sharing property. According to game theory (Morris, 1994;[2] Straffin, 1993[3]), the outcome of sharing tangibles is *zero-sum* (where one's gain is the other's loss). That is, by giving away a tangible item (*i*), the summation of the person receiving the item (+ *i*) and the person giving the item (− *i*) equals to zero (+ *i* − *i* = 0). Contrasting to sharing tangibles, the outcome of sharing knowledge (an intangible item) is positive *non-zero-sum* because when one shares knowledge with others, there is no loss of one's knowledge. Together, the sum of the knowledge retained equals to larger than zero. Consequently, "transferal of knowledge does not result in losing it" (Dalkir, 2005, p. 2)[4]. However, for those individuals who believe that sharing their knowledge would diminish their status or jeopardize their job security (Riege, 2005)[5], then using *zero-sum* theory to substantiate their behavior would be more relevant.

[1] Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann.

[2] Morris, P. (1994): Introduction to game theory. New York, NY: Springer-Verlag.

[3] Straffin, P. D. (1993): Game theory and strategy. Washington, DC: The Mathematical Association of America.

[4] Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann p.2.

[5] Riege, A. (2005): Three-dozen knowledge-sharing barriers managers must consider. Journal of Knowledge Management, 9(3), 18-35.

C.-P. Lin (2007)[1] conducted a study using exchange ideology as a moderator of KS. The author found that the influence of co-worker congruence (interpersonal similarities) on KS is stronger for individuals with low exchange ideology because they are less concerned about the effects of sharing knowledge. Individuals with high exchange ideology are more practical and sensitive to the received task interdependence (the interconnections between tasks) since they perceive it with extrinsic exchanges as domains for sharing activities. Thus, the influence of received task interdependence on KS is stronger for individuals with high exchange ideology.

2.5 Knowledge-Sharing Behavior

Knowledge sharing and learning behaviors are practices essential to improvement in organizational performance (Earl, 2001)[2]. Sharing or not sharing is a behavior. When knowledge is shared in an effort of helping others, this behavior can be explained on the basis of altruism (Yu et al., 2010)[3]. Kim, Lee, and Olson (2006)[4] described individual's behavior type as a cooperator, reciprocator, and free rider toward knowledge contribution. However, the

[1]Lin, C.-P. (2007): To share or not to share: Modeling knowledge sharing using exchange ideology as a moderator. Personnel Review, 36(3), 457-475.

[2]Earl, M. (2001): Knowledge management strategies: Toward a taxomony. Journal of Management Information Systems, 18(1), 215-233.

[3]Yu, T.-K., Lu, L.-C., & Liu, T.-F. (2010). Exploring factors that influence knowledge sharing behavior via weblogs. Computers in Human Behavior, 26, 32-41.

[4]Kim, J., Lee, S. M., & Olson, D. L. (2006). Knowledge Sharing: Effects of cooperative type and reciprocity level. International Journal of Knowledge Management, 2(4), 1-16. Retrieved from; http://www.igi-global.com.

behavior of KS is not a behavior that can be measured easily (Ford & Staples, 2008)[1]. The authors identified six types of KS behavior classifications: full-KS, partial-KS, discretionary-KS, knowledge hinting, active-knowledge hoarding, and disengaged.

Knowledge sharing behavior is one form of favor exchange between individuals or organizations.

This behavior can be explained on the basis of social exchange theory (Thibaut & Kelley, 1959)[2], which refers to the individual's expectation of maintaining exchange balance between parties (Blau, 1964)[3]. Muthusamy and White (2005)[4] found that relational social exchanges, such as reciprocal commitment, ability-based trust, *benevolence-based trust*, integrity- or *competence-based trust*, and mutual power or influence are positively related to inter-organizational learning between alliance organizations. KS behavior can also be explained on the basis of reciprocity, which is the standard of behavior

[1]Ford, D. P., & Staples, D. S. (2008): What is knowledge sharing from the informer's perspective? International Journal of Knowledge Management, 4(4), 1-20. Retrieved from; http://www.igi-global.com.

[2]Thibaut, J. W., & Kelley, H. H. (1959): The social psychology of groups. New York, NY: John Wiley & Sons.

[3]Blau, P. M. (1964): Exchange and power in social life. New York, NY: John Wiley & Sons

[4] Muthusamy, S. K., & White, M. A. (2005): Learning and knowledge transfer in strategic alliances: A social exchange view. Organization Studies, 26(3), 415-441.

that characterizes the social interaction of normal adults (Bruni, Gilli, & Pelligra, 2008)[1]. Employees are more likely to share knowledge with other employees if they believe sharing will improve mutual relationship (Cho et al., 2007)[2]. Reciprocal exchange plays an important role in shaping the social status and productivity of an employee (Flynn, 2003)[3].

Yi (2009)[4] proposed classifying KS behavior into four dimensions: written contributions (person-to-document), personal interactions (person-to-person, social informal), organizational communications (person-to-group, social formal), and *CoP* (person-to-group, social informal).

2.6 Written Contributions as Knowledge Sharing

This dimension includes employees contributing ideas, information, and expertise by posting documents to organizational database repositories (such as a knowledge transfer system) and by submitting reports to other employees and to the organization (Yi, 2009). According to Watson and Hewett (2006)[5], the

[1]Bruni, L., Gilli, M., & Pelligra, V. (2008): Reciprocity: theory and facts. International Review of Economics, 55(1-2), 1-11. doi: 10.1007/s12232-008-0042-9.

[2]Cho, N., Li, G. Z., & Su, C.-J. (2007): An empirical study on the effect of individual factors on knowledge sharing by knowledge type. Journal of Global Business and Technology, 3(2), 1-15.

[3]Flynn, F. J. (2003): How much should I give and how often? The effect of generosity and frequency of favor exchange on social status and productivity. Academy of Management Journal, 46(5), 539-553.

[4]Yi, J. (2009): A measure of knowledge sharing behavior: Scale development and validation. Knowledge Management Research & Practice, 7, 65-81. Retrieved from; http://www.palgrave-journals.com/k.

[5]Watson, S., & Hewett, K. (2006): A multi-theoretical model of knowledge transfer in organizations: Determinants of knowledge contribution and knowledge reuse. Journal of Management Studies, 43(2), 141-173.

success of a knowledge transfer system depends on the willingness of individuals within the firm to contribute their valuable knowledge to the system. The knowledge shared through written means is more explicit (Yi, 2009)[1].

2.7 Personal Interactions as Knowledge Sharing

This dimension includes employees sharing knowledge through informal personto- person interactions among individuals, such as chatting (Yi, 2009). Oral storytelling is one example of KS through personal interactions. "Stories are usually faster comprehended, better kept in mind and easier transferred than abstract explanations" (Pannese, etl, 2009)[2]. Thus, stories can be used by organizations as an effective means for sharing knowledge. Organizations can increase the level of personal interactions within the organizations by encouraging their employees to work in teams, as well as by using job rotation to create opportunity for employees to interact with different groups of people and form informal networks (Han & Anantatmula, 2007)[3]. The knowledge shared through personal interactions is more tacit (Yi, 2009). Another example of KS through personal interactions is a semi-formal structured assembly,

[1]Yi, J. (2009): A measure of knowledge sharing behavior: Scale development and validation. Knowledge Management Research & Practice, 7, 65-81. Retrieved from; http://www.palgrave-journals.com/k.

[2]Pannese, L., Hallmeier, R., Hetzner, S., & Confalonieri, L. (2009): Storytelling and serious games for creative learning in an intergenerational setting. Paper presented at the 3rd European Conference on Games Based Learning, Graz, Austria, p. 305.

[3]Han, B. M., & Anantatmula, V. S. (2007). Knowledge sharing in large IT organizations: A case study .The Journal of Information and Knowledge Management Systems, 439-421 ,(4)37

where employees across organizational levels discuss ideas and issues, known as town hall meeting (Mayfield, 2010)[1].

2.8 Organizational Communications as Knowledge Sharing

This dimension includes employees sharing knowledge through formal interactions within or across work units (Yi, 2009)[2]. This form of communication commonly occurs at organizations' regular and unscheduled meetings or among individual employees. Appel-Meulenbroek (2010)[3] found that an organizational layout that provides ample co-presence among employees increased KS. The knowledge shared through organizational communications is more tacit (Yi, 2009).

2.9 Communities of Practice as Knowledge Sharing

This dimension includes employees sharing knowledge within a group of individuals who share common experience or interest (Yi, 2009). CoPs are generally made up of groups of people who develop shared objectives and

[1]Mayfield, M. (2010): Tacit knowledge sharing: Techniques for putting a powerful tool in practice. Development and Learning in Organizations, 24(1), 24-26.

[2]Yi, J. (2009): A measure of knowledge sharing behavior: Scale development and validation. Knowledge Management Research & Practice, 7, 65-81. Retrieved from; http://www.palgrave-journals.com/k.

[3]Appel-Meulenbroek, R. (2010): Knowledge sharing through co-presence: Added value of facilities. Facilities, 28(3/4), 189-205.

mutual trust where reciprocity is the norm (Alvesson, 2004)[1]. Zboralski (2009)[2] found that knowledge workers in CoPs are motivated by intrinsic objectives; interactions among them are encouraged by a supportive leader and by an appropriate management support. If organizations are considering supporting CoPs, they should look at what those communities are for and how to create communities that would contribute to organizational goals (Klein, 2008)[3]. The knowledge shared through CoPs is more tacit (Yi, 2009)[4].

2.10 Knowledge Sharing and Trust

In organizations, KS is greatly influenced by trust because according to Deng (2008)[5],"trust is a key enabler for knowledge sharing, and the success of building trusting relationships for knowledge sharing hinges upon management upholding KM principles" (p. 185). Shaw (1997)[6] defined trust as a "belief that those on whom we depend will meet our expectations of them" (p. 21). From the definitions of trust offered by researchers from various disciplines, Houtari

[1]Alvesson, M. (2004): Knowledge work and knowledge-intensive firms. New York, NY: Oxford University Press.

[2] Zboralski, K. (2009): Antecedents of knowledge sharing in communities of practice. Journal of Knowledge Management, 13(3), 90-101.

[3]Klein, J. H. (2008): Some directions for research in knowledge sharing. Knowledge Management Research & Practice, 6, 41-46. Retrieved from; http://www.palgrave-journals.com/kmrp/.

[4]Yi, J. (2009): A measure of knowledge sharing behavior: Scale development and validation. Knowledge Management Research & Practice, 7, 65-81. Retrieved from; http://www.palgrave-journals.com/k.

[5]Deng, P. S. (2008): Applying a market-based approach to the development of a sharing enabled KM model for knowledge-intensive small firms. Information Systems Management, 25, 174-187.

[6]Shaw, R. B. (1997): Trust in balance: Building successful organizations on results, integrity, and concern. San Francisco, CA: Jossey-Bass.

and Livonen (2004)[1] summarized the following basic features: (a) trust is based on expectations and interactions, (b) trust is manifested in peoples' behavior pattern, and (c) trust makes a difference.

Levin and Cross (2004) [2]suggested that trusting a knowledge source to be benevolent and competent enhances KS, because benevolence- and competence-based trust positively influence greater knowledge exchange, as well as the perception of the knowledge seeker. Trust is a form of tacit knowledge that can be made explicit by means of KM techniques, such as codification and pattern matching (E. Davenport & McLaughlin, 2004)[3].

Fineman (2003)[4] argued that trust "is not something that is simply present or absent from a social relationship, but is negotiated and contextually/structurally specific" (p. 565). Consequently, trustworthiness generally reduces *stickiness* of knowledge (Szulanski & Cappetta, 2003)[5]. The increased complexity and uncertainty of the business environment cannot be handled without interpersonal and inter-organizational trust; thus, in

[1]Houtari, M.-L., & Livonen, M. (2004): Managing knowledge-based organizations through trust. In M.-L. Houtari & M. Livonen (Eds.), Trust in knowledge management and systems in organization (pp. 1-29). Hershey, PA: Idea Group.

[2]Levin, D. Z., & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer .*Management Science, 50* , (11),1477-1490 .

[3]Davenport, E. & McLaughlin, L. (2004): Interpersonal trust in online partnerships: The challenge of representation. In M.-L. Houtari & M. Livonen (Eds.), Trust in knowledge management and systems in organizations (pp. 107-124). Hershey, PA: Idea Group

[4]Fineman, S. (2003): Emotionalizing organizational learning. In M. Easterby Smith & MA. Lyles(Eds.), The Blackwell handbook of organizational learning and knowledge management (pp.557-574). Malden, MA: Blackwell.

[5]Szulanski, G., & Cappetta, R. (2003): Stickiness: Conceptualizing, measuring, and predicting difficulties in the transfer of knowledge within organizations. In M. Easterby-Smith & M. A. Lyles (Eds.), The Blackwell handbook of; Organizational Learning and Knowledge Management (pp. 513-534). Malden, MA: Blackwell.

knowledge-intensive business especially, trust is a highly desirable property (Lane,1998)[1].

Wu, Lin, Hsu, and Yeh (2009)[2] found that employees' perceived interpersonal trust, either of their colleagues or supervisor, was positively correlated with their KS behaviors in the workplace. Establishing KS culture should initiate from an environment of trust among employees. The interaction between trust and KS is particularly complex in an organizational setting (McNeish & Mann, 2010)[3]. Organizations with a higher level of trust are more successful in implementing KM than those organizations with a lower level of trust (Ribiere, 2005)[4]. Thus, organizational trust is a critical component of culture in effective KM (DeTienne et al., 2004)[5]. A trustworthy environment of the organization enhances the KS willingness of employees (Liao, 2008)[6].

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[1]Lane, C. (1998): Introduction: Theories and issues in the study of trust. In C. Lane & R. Backmann (Eds.), Trust within and between organizations: Conceptual issues and empirical applications (pp. 1-30). New York, NY: Oxford University Press.

[2]Wu, W.-L., Lin, C.-H., Hsu, B.-F., & Yeh, R.-S. (2009): Interpersonal trust and knowledge sharing: Moderating effects of individual altruism and a social interaction environment. Social Behavior and Personality, 37(1), 83-94.

[3]McNeish, J., & Mann, I. J. S. (2010): Knowledge sharing and trust in organizations. The IUP Journal of Knowledge Management, VIII (1 & 2), 18-38. Retrieved from; http://ssrn.com/abstract=1545628.

[4]Ribiere, V. M. (2005): The role of Organizational Trust in knowledge management: Tools & technology use & success. International Journal of Knowledge Management, 1(1), 67-85. Retrieved from; http://www.igi-global.com.

[5]DeTienne, K. B., Dyer, G., Hoopes, C., & Harris, S. (2004): Toward a model of effective knowledge management and directions for future research: Culture, leadership, 135 and CKOs. Journal of Leadership and Organizational Studies, 10(4), 26-43. Retrieved from; http://intl-online.sagepub.com .

[6]Liao, L.-F. (2008): Knowledge-sharing in R&D departments: a social power and social exchange theory perspective. International Journal of Human Resource Management, 19(10), 1881-1895.

Lack of trust is a common barrier for an organization to change to a KS culture (Dalkir, 2005)[1].

T. H. Davenport and Prusak (2000)[2] described three ways that lead the organization to establish trust in sharing knowledge (a) trust must be visible, (b) trust must be ubiquitous, and (c) trustworthiness must start at the top. The factors that influence employees' perceptions of managerial trustworthiness can be categorized as: behavioral consistency, behavioral integrity, sharing and delegation of control, communication, and demonstration of concern (Whitener, Brodt, Korsgaard, & Werner,2006)[3].

Renzl (2008)[4] conducted a study on the relationship between trust in management and KS. The author found that trust in management increases employees' KS and reduces the fear of losing their unique value in the KS process.

McAllister (1995)[5] described two forms of trust which are foundation of interpersonal cooperation in organizations (a) affect-based trust, which is

[1]Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann.

[2]Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

[3]Whitener, E. M., Brodt, S. E., Korsgaard, M. A., & Werner, J. M. (2006): Managers as initiators of trust: An exchange relationship framework for understanding managerial trustworthy behavior. In R. M. Kramer (Ed.), Organizational trust: A reader (pp. 140-169). New York, NY: Oxford University Press.

[4]Renzl, B. (2008): Trust in management and knowledge sharing: The mediating effects of fear and knowledge documentation. Omega, 36, 206-220.

[5]McAllister, D.J. (1995): "Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations", Academy of Management Journal, Vol. 38 No. 1, pp. 24-59.

grounded in mutual care and concern between workers, and (b) cognition-based trust, which is grounded in co-worker reliability and competence. To find out the relationship between trust and sharing tacit knowledge within the organizations, Holste and Fields (2010)[1] conducted a survey of 202 managerial and professional employees of an international organization. The authors found that affect-based trust has a significantly greater influence on the willingness of the employees to share tacit knowledge, while cognition based trust plays a greater role in willingness for the employees to use tacit knowledge.

2.11 Knowledge Sharing and Relationships

KS is positively affected by relationships, because "knowledge is most readily shared by people who have relationships characterized by trust" (Cohen, 2007, p. 240)[2]. Personal relationships carry valuable knowledge, according to Maznevski and Athanassiou (2007)[3], because (a) relationships facilitate locating the source of knowledge, (b) relationships are conduits of tacit knowledge, and (c) relationships provide access to explicit knowledge.

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[1] Holste, J. S., & Fields, D. (2010): Trust and tacit knowledge sharing and use. Journal of Knowledge Management, 14(1), 128-140. (1), 24-59.

[2]Cohen, D. (2007): Enhancing social capital for knowledge effectiveness. In K. Ichijo & I. Nonaka (Eds.), Knowledge creation and management: New challenges formanagers (pp. 240-253). New York, NY: Oxford University Press.

[3]Maznevski, M., & Athanassiou, N. (2007): Bringing the outside in: Learning and knowledge management through external networks. In K. Ichijo & I. Nonaka (Eds.), Knowledge creation and management: New challenges for managers (pp. 69-82). New York, NY: Oxford University Press.

Relationships are more than just business contacts. Personal connections make contacts more willing to help (T. H. Davenport, 2005)[1].

Dyer and Hatch (2006)[2] studied the role of network knowledge resources in influencing firm performance, found that firms can create advantages by leveraging knowledge assets within networks of relationships.

2.12 Motivation and Knowledge Sharing

Individuals are commonly rewarded for what they know, not what they share Dalkir (2005)[3]. KS is one form of knowledge exchange. Cross and Prusak (2003)[4] described the exchange of knowledge in organizations as knowledge market because such activity is similar to markets for goods and services. Participants in knowledge market believe and expect the transactions will benefit them. According to the authors, for a knowledge market to work at all, KS must be rewarded more than knowledge hoarding.

[1]Davenport, T. H. (2005) .Thinking for a living: How to get better performance and results from knowledge workers .Boston, MA: Harvard Business School Press.

[2] Dyer, J. H., & Hatch, N. W. (2006): Relation-specific capabilities and barriers to knowledge transfers: Creating advantage through network relationships. Strategic Management Journal, 27, 701-719. doi: 10.1002/smj.543.

[3]Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann.

[4]Cross, R., & Prusak, L. (2003): The political economy of knowledge markets in organization. In M. Easterby-Smith & M. A. Lyles (Eds.). The Blackwell handbook of organizational learning and knowledge management (pp. 454-472). Malden, MA: Blackwell.

Alavi and Leidner (2002)[1] referenced examples from a management consulting firm and a PSF suggested that an effective way to promote KS is through the reward and incentive mechanism of the organization.

KS is affected by individual motivation which is strongly affected by the social context of social norms and social identity (Kimmerle, Wodzicki, & Cress, 2008)[2]. The subjects of motivation, reward, and inventive have been studied by scholars of social and behavioral sciences resulting in the development of many motivational theories, such as hierarchy of need, motivation-hygiene theory, self-determination theory, and expectancy theory.

2.12.1Motivation Theories

Vroom (1964)[3] defined motivation as "a process governing choice made by persons . . . among alternative forms of voluntary activity" (p. 6). Motivation is The driving force behind individuals' choice to engage or disengage in different activities, and the driving force is built upon individuals' beliefs, values, and goals that relate to their achievement behaviors (Eccles & Wigfield, 2002)[4].

2.12.2Hierarchy of need

[1]Alavi, M. & Leidner, D. E. (2002): Knowledge management systems: issues, challenges and benefits. In S. Barnes (Ed.), Knowledge management systems: Theory and practice (pp. 15-35). London, England: Thomson Learning.

[2]Kimmerle, J., Wodzicki, K., & Cress, U. (2008): The social psychology of knowledge management. Team Performance Management, 14(7/8), 381-401. doi: 10.1108/13527590810912340.

[3]Vroom, V. H. (1964): Work and motivation. Malabar, FL: Robert E. Krieger.

[4]Eccles, J. S., & Wigfield, A. (2002): Motivational beliefs, values, and goals. Annual Reviews Psychology, 53, 109-132.

Several scholars observed that humans are motivated by unsatisfied needs. For instance, Maslow (1954)[1] proposed five categories of human needs—physiological, safety and security, belongingness, esteem, and self actualization— and argued that the satisfaction of higher need is contingent on the lower needs having been met.

McGregor (1960)[2] suggested that human needs are organized in a series of levels, from physiological needs to the needs for self-fulfillment, and when the lower level needs are satisfied, the next level of needs become important motivators of behavior. Alderfer (1969)[3] proposed the ERG (existence, relatedness, growth) theory in reaction to Maslow. The author categorized human needs that influence workers‘ behavior into (a) existence needs—physiological and safety need, (b) relatedness needs— social and external esteem, and (c) growth needs—internal esteem and self-actualization and suggested that the order of the importance of these needs might be different for each individual. Therefore, the motivator for each individual is unique.

2.12.3Motivation-hygiene theory.

Herzberg (1966)[4] classified factors that produce job satisfaction (achievement, recognition, work itself, responsibility, and advancement) as

[1]Maslow, A. H. (1954): Motivation and personality. New York, NY: Harper.

[2]McGregor, D. (1960): The human side of enterprise. Boston, MA: McGraw-Hill.

[3]Alderfer, C. P. (1969): An empirical test of a new theory of human needs. Organizational Behavior and Human Performance, 4(2), 142-175.

[4]Herzberg, F. (1966): Work and the nature of man. New York, NY: Thomas Y. Crowell.

motivators; factors that produce no job satisfaction (company policy and administration, supervision, salary, interpersonal relations, and work conditions) are classified as hygiene. Herzberg argued that the presence of motivators would produce job satisfaction, but their absence would not produce job dissatisfaction. Conversely, the presence of hygiene factors would not produce job satisfaction, but their absence would produce job dissatisfaction. Hygiene factors, such as bonuses, status, or salary, may lead to an increase in the use of KS technologies in organizations, but those factors are unlikely to result in an increased motivation for employees to share knowledge (Hendriks, 1999)[1].

According to the author, employees share knowledge because they anticipate recognition, appreciation, promotion, reciprocity, or because of a sense of responsibility, which are all motivators.

2.12.4Self-determination theory.

As a macro theory of human motivation and personality, "self-determination is the capacity to choose and to have those choices…be the determinations of one's action" (Deci & Ryan, 1985, p. 38)[2]. Similarly, (McGregor's 1960)[3] theory Y generalized that employees will exercise self-

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[1]Hendriks, P. (1999): "Why share knowledge? The influence of ICT on the motivation for knowledge sharing", Knowledge and Process Management, Vol. 6 No. 2, pp. 91-100.

[2]Deci, E. L., & Ryan, R. M. (1985): Intrinsic motivation and self-determination in human behavior. New York, NY: Plenum Press.

[3]McGregor, D. (1960): The human side of enterprise. Boston, MA: McGraw-Hill.

direction and self-control in the achievement of organizational objectives to which they are committed. Such a commitment to objectives is a function of the rewards associated with their achievement" (p. 47). This commitment to objectives supports the theory of self-determination.

2.13 Incentives as Motivators

Organizations are more focused on managing knowledge than managing knowledgeable employees, and organizational incentives are often misaligned with the goals of KS (Prusak & Weiss, 2007)[1]. From a study on incentives and KS of accounting firms, Wolfe and Loraas (2008)[2] established that firms should monitor their nonmonetary recognition-based incentives to encourage KS. The authors recommended firms to consider making KS an element in employee annual review, and promote a team-based culture.

Fey and Furu (2008)[3], studied 164 foreign-owned subsidiaries located in Finland and China, and found that incentive pays lead to greater KS among different units of the multinational corporation and incentives produce better results of knowledge transfer than control. However, Nan (2008)[4] argued that there is no one-size-fits-all incentive solution to encourage employees to share

[1]Prusak, L., & Weiss, L. (2007): Knowledge in organizational settings: How organizations generate, disseminate, and use knowledge for their competitive advantage. In K. Ichijo & I. Nonaka (Eds.), Knowledge creation and management: New challenges for managers (pp. 32-43). New York, NY: Oxford University Press.

[2]Wolfe, C., & Loraas, T. (2008): Knowledge sharing: The effects of incentives, environment, and person. Journal of Information Systems, 22(2), 53-76.

[3]Fey, C. F., & Furu, P. (2008): Top management incentive compensation and knowledge sharing in multinational corporations. Strategic Management Journal, 29, 1301-1323. doi: 10.1002/smj.712.

[4]Nan, N. (2008): A principal-agent model for incentive design in knowledge sharing. Journal of Knowledge Management, 12(3), 101-113.

knowledge; optimization of incentives depends on the level of intangibility of the knowledge. From a study using a principal-agent model borrowed from economics, the author found that for (knowledge with low level of intangibility, "a target payment scheme is optimal" (b) knowledge with medium level of intangibility, "the optimal incentive solution is a function of management's ability to infer employees' effort from KS results" and knowledge with high level of intangibility, "there is no payment scheme that can be derived from the principal-agent model to encourage employees to share knowledge"

Subramanian and Soh (2009)[1] found, from a survey of 180 engineers from a software company, that the desire to gain rewards was one of the important motivators for employees to share knowledge, and centrality and power were important social incentives for employees to increase their intensity of knowledge contribution. Cabrera,Collins, and Salgado (2006)[2] proposed organizations to consider revising their performance appraisal instruments, job assignment, and career policies to align rewards and incentives with KS. Zhang et al. (2008)[3] suggested that incentives to encourage KS should

[1] Subramanian, A. M., & Soh, P.-H. (2009): Contributing knowledge to knowledge repositories: Dual role of inducement and opportunity factors. Information Resources Management Journal,, 22(1), 45-62. Retrieved from; http://www.igiglobal.com

[2]Cabrera, Á., Collins, W. C., & Salgado, J. F. (2006). Determinants of individual engagement in knowledge sharing .*International Journal of Human Resource Management, 17* -245 ,(2) .264

[3]Zhang, L., Sheng, X., Li, J., Nie, G., Huo, G., & Shi, Y. (2008): A way to improve knowledge sharing: From the perspective of knowledge potential. Journal of Service Science and Management, 1, 226-232. Retrieved from; http://www.sciRP.org/journal/jssm.

be a step-by-step process; excessive incentives would add to the organizational cost while moderate incentives would not inspire employees' enthusiasm.

Instead of highlighting recognitions and rewards as motivators, Strickler (2006)[1] recommended organizations create conditions to motivate their employees by (a) becoming a values-driven organization where honesty and ethics are expected by coworkers and customers, (b) creating a safe environment for employees to share their ideas, (c) expecting employees to be responsible and accountable, and (d) encouraging employees to continuous improve through constant experimentation. Iyer and Ravindran (2009)[2] argued that the perception of usefulness of the knowledge is more important than incentives in determining if individuals choose to use knowledge

2.14 Knowledge Sharing and Organizational Culture

According to King (2007)[3], culture is believed to affect the knowledge-related behaviors among individuals, teams, and organizational units because culture "influences the determination of which knowledge is appropriate to share, with whom, and when" (p.226). Motivation, as it relates to changing employees' behavior, is difficult to deal with because it is closely influenced by

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[1] Strickler, J. (2006): What really motivates people? The Journal for Quality & Participation. Retrieved from; http://www.asq.org.

[2] Iyer, G. S., & Ravindran, S. (2009): Usefulness, incentives and knowledge management. Journal of Knowledge Management, 13(5), 410-430.

[3] King, W. R. (2007): A research agenda for the relationships between culture and knowledge management. Knowledge and Process Management, 14(3), 226-236.

the cultural norm of an organization (Handzic & Zhou, 2005)[1]. Organizational culture is shared basic assumptions emerging from a collection of individuals (who comprise themselves as an organization) and is created through the complex and continuous network of communication among them to satisfy a common goal defined (Keyton, 2005)[2]. Many definitions of organizational culture connect to some form of shared meaning, interpretations, values and norms (Alvesson & Sveningsson, 2008)[3]. According to Schein (1985)[4], culture exists at three levels. Level 3, the deepest level, consists of the basic assumptions of "relationship to environment, nature of reality, time, and space, nature of human nature, nature of human activity, and nature of human relationships" (p. 22). These assumptions are taken for granted, invisible, and preconscious. Level 2, with a greater level of awareness, consists of values, which are testable in the physical environment and are testable only by social consensus. At Level 1, the most visible, but often not decipherable level, culture is manifested through artifacts and creations, such as technology, art, and visible and audible behavior patterns.

[1]Handzic, M., & Zhou, A. Z. (2005 .(*Knowledge management: An integrative approach)*. Oxford, England: Chandos.

[2]Keyton, J. (2005): Communication & organizational culture: A key to understanding work experiences. Thousand Oaks, CA: SAGE Publications.

[3]Alvesson, M., & Sveningsson, S. (2008): Changing organizational culture: Cultural change work in progress. New York, NY: Routledge.

[4]Schein, E. H. (1985): How culture forms, develops, and changes. In R. H. Kilmann, M. J. Saxton & R. Serpa (Eds.), Gaining control of the corporate culture (pp. 17-43). San Francisco, CA: Jossey-Bass

Young (2010)[1] suggested six cultural levels senior management can use to maintain or modify existing organizational culture: (1) strategy formulation, (2) authority and influence, (3) motivation, (4) management control, (5) conflict management, and (6) customer management.

KS in organizations is influenced by organizational culture, according to DeTienne et al. (2004)[2], because it "plays a vital role in the knowledge creation, sharing, and transfer process" (p. 41). Organizational culture can be shaped by two influencers (Wellman, 2009). Evolutionary influencers include (a) industry technology and complexity, (b) organization reaction to technology and complexity, (c) regulatory environment, (d) competition, (e) customers, (f) organization history, and (g) individuals.

Whereas, revolutionary influencers consist of (a) technology disruption, (b) ownership change, (c) disasters, and (d) leaders. KS behavior is part of knowledge-related behavior.

D. W. DeLong and Fahey (2000)[3] proposed the following four frameworks as diagnostic tools for analyzing how organizational cultures (and subcultures) can influence an organization's knowledge-related behavior: (a)

[1]Young, D. W. (2010): The six levers for managing organizational culture. In J. A. Wagner, III, & J. R. Hollenbeck (Eds.), Readings In Organizational Behavior (pp. 533-546). New York, NY: Routledge.

[2]DeTienne, K. B., Dyer, G., Hoopes, C., & Harris, S. (2004): Toward a model of effective knowledge management and directions for future research: Culture, leadership, 135 and CKOs. Journal of Leadership and Organizational Studies, 10(4), 26-43. Retrieved from; http://intl-online.sagepub.com.

[3]De Long, D.W. and Fahey, L. (2000): Diagnosing cultural barriers to knowledge management", The Academy of Management Executive, Vol. 14 No. 4, pp. 113-27.

"culture shapes assumptions about which knowledge is important" (b) "culture mediates the relationships between organizational and individual knowledge" (c) "culture creates a context for social interaction" and (d) "culture shapes processes for the creation and adoption of new knowledge" Thus, the behavior of KS is greatly affected by culture.

As a subset of organizational culture, the *information culture* of an organization is determined by its mission, history, leadership, employee traits, industry, and national culture and is "shaped by the cognitive and epistemic expectations embedded in the way that tasks are performed and decisions are made" (Choo et al., 2008, p. 802)[1]. Leaders of organizations can foster a knowledge-friendly culture by acknowledging the existence and influence of culture and its role, by having a very clear, holistic, and persistent vision of the culture, and by consciously managing culture (Wellman, 2009)[2]. Oliver and Kandadi (2006)[3] identified the following ten major factors affecting knowledge culture in organizations: (a) leadership, (b) organizational structure, (c) evangelization, (d) communities of practice, (e) reward systems, (f) time allocation, (g) business processes management, (h) recruitment, (i)

[1]Choo, C. W., Bergeron, P., Detlor, B., & Heaton, L. (2008): Information culture and information use: An exploratory study of three organizations. Journal of the American Society for Information Science and Technology, 59(5), 792-804.

[2]Wellman, J. L. (2009): Organizational learning: How companies and institutions manage and apply knowledge. New York, NY: Palgrave Macmillan.

[3]Oliver, S., & Kandadi, K. R. (2006): How to develop knowledge culture in organizations? A multiple case study of large distributed organizations. Journal of Knowledge Management, 10(4), 6-24.

infrastructure, and (j) physical environment. Jayasingam, Ansari, and Jantan (2010)[1] studied the relationship between top management's social power and KM practice; they found that leaders in knowledge based organizations need to use more of expert power and less legitimate power in influencing knowledge workers. Organizational culture is recognized as important enablers or inhibitors of KM (Handzic & Zhou, 2005)[2].

2.15 Knowledge-Sharing Culture

The practice of managing and motivating employees to share their knowledge is growing in importance in the existing knowledge-based economy (Wolfe & Loraas, 2008)[3]. A KS culture is believed to be beneficial to the organizations because the intellectual capital is vital to creating competitive advantage (Gupta & Govindarajan,2000)[4]. From surveys conducted in three online communities, Yu et al. (2010)[5] found that a KS culture did play a role as a motivator of formalized KS, and fairness and openness significantly affect the sharing culture.

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[1]Jayasingam, S., Ansari, M. A. & Jantan, M. (2010): Influencing knowledge workers: The power of top management. Industrial Management & Data Systems, 110(1), 134-151.

[2]Handzic, M., & Zhou, A. Z. (2005 .(*Knowledge management: An integrative approach)*. Oxford, England: Chandos.

[3]Wolfe, C., & Loraas, T. (2008): Knowledge sharing: The effects of incentives, environment, and person. Journal of Information Systems, 22(2), 53-76.

[4]Gupta, A. K., & Govindarajan, V. (2000): Knowledge management's social dimension: Lession from Nucor Steel. Sloan Management Review, 42(1), 71-80.

[5]Yu, T.-K., Lu, L.-C., & Liu, T.-F. (2010). Exploring factors that influence knowledge sharing behavior via weblogs. Computers in Human Behavior, 26, 32-41.

According to Walczak (2005)[1], "Knowledge management is not about managing knowledge, but rather managing and creating corporate culture that facilitates and encourages the sharing, appropriate utilization, and creation of knowledge that enables a corporate strategic competitive advantage" (p. 330). In order to initiate KS culture in an organization, a majority of individual members of the organization must accept and value the culture of KS (Keyton, 2005)[2]. However, the author argued, leaders do have the power to influence organizational culture because they control the resources; they can reinforce their assumptions and values, and influence organizational members to follow.

2.16 Knowledge Management

Jones (2006)[3] defined knowledge management (KM) as: "the process of acquiring knowledge from the organization or another source and turning it into explicit information that the employees can use to transform into their own knowledge allowing them to create and increase organizational knowledge" (p. 117). KM addresses business problems (Tiwana, 2002)[4]. KM is different from information management (IM).

[1]Walczak, S. (2005): Organizational knowledge management structure. The Learning Organization, 12(4), 330-339.

[2]Keyton, J. (2005): Communication & organizational culture: A key to understanding work experiences. Thousand Oaks, CA: SAGE Publications.

[3]Jones, K. (2006): Knowledge management as a foundation for decision support systems. Journal of Computer Information Systems, 46(4), 116-124.

[4]Tiwana, A. (2002 .(The knowledge management toolkit: Orchestrating IT, strategy, and knowledge platforms2) nd ed.). Upper Saddle River, NJ: Prentice Hall.

According to Frappaolo (2006)[1], KM "consists of innovative responses to new opportunities and challenges" (p. 9) while IM "consists of predetermined responses to anticipated stimuli" (p. 9). The lack of clarity of what KM is and does for an organization posts challenges of (a) the uncertainty of the scope and mandate of KM, (b) the value of KM, (c) instilling a KS culture, (d) filling the knowing-doing gap, and (e) marketing KM (Smith et al., 2010)[2].

argued that KM takes two distinct, but complementary roles. The first role is about organizing and classifying explicit knowledge, and the second role is the study of how people communicate and interact in organizations. Thus, KM becomes aligned to the study of organizational culture (Asimakou, 2009)[3].

KM can be employed as a business strategy. Earl (2001)[4] proposed a taxonomy of seven strategies for KM. The first three consists of systems, cartographic, and engineering. They are labeled *technocratic* because those strategies are based on information or management technologies. The fourth strategy, commercial, is labeled *economic* because it is based on revenue creation from the exploitation of knowledge and intellectual capital.

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[1]Frappaolo, C. (2006): Knowledge management. West Sussex, England: Capston

[2]Smith, H., McKeen, J., & Singh, S. (2010): Creating the KM mindset: Why is it so difficult? Knowledge Management Research & Practice, 8(2), 112-120. Retrieved from; http://www.palgrave-journals.com/kmrp.

[3]Asimakou, T. (2009). Innovation, knowledge and power in organizations. New York, NY: Routledge.

[4]Earl, M. (2001): Knowledge management strategies: Toward a taxonomy. Journal of Management Information Systems, 18(1), 215-233.

The last three—organizational, spatial, and strategic—are labeled *behavioral*. These strategies are based on creating, sharing, and using knowledge as a resource.

From a study on possible mediating the role of KM "in the relationship between organizational culture, structure, strategy, and organizational effectiveness" (p. 763).

Zheng, Yang, and McLean (2010)[1] found that (a) KM could be an intervening mechanism between organizational context and organizational effectiveness, (b) KM "can influence organizational effectiveness when it is in alignment with organizational culture, structure, and strategy" (p. 769), and (c) culture has the strongest positive influence on KM. The authors recommended managers to center KM practices "on incorporating culture building activities to foster an environment that is knowledge-friendly" (p. 769) to accomplish KM success in the organization.

2.17 Knowledge Management Systems

Knowledge management systems (KMS) are systems created to facilitate the capture, storage, reuse, and retrieval of knowledge (Jennex, 2007)[2]. KMS are multifaceted, which in addition to technology, encompass broad cultural

[1]Zheng, W., Yang, B., & McLean, G. N. (2010): Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management. Journal of Business Research, 63, 763-771.

[2]Jennex, M. E. (2007): Knowledge management in modern organizations. Hershey, PA: Idea Group.

and organizational issues (Alavi & Leidner, 2002)[1]. A KMS provides support for many information functions (Dalkir, 2005)[2], namely:

- Acquiring and indexing, capturing, and archiving.
- Finding and accessing.
- Creating and annotating; combining, coding, and modifying.
- Tracking.

A KMS is capable of making comparisons, analyzing trends, and presenting historical and current knowledge; such capability provides organizations a competitive advantage by giving decision-makers the necessary insight into patterns and trends that impact their domain (Stănescu, Chete, & Giurgiu, 2009)[3]. McCall, Arnold, and Sutton (2008)[4] found that KMS users outperform users of traditional reference materials in solving structured problems. The perspective of knowledge and KM determines the focus of a KMS and its process (Prakasan, Sagar, Kumar, Kalyane, & Kumar, 2008)[5].

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[1]Alavi, M. & Leidner, D. E. (2002): Knowledge management systems: issues, challenges and benefits. In S. Barnes (Ed.), Knowledge management systems: Theory and practice (pp. 15-35). London, England: Thomson Learning.

[2]Dalkir, K. (2005): Knowledge management in theory and practice. Boston, MA: Elsevier Butterworth-Heinemann.

[3]Stănescu, I. A., Chete, G. C., & Giurgiu, L. (2009): Knowledge enriched decisional environments. Buletin Ştiintific, 2 (28).

[4]McCall, H., Arnold, V., & Sutton, S. G. (2008): Use of knowledge management systems and the impact on the acquisition of explicit knowledge. Journal of Information Systems, 22(2), 77-101.

[5]Prakasan, E. R., Sagar, A., Kumar, A., Kalyane, V. L., & Kumar, V. (2008): Bibliometrics on Knowledge Management. In I. V. Malhan & S. Rao (Eds.), Perspectives on Knowledge Management (pp. 79-101). Lanham, MD: Scarecrow Press.

Heier (2004)[1] proposed that KMS can be organizational change drivers. However, Ciganek, Mao, and Srite (2004)[2] found that organizational culture significantly influenced the factors that lead to the acceptance of KMS.

2.18 Knowledge Sharing and Information Technology

KM strategy is incomplete without a technology component (Frappaolo, 2006)[3].

However, KM "is not directly tied to technology; rather, emerging technologies provide a means of enabling more effective KM" (Alavi & Leidner, 2002, p. 23)[4], which requires a hybrid solution of people and technology (T. H. Davenport & Prusak, 2000)[5]. Coakes (2006)[6] recommended organizations to approach KM from the social aspects of knowledge creation, storage, and sharing need in conjunction with technical and to consider people, task, process, and environment (both internal and external) when implementing technology into KM.

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[1]Heier, H. (2004): Change paradigms in the setting of knowledge management systems. Wiesbaden, Germany: DUV.

[2]Ciganek, A. P., Mao, E., & Srite, M. (2004): Organizational culture for knowledge management systems: A study of corporate users. International Journal of Knowledge Management, 4(1), 1-16. Retrieved from; http://www.igi-global.com.

[3]Frappaolo, C. (2006): Knowledge management. West Sussex, England: Capston.

[4]Alavi, M. & Leidner, D. E. (2002): Knowledge management systems: issues, challenges and benefits. In S. Barnes (Ed.), Knowledge management systems: Theory and practice (pp. 15-35). London, England: Thomson Learning.

[5]Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

[6]Coakes, E. (2006): Supporting the management of knowledge made explicit in transnational organizations. The Learning Organization, 13(6), 579-593.

Organizations have traditionally used information technology (IT) to enhance the capture, storage, and retrieval of knowledge. However, IT cannot replace direct human interactions in knowledge transfer, but only facilitates knowledge transfer when it supplements face-to-face interactions (Wellman, 2009)[1]. Having more IT does not necessarily mean that the state of information will be improved (T. H. Davenport & Prusak, 2000)[2]. Technology cannot make up for an organization whose culture does not support KS practices (Frappaolo, 2006)[3]. In addition, employees must make use of the technology, and the technology must fit the tasks it supports (Goodhue Thomson, 1995)[4]. Bonifacio et al. (2008)[5] presented a four-layer model for IT support of KS. The first layer is IT support at one's desktop because, before knowledge is shared, one has to first manage individual knowledge. The next layer is centralized sharing of knowledge, which is facilitated by server-based software systems organized around folder structures, taxonomies, or metadata. The third layer is decentralized IT support of KS, the objective of which is to alleviate knowledge server bottleneck through peer-to-peer exchange of individual expertise.

[1]Wellman, J. L. (2009): Organizational learning: How companies and institutions manage and apply knowledge. New York, NY: Palgrave Macmillan.

[2]Davenport, T. H., & Prusak, L. (2000): Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

[3]Frappaolo, C. (2006): Knowledge management. West Sussex, England: Capston.

[4]Goodhue, D. L., & Thomson, R. L. (1995): Task-technology fit and individual performance. MIS Quarterly, 19(2), 213-236.

[5]Bonifacio, M., Franz, T., & Staab, S. (2008): A four-layer model for information technology support of knowledge management. In I. Becerra-Fernandez & D. Leidner (Eds.), Knowledge management: An evolutionary view (pp. 104-123). Armonk, NY: M. E. Sharpe.

The fourth layer is evolutionary model of KS by means of IT communication validation process network structure. Thierauf and Hoctor (2006)[1] advocated organizations to employ newer business models and computer software and technique for developing new opportunities and solving problems. An expert system—" an interactive system that responds to questions, asks for clarification, makes recommendations, and generally aids in the decision-making process" (p. 272)—is an example of one of the innovative IT tools for managing knowledge (Hauer, 2009)[2].

Computer software applications are adopted by organizations to facilitate KS (T. H. Davenport, 2005)[3], for instance, expertise directory applications (such as digital yellow pages), social networking applications (such as Face book and Twitter), and instant messaging.

The Internet offers many online communication channels, such as e-mail listservs, electronic bulletin boards, and social network websites. Online KS behavior has become more common (Yu et al., 2010)[4].

CoPs organized and hosted over the Internet have been developing into networks of practice, which is a form of virtual community, which is described

[1]Thierauf, R. J., & Hoctor, J. J. (2006): Optimal knowledge management: Wisdom management systems, concepts and applications. Hershey, PA: Idea Group

[2]Hauer, I. (2009): Some considerations about knowledge management: A view from knowledge management and intelligence relationship. Megatrend Review, 6(2), 269-278.

[3]Davenport, T. H. (2005) .Thinking for a living: How to get better performance and results from knowledge workers .Boston, MA: Harvard Business School Press.

[4]Yu, T.-K., Lu, L.-C., & Liu, T.-F. (2010). Exploring factors that influence knowledge sharing behavior via weblogs. Computers in Human Behavior, 26, 32-41.

by Nordan, Abidin, Mahmood, and Arshad (2009)[1] as digital social networks.

Advancement in IT makes available "electronic tools that enable anyone to publish and access information, collaborate on a common effort, or build relationships" (p. 4), which are known as social media (Jue et al., 2010)[2]. According to the authors, social media tools facilitate knowledge creation, and many organizations are using such media to improve performance.

Knowledge repository is one of the common adopted IT applications that support KM. However, knowledge repositories are "merely intermediate storage points for information en route between people's heads" (Frappaolo, 2006, p. 9)[3]. Meloche, Hasan, Willis, Pfaff, and Qi (2009)[4] recommended organizations to consider installing *wiki* (an interlinked web pages with cross links between pages where each page can be edited) as knowledge repository, where ideas can be captured and updated by every employee. To ensure the usefulness and credibility of knowledge, some forms of filtering and validating prior to publication are necessary.

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[1]Nordan, N. A. M., Abidin, A. I. Z., Mahmood, A. K., & Arshad, N. I. (2009): Digital social networks: Examining the knowledge characteristics. International Journal of Humanities and Social Sciences, 3(4), 287-293.

[2]Jue, A. L., Marr, J. A., & Kassotakis, M. E. (2010 .(Social media at work: How networking tools propel organizational performance .San Francisco, CA:Jossey- Bass.

[3]Frappaolo, C. (2006): Knowledge management. West Sussex, England: Capston.

[4]Meloche, J. A., Hasan, H., Willis, D., Pfaff, C. C., & Qi, Y. (2009): Cocreating corporate knowledge with a Wiki. International Journal of Knowledge Management, 5(2), 33-50. Retrieved from; http://www.igi-global.com.

Durcikova and Gray (2009)[1] found that an overly rigorous validating process discourages contribution from employees, and suggested that the review processes to be transparent and developmentally oriented.

2.19 Previous studies in knowledge sharing

Research on knowledge management has shown that knowledge sharing is a key as well as a challenge to the success of knowledge management both in theories and in practice (Grant, 1996)[2] many studies had been carried out in Western and South-East Asian countries. investigating the factors affecting knowledge sharing, A study conducted by (Hafiez& kodai 2012)[3] investigated the relationship between organizational elements and the performance of knowledge transfer , the petroleum sector in Sudan during the period of 2000 to 2006 was chosen for the case study the data collected through personal questioner 120 respondent from the senior staff were used for the purpose of the study the result revealed that there are a significant relationship between some variables (organizational culture, job satisfaction, communication flow)on the performance of knowledge transfer.

[1]Durcikova, A., & Gray, P. (2009). How knowledge validation processes affect knowledge contribution .*Journal of Management Information Systems, 25* (4), 81-107.

[2]Grant, R.M. (1996): "Toward a knowledge-based theory of the firm", Strategic Management Journal, Vol. 17 No. 4, pp. 109-22.

[3]Hafiez,A& kodai,Z(2012): "Factors affecting knowledge transfer performance: study on Sudan oil sector", Journal of Global Business Advancement, Vol. 5 No. 4, PP. 307-320.

Nurliza. M. Fathi, et al (2011)[1] examined the factors that affect knowledge-sharing attitudes in Malaysia, with emphasis on a manufacturing firm and how this attitude influences their intention to share knowledge. The findings indicated that collectivism, social network, social trust, shared goal, incentive systems, kiasuism and self-efficacy emerged significant except for individualism. A unique finding is that kiasuism emerged as proposed, which suggest that future works could focus more on this variable to highlight its impact in a firm's ability to share knowledge .

Rıfat Kamas (2009)[2] from Istanbul universities explore the effects of knowledge sharing on innovation. Two forms of knowledge sharing are examined, knowledge donating and knowledge collecting. In particular, the effects of knowledge donating and collecting on ambidexterity in organizations are also studied, with ambidexterity defined as the simultaneous achievement of exploratory and exploitative innovation. The results showed that knowledge collecting had a significant effect on all types of innovation and ambidexterity, whereas knowledge donating, involving donating inside and outside the group, did not have any effect on exploratory innovation. It was also observed that in-group knowledge donating affected both exploitative innovation and ambidexterity. This paper is limited to Turkish managers.

[1]Nurliza etl (2011): Key Determinants of Knowledge Sharing in an Electronics Manufacturing Firm in Malaysia. Library Review Vol. 60 No. 1, pp. 53-67.

[2]Rıfat Kamas¸ak and Fu¨sun Bulutlar, The influence of knowledge sharing on innovation, European Business Review Vol. 22 No. 3, 2010 pp. 306-317.

A study by J. Scott and Dail (2010)[1] investigated the impact of affect-based and cognition-based trust of co-workers on the willingness of professionals to share and use tacit knowledge. The relationships were examined through data provided by a sample of 202 professionals and managers in world headquarters of an international organization. The findings – The levels of both types of trust influence the extent to which staff members are willing to share and use tacit knowledge .Affect-based trust has a significantly greater effect on the willingness to share tacit knowledge, while cognition-based trust plays a greater role in willingness to use tacit knowledge.

A study by Prodromos& Eftichia(2009)[2] examined Knowledge-sharing behavior of bank employees in Greece is using an aggregate model, which is based on the theory of planned behavior The results indicate that intention to share knowledge is mainly influenced by employees' attitude toward knowledge sharing, followed by subjective norms. The results highlight the necessity of creating a climate that would help individuals develop a more favorable attitude toward knowledge sharing as well as the important role of the perceived social pressure by organizational members (peers, supervisors, senior management) on the intention of individuals to share knowledge.

[1]J. Scott and Dail (2010)[1] Trust and tacit knowledge sharing and use JOURNAL OF KNOWLEDGE MANAGEMENT, VOL. 14 NO. 1, pp. 128-140

[2]Prodromos D. Chatzoglou and Eftichia Vraimaki (2009): Knowledge-sharing behavior of bank employees in Greece Business Process Management Journal Vol. 15 No. 2, pp. 245-266.

XIE He-feng (2009)[1] explores the determinations of knowledge sharing by applying Ajzen‘s Theory of Planned Behavior. Through a field survey of 322 employees from 13 industries of China, we confirm that intrinsic motivators, organizational commitment, organizational climate, and abilities of knowledge sharing are the important determinations of knowledge sharing behavior, where one‘s attitude toward knowledge sharing, subjective norm, and perceived behavioral control are identified as critical mediate variables. Contrary to common beliefs, we find extrinsic motivators such as money rewards almost don‘t exert any positive effect on individual knowledge sharing attitude.

Zhenzhong Ma el(2008)[2] conducted a study on what factors affect knowledge sharing in project teams in the Chinese construction sector. The study examined the relationships between tacit knowledge, explicit knowledge, and some key contextual factors with knowledge sharing in the project teams. The study found that explicit knowledge facilitates knowledge sharing while tacit knowledge creates barriers to knowledge sharing. In addition, a trusting environment is a key to effective knowledge sharing in project teams. The results also show that justice, leadership styles, and empowerment do not have significant effects on knowledge sharing within project teams. The results of this study support the important roles of explicit knowledge, tacit knowledge

[1]XIE He-feng (2009). International Conference on Management Science & Engineering (16th) September 14-16, 2009 Moscow, Russia.

[2]Zhenzhong (2008): Knowledge sharing in Chinese project teams, Chinese Management Studies Vol. 2 No. 2, pp. 97-108.

and trust in knowledge sharing among project team members, which is similar to the findings in the West (Botkin, 1999[1]; Bruton et al., 2007[2]; Dixon, 2001[3]), yet the non-significant impact of other contextual factors, such as justice, leadership style or empowerment, is different from the expectations based on the studies from the West .This difference may not be that surprising, though, if we put it in the context of Chinese culture. Within a collectivistic culture in China, group or team harmony and collective good has been the top priority compared with individual benefits or personal desire (Hofstede, 2001)[4]. Group members are more willing to do what is good for the group, even if it may be not desirable for individuals. For example, Earley (1989)[5] found that Chinese people are less likely to have social loafing or free riding effects within group due to their high collectivism. As a result, since knowledge sharing is good for the whole project team, Chinese team members should involve more knowledge sharing, even if there is a lack of just environment, no democratic leaders, or not empowered in the teams. In addition, the theories of a just environment, democratic leadership styles, and empowerment are all developed

[1]Botkin, J. (1999): Smart Business: How Knowledge Communities can Revolutionize Your Company, The Free Press, New York, NY.

[2]Bruton, G., Dess, G. and Janney, J. (2007): "Knowledge management in technology-focused firms in emerging economies: caveats on capabilities, networks, and real options", Asia Pacific Journal of Management, Vol. 24 No. 2, pp. 115-30.

[3]Dixon, N.M. (2001): "Common knowledge: how companies thrive by sharing what they know?" Long Range Planning Vol. 34, pp. 223-43.

[4]Hofstede,G.(2001).Culture's consequences: comparing values, behaviors ,institutions, and organizations across nations(2nd ed.)

[5] Earley, P.C. (1989): "Social loafing and collectivism: a comparison of the United States and the People's Republic of China", Administrative Science Quarterly in Business, Vol. 34, pp. 565-81.

in the West and are meant to give individuals more freedom, better feeling, and more power so that individuals will put more efforts for the group.

While this is true in the West, where individual interests often go before the ones of group, it may have no impact in China where group interests are already more important than individual interests. Consequently, these individual-centered methods, such as providing a just environment, more democratic leadership style or empowerment, will not influence knowledge sharing in Chinese project teams.

Wing S. Chow, Lai Sheung Chan (2008)[1] the aim of their study was to further develop an understanding of social capital in organizational knowledge-sharing. They first developed a measurement tool and then a theoretical framework in which three social capital factors (social network, social trust, and shared goals) were combined with the theory of reasoned action; their relationships were then examined using confirmatory factoring analysis. They then surveyed of 190 managers from Hong Kong firms, they confirm that a social network and shared goals significantly contributed to a person's volition to share knowledge, and directly contributed to the perceived social pressure of the organization. The social trust has however showed no direct effect on the attitude and subjective norm of sharing knowledge.

[1]Chow & Chan (2008): Social network, social trust and shared goals in organizational knowledge sharing, Information & Management 45, (458–465).

Adel Ismail Al-Alaw et al (2007)[1] investigated the role of certain factors in organizational culture in the success of knowledge sharing. Such factors as interpersonal trust, communication between staff, information systems, rewards and organization structure play an important role in defining the relationships between staff and in turn, providing possibilities to break obstacles to knowledge sharing the case study was organizations from BAHRAIN Public and private sector. The research findings indicated that trust, communication, information systems, rewards and organization structure are positively related to knowledge sharing in organizations.

Another study by Brent M. and Vittal S.(2007)[2] the factors that motivate employees to share knowledge for successful implementation of any KM program. In this exploratory study, willingness of employees to share knowledge is the dependent variable. The purpose of this study is to explore the knowledge sharing factors from the employees' perspective Using survey methodology, two large IT service and consulting organizations were included in the study to examine cultural, technological, motivational and organizational factors, which influence knowledge sharing within an organization from the perspective of non-executive employees. The study results showed that issues

[1]Adel Ismail Al-Alawi, Nayla Yousif Al-Marzooqi and Yasmeen Fraidoon Mohammed Organizational culture and knowledge sharing: critical success factors, Journal of Knowledge Management - Vol. 11 No. 2 - 2007, pp. 22-42.

[2]Brent M. & Vittal S. (2007): Knowledge sharing in large IT organizations. The Journal of Information and Knowledge Management - Vol. 37 No. 4, 2007 pp. 421-439.

related to availability and usability of technology, Leadership support and motivating structures were shown to have influences on knowledge sharing. The study also revealed that employees' willingness to share knowledge was not affected by their concerns about the loss of power or job insecurity even though the present study clearly indicates to the participants that it is anonymous, it is possible that sometimes participants may misreport and misrepresent their perceptions to make themselves look better. The study was exploratory, and it was limited to two organizations. This would therefore restrict one from generalizing the outcomes of the study.

The direct and mediated influence of trust in positive attitudes to sharing information in the workplace is another topic examined in the information sharing literature.

Another research conducted by Raja R.A. Issa et al (2007)[1] to expand understanding of the factors that affect knowledge sharing in construction organizations. A survey was conducted of the 2005 Engineering News Record Top 400 US contractors to assess their perceptions of how factors such as organizational culture (OC), trust and information technology (IT) impact knowledge sharing in their construction organizations The survey respondents strongly agreed on the perception that a proper organizational culture will

[1]Raja R.A., Issa and Josef Haddad Construction Innovation: Vol. 8 No. 3, 2008 pp. 182-201.

enhance mutual trust in the organization. The respondents also perceived that IT will assist but not motivate people in sharing their knowledge and that not all types of knowledge can be shared using IT.

Soonhee &Lee(2006)[1] examined the impact of organizational context and IT on employees' perceptions of knowledge-sharing capabilities in five public sector and five private sector organizations in South Korea. Social networks, centralization , performance-based reward systems, employee usage of IT applications, and user-friendly IT systems were found to significantly affect employee knowledge-sharing capabilities in the organizations studied. For public sector employees, social networks, performance-based reward systems, and employee usage of IT applications are all positively associated with high levels of employee knowledge-sharing capabilities.

2.20 Summary

The determinants of the factors affecting knowledge sharing have gained researchers attention , most of the review of the literature was conducted in the western and south Asian countries and had been done in the context of developed countries , few studies had been conducted in developing countries and even less in Arabian countries This study differs from the previous studies

[1]Soonhee Kim,& Hyangsoo Lee(2006)" The Impact of Organizational Context and Information Technology on Employee Knowledge-Sharing Capabilities" . Public Administration Review. Washington: May/Jun 2006.Vol.66, Iss. 3; pg. 370, 16 pgs.

in the following first it is conducting in a less researched area in Sudan since there are few studies in this field. Secondly it is on the public sector, thirdly, it concentrates on the perspectives of the employees while most of the studies focusing on the managers or senior staff perspectives, fourthly the study tests attitudes towards knowledge as a mediating variables while many previous studies tested as dependent variables, fifthly this study can provide theoretical basis for future researches as well as practical implications for managers and practitioners in a less developed countries.

CHAPTER 3

RESEARCH FRAMEWORK AND METHODOLOGY

This chapter focuses on the research framework and hypotheses. The part on methodology highlights the sampling procedure, the measurement of the variables, the development of the research instrument and the administration of data collection. Statistical techniques that used to test the hypotheses are also discussed.

3.1Conceptual Framework

There is an increasing emphasis on the importance of knowledge sharing for organizational performance and effectiveness in both the private and public sectors.

Most of the studies conducted in the field of knowledge management and knowledge sharing was on the west and south Asia s (Brent M.and Vittal S. 2007)[1] several of them indicates that the focus of most of the studies was on organizational culture and technology few studies had been conducted in Arab world .Studies indicate that the focus of most KM studies was on organization culture and technology from the executive management perspective with few studies examining issues such as trust, interaction, rewards, and motivation system from non-executive employee' perspective. It is unfortunate that an

[1]Brent M. & Vittal S. (2007): Knowledge sharing in large IT organizations. The Journal of Information and Knowledge Management - Vol. 37 No. 4, 2007 pp. 421-439.

unbalance emphasis of technology over other factors such as organization culture, individual employee's attitude, and availability of networking facilities has led to many failures and unsuccessful implementation of KM systems (Davenport, 1998)[1] Based on the literature review, the integrative framework of this study is anchored on the Theory of Reasoned Action.

3.2 Theory of Reasoned Action

Prior research performed by Bock, Zmud, Kim, and Lee (2005)[2] was derived from the Theory of Reasoned Action (Ajzen & Fishbein, 1980)[3] to examine the factors, which were thought to have an effect on individual's intention to share knowledge. The Theory of Reasoned Action suggests a framework, which is useful in resolving questions related to the processes individuals use to make decisions regarding their participation in specific behaviors (Papadopoulos, Vlouhou & Terzoglou, 2008)[4]. In this study knowledge management was defined as the process of recognizing, generating, capturing, sharing and disseminating knowledge (Davenport & Prusak, 1998) and more specifically, knowledge sharing that concerns an employee's

[1]Davenport, T. H. & L. Prusak (1998): Working knowledge: how organizations manage what they know. Boston, Mass, Harvard Business School Press.

[2]Bock, G. W., Zmud, R. W., Kim, Y. G., and Lee, J. N. "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate," MIS Quarterly (29:1), March 2005, pp. 87-111.

[3]Ajzen, I. and Fishbein, M. (1980 ,(Understanding Attitudes and Predicting Social Behaviour, Prentice-Hall, Englewood Cliffs, NJ.

[4]Panagiotis Papadopoulos, Olgavlouhou, Margaritis Terzoglou
The Theory of Reasoned Action: Implications for Promoting Recreational Sport Programs" Studies in Physical Culture and Tourism Vol. 15, No. 2, 2008

willingness to share with others, knowledge they have obtained or generated (Gibbert & Krause, 2002)[1]. The operative portion of knowledge sharing being the employee's willingness to share, which resides within each individual employee and any steps a firm can take to increase an employee's willingness to share knowledge, would be beneficial to the organization. The Theory of Reasoned Action presents the concept that intention is the dominant factor in determining behavior, in that the greater the level of intention exists towards a specified behavior, the greater the likelihood one is to engage in the behavior (Armitage & Conner, 1999)[2]. An employee's intention to share knowledge is established by their mind-set toward these mechanisms and the influence they hold over a subjective norm of engaging in sharing behaviors. The Theory of Reasoned Action combines the three attributes intention, attitude, and subjective norms as the predictors of actual behavior. Attitude being a function of an employee's belief that a positive or negative outcome will be the result of a particular action, subjective norm being comprised of the perceived beliefs of others, and the extent to which one is motivated to comply with these other beliefs, and intention, which is the individual's readiness to engage in a behavior.

[1]Gibbert, M. and Krause, H. (2002), 'Practice exchange in a best practice marketplace,' in Knowledge management case book: Siemen Best Practices, Davenport, T.H and Probst, G.J.B. (eds.). Publicis Corporate Publishing, Erlangen, Germany.

[2]Armitage , M Conner(1999) The theory of planned behaviour: Assessment of predictive validity and perceived control British journal of social psychology 38 (1), 35-54

The more favorable an employee's attitude and subjective norm are, the greater the intention is in reality to perform a particular behavior (Papadopoulos et al.)[1].

Alternative frameworks exist, which are an extension of the Theory of Reasoned Action, such as the Theory of Planned Behavior, or Theory of Perceived Behavioral Control that could extend the applicability of results from the Theory of Reasoned Action to actual employee behavior. However, with the objective of understanding the relationship of mechanisms towards an employee's willingness to share knowledge being the focus of the study, the application of the Theory of Reasoned Action was the most appropriate framework. Since knowledge sharing behaviors may be influenced by the contextual traits of organizational support, organizational climate, incentives, and power, the application of the theoretical framework of the Theory of Reasoned Action, provides an integrative view of the influence present on an individual employee's intention to share knowledge.

[1]Panagiotis Papadopoulos, Olgavlouhou, Margaritis Terzoglou The Theory of Reasoned Action: Implications for Promoting Recreational Sport Programs" Studies in Physical Culture and Tourism Vol. 15, No. 2, 2008

[1]Conceptual frame work 3.3

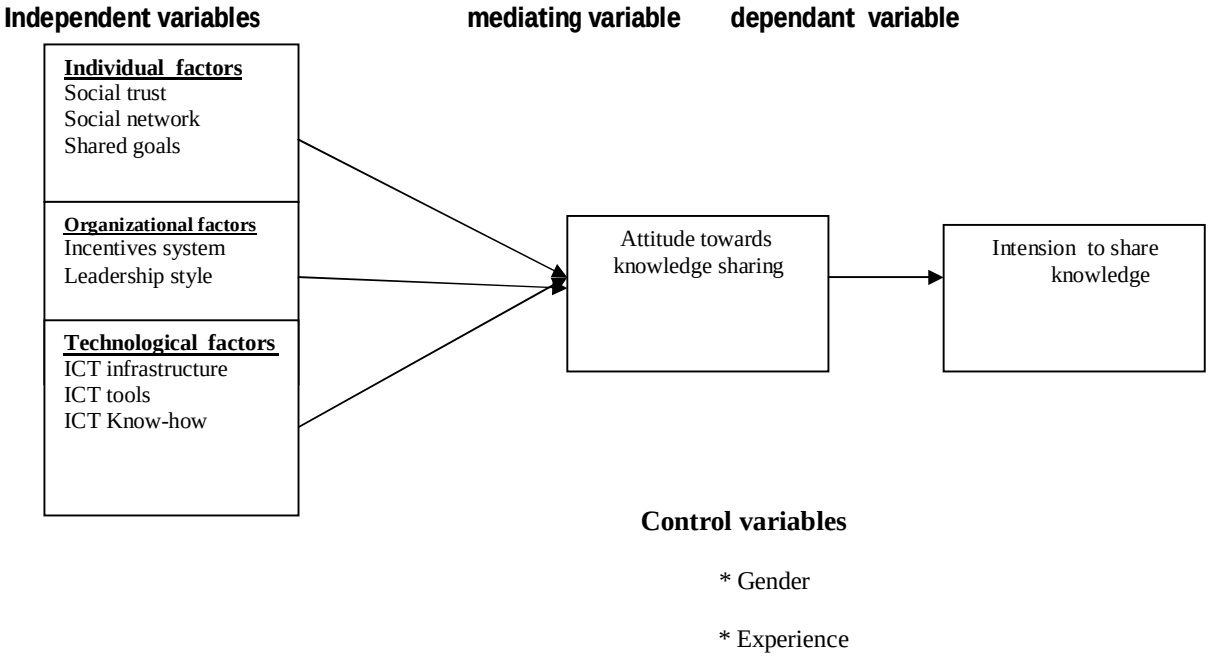


figure3.1

The integrative model in figure 3.1 consists of five main variables Independent variables consist of :

1-Individual factors in terms of(social trust ,social network ,shared goals)

2-Organizational factors in terms of (incentives system, leadership style)

3-Technological factors which consists of (information and communication technology (ICT) infrastructure, ICT tools and ICT know-how) .

4-Mediator variable is the employees attitudes towards knowledge sharing.

5- Dependent variable is the intension to share knowledge.

Control variables are gender and experience .

[1]Source: prepared by the researcher,(2013)

3.4 variables definitions

Table 3.1

Variable	Definition	Key references
Social trust	The degree of one's willingness to be vulnerable to the actions of other people	Nahapiet and Ghoshal (1998)[1], Hsu et al. (2007)[2] and Abrams et al.(2003)[3]
Social network	The degree of contact and accessibility of one with other people	Nahapiet and Ghoshal (1998) and Chow and Chan (2008)[4]
Shared goal	The degree to which one has collective goals, missions and visions with other people	Wong et al. (2001)[5] and Chow and Chan (2008)
Incentive systems	The extent to align the individual benefits of certain behavior with corporate goals	Andriessen (2002)[6]
Leadership style		
1CT usage	The degree of technological usability and capability regarding knowledge sharing	

[1]Nahapiet, J. and Ghoshal, S. (1998): "Social capital, intellectual capital, and the organizational Advantage", Academy of Management Review, Vol. 23 No. 2, pp. 242-66.

[2]Hsu, M.H., Ju, T.L., Yen, C.H. and Chang, C.M. (2007)" ,Knowledge sharing behavior in virtual communities: the relationship between trust, self-efficacy, and outcome expectations," International Journal of Human-Computer Studies ,Vol. 65 No. 2, pp. 1-17.

[3] Abrams, L.C., Cross, R., Lesser, E. and Levin, D.Z. (2003)" ,Nurturing interpersonal trust in knowledge-sharing networks ,"Academy of Management Executive ,Vol. 17 No. 4, pp. 64-77 .

[4]Chow, W.S. and Chan, L.S. (2008)" ,Social network, social trust and shared goals in organizational knowledge sharing ,"Information & Management ,Vol. 45 No. 7, pp. 1-8.

[5]Wong, C.S., Wong, Y.T., Hui, C. and Law, K.S. (2001)" ,The significant role of Chinese employees' organizational commitment: implications for managing employees in Chinese societies,"Journal of World Business ,Vol. 36 No. 3, pp. 1-15.

[6]Andriessen, J.H.E. (2002)" ,To share or not to share, that is the question. Conditions for the willingness to share knowledge ,"Delft Innovation System Papers, Delft University of Technology, Delft.

Attitude towards knowledge sharing		Michailova and Hutchings (2006)[1],
Intention to share knowledge		Ajzen and Fishbein (1980, 1975)[2],Price and Mueller (1986)[3] and Andriessen (2002);[4]

3.5 Research Hypothesis

From the framework we developed five main hypotheses to test the relationship between individual, organizational, and technological factors variables, with the employees attitudes towards knowledge sharing. Furthermore, the influence of the employees attitude towards knowledge sharing on the intention to share knowledge .also the influence of attitudes as a mediating variable between individual, organizational and technological variables .

The succeeding section discusses the hypotheses development that is backed by the theoretical justifications.

[1] Michailova, S. and Hutchings, K. (2006)" ,National cultural influences on knowledge sharing comparison of China and Russia ,"Journal of Management Studies ,Vol. 43 No. 3, pp. 1-23.

[2]Ajzen, I. and Fishbein, M. (1975 ,(Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research ,Addison-Wesley, Reading, MA.

Ajzen, I. and Fishbein, M. (1980 ,(Understanding Attitudes and Predicting Social Behavior, Prentice-Hall, Englewood Cliffs, NJ.

[3] Price, J.L. and Mueller, C. (1986 ,(Absenteeism and Turnover of Hospital Employees ,JAI Press, Greenwich, CT

[4] Andriessen, J.H.E. (2002)" ,To share or not to share, that is the question. Conditions for the willingness to share knowledge ,"Delft Innovation System Papers, Delft University of Technology, Delft

1-Individual factors

Hypothesis 1.1: social trust influence attitude to words knowledge sharing.

Social Trust One of the factors which could influence the success of knowledge sharing is the social trust or mutual trust among members or employees (Chow and Chan, 2008)[1]. The social trust in a firm is where the development of interaction between colleagues improves by sharing their knowledge. In the firm, environment for sharing knowledge and management should be honest, as competition among the employees would exist. These competitions of wanting to be the best employee, wanting promotion exist in all firms (Chow and Chan, 2008). This would of course cause knowledge hoarding, which could affect knowledge sharing adversely as knowledge is considered as a powerful resource that could create advantage. The fear of not performing well in a firm or the fear that other employees would perform better and be promoted or get a raise when knowledge is shared, would ultimately restrict sharing of knowledge. Although, when there is trust among the employees, whereby the increased performance of a colleague is not seen as a threat by another colleague, knowledge is much easier to be shared (Chow and Chan, 2008). Based on the above argument the following hypotheses are developed.

[1]Chow, W.S. and Chan, L.S. (2008)" ,Social network, social trust and shared goals in organizational knowledge sharing ,"Information & Management ,Vol. 45 No. 7, pp. 1-8.

H1.1. High level of social trust among employees will have positive influence on The attitudes towards knowledge sharing.

Hypotheses 1.2.social network influence attitudes towards knowledge sharing.

A social network can be defined as a patterned organization of a collection of actors and their relationships (Jones et al., 1997)[1]. In the firm, it is common for people to establish their contacts and links with others. Networks of informal relationships have a critical influence on work and innovation. Through social networking, more chances are available for people to begin their interpersonal contact. Social network also encourages collaboration among co-workers and tends to create a suitable surrounding or atmosphere to share knowledge. Research has shown that appropriate connectivity in well-managed networks within firms can have substantial impact on performance, learning and innovation.

By developing a close relationship or closer ties, people would be more comfortable and much more positive in sharing their thoughts and resources (Jones et al., 1997). Organizational members who had a more extensive social network with their colleagues would perceive greater social pressure for sharing their knowledge, because a good relationship results in high expectations of colleagues, including favorable actions. Thus, people who build

[1]Jones, C., Hesterly, W. S. and Borgatti, S. P. (1997), "A General Theory of Network Governance Exchange Conditions and Social Mechanisms ,"Academy of Management Review ,Vol. 2 No4., pp. 1-35.

a social network may be expected to share their knowledge. This lead to our second hypothesis:

H1.2 High level of social network among employees will have positive influence on the attitudes towards knowledge sharing.

.**hypotheses1.3** shared goals influence the attitudes of knowledge sharing.

In a firm, the presence of the same shared-goals between employees promotes mutual understanding and exchange of ideas (Chow and Chan, 2008)[1]. This indeed could encourage knowledge sharing among employees. Through these shared goals, it could be considered as the strength to hold people together and to let them share what they know to achieve specific firm goals. For instance, a department in a company has the objective to reach a goal or to achieve the sales target (Chow and Chan, 2008). Apart from that, goals such as growing the firm and becoming a well-known firm may help the chances of promoting knowledge sharing among employees towards achieving these goals. In the effort to achieve the goals, holding discussion or brainstorming sessions could help in the exchange of ideas and thus cultivate a knowledge-sharing environment. Within a firm, shared goals can be achieved through cooperation and knowledge-sharing initiatives. The presence of shared goals promotes mutual understanding and exchange of ideas. Shared goals can thus be considered the force that holds people together and lets them share

[1]Chow, W. S. and Chan, L. S. (2008), "Social network, social trust and shared goals in organizational knowledge sharing ,"Information and Management , Vol. 45, No. 7, pp. 1-8.

what they know. Within an organization, shared goals can be achieved through cooperation and knowledge sharing .This lead to our third hypothesis:

H1.3. High level of shared goals among employees will have positive influence on the attitudes towards knowledge sharing.

Hypotheses 2 incentives systems influence attitudes toward knowledge sharing

From a socio-economic perspective, it is assumed that an individual actor will choose the course of action, which maximizes the utilities in a given and stable set of preferences (Smelser and Swedberg, 1994)[1]. Siemens' Share Net, which offers incentives such as mobile phones; personal digital assistants or even travels to a knowledge management conferences in New York, as an example of a firm that uses incentives to encourage knowledge-sharing culture among employees. These monetary styles were effective in motivating employees to share their knowledge (Voelpel and Han, 2005)[2]. Apart from that, Samsung Life Insurance's Knowledge Mileage Program, which keeps the sales manager equipped with the state of art learning content made knowledge sharing easier to embrace among users (Bock et al., 2005)[3]. Knowledge sharing is most likely to occur when employees perceive that incentives exceed costs (Bock et al.,

[1]Smelser, N. J. and Swedberg, R. (1994),The Handbook of Economic Sociology ,Princeton University Press, USA.

[2]Voelpel, S. C. and Han, Z. (2005), "Managing knowledge sharing in China: the case of Siemens ShareNet ,"Journal of Knowledge Management ,Vol. 9 No. 3, pp. 1-12.

[3]Bock, G.-W., Zmud, R. W. and Kim, Y.-G. (2005). "Behavorial Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate ,"MIS Quarterly ,Vol. 29 No. 1, pp. 87-111.

2005). The idea of an incentive system is to align the individual benefits of certain behavior with corporate goals (Muller et al., 2005)[1]. The presence of incentive systems promotes higher motivation level towards employees to share their knowledge. Incentive systems have to compensate for the possible benefit of hoarding knowledge. This analysis leads to hypothesis 2.1:

H2.1. High level of incentive systems among employees will have positive influence on the attitudes towards knowledge sharing

Hypotheses 2.2. Relation between leadership style and the attitudes towards knowledge sharing a lack of managerial direction and leadership can limit knowledge sharing practices. Since knowledge sharing is effectively voluntary and conscious sharing is a new behavior to learn for some people that may require training and ongoing support, clear guidelines seem to be an obvious prerequisite for effective sharing on all organizational levels (Ives et al., 2000)[2]. The challenge to managers is to create an environment in which people both want to share what they know and make use of what others know. People cannot always be expected to share their knowledge and insights simply because it is the right thing to do. Managers need to reassure employees that they should not sit on ideas or concepts for fear of their intellectual property being stolen, The solution is to develop that idea or concept in collaboration

[1]Muller, R. M., Spiliopoulou, M. and Lenz, H.-J. (2005" ,(The Influence of Incentives and Culture on Knowledge Sharing ,"paper presented at the 38th Hawaii International Conference on Syste Sciences, 3-6 January, Hawaii, USA.

[2]Ives, W., Torrey, B. & Gordon, C. (2000): "Knowledge sharing is a human behavior", in Morey, D. et al. (Eds), Knowledge Management, MIT Press, Cambridge, MA.

with other people (Gurteen, 1999)[1]. Hence, the emphasis of managers' expectations, long-term commitment and supportive role are fundamental to creating a knowledge-centric sharing culture (McDermott and O'Dell, 2001;[2] O'Dell and Grayson, 1998)[3].

Leadership style is also expected to affect knowledge sharing. With authoritarian style, leaders give employees no chance to participate in the decision making process and therefore employees are less likely to share knowledge in order to keep the privileged status and to leverage for more power from the organization. Contrary to that, democratic style will enable employees to have their voice heard and consequently, they are more willing to share knowledge. This analysis leads to hypotheses:

H.2.2 Democratic leadership style is positively influence attitudes towards knowledge sharing while authoritarian style is negatively related to knowledge sharing.

Hypotheses 3 .the Level of ICT usage influence the attitudes towards knowledge sharing knowledge.

[1]Gurteen, D. (1999): "Creating a knowledge-sharing culture", Knowledge Management, Vol. 2 No. 5.

[2] McDermott, R. and O'Dell, C. (2001): "Overcoming culture barriers to sharing knowledge", Journal of Knowledge Management, Vol. 5 No. 1, pp. 76-85.

[3]O'Dell, C. and Grayson, C.J. (1998): "If only we knew what we know: identification and transfer of internal best practices", California Management Review, Vol. 40 No. 3, pp. 154-74.

Technology plays a crucial transformational role and is a key part of changing the corporate culture to knowledge sharing one. In many ways it is technology that has made knowledge sharing a reality – in the past it was impossible to share knowledge or work collaboratively with co-workers around the globe. Technology is not all good however. There are many pitfalls to its effective use. Information overload is one that comes readily to mind. Flaming wars (destructive heated electronic arguments) is another. Time wasting - browsing irrelevant stuff is yet another. If implemented well and if people are trained and educated in its use, knowledge sharing technology is good. Not only can you find the information and knowledge you need quickly and effectively but you can post your knowledge on the system for access by others in the organization - be they at the next desk or on the other side of the world. But more than just this, groupware technology such as Lotus Notes/Domino working over the Internet, your organizational Intranet or Extranet allows you to work collaboratively with anyone anywhere in the world to achieve your objective

Information and communication technology (ICT) can do a lot more than just storing and retrieving data (Tsui, 2005).[1] By improving access to knowledge and removing temporal and spatial obstacles between knowledge workers, information and communication technology (ICT) can enhance

[1]Tsui, E. (2005)" ,The role of IT in KM: where are we now and where are we heading ,"?Journal of Knowledge Management ,Vol. 9 No. 1, pp. 3-6.

knowledge sharing levels (Hendriks, 1999)[1]. ICT and its ability to spread knowledge across different units of an organization may allow a better understanding of the complex organizational environment (Coakes, 2006)[2]

Hence, the following hypotheses are proposed:

H.3.. The Level of information &communication technology(ICT) use will positively influence the attitudes towards knowledge sharing.

.H.3.1 An extensive use of information &communication technology(ICT) infrastructure among employees has appositive relationship with attitudes towards knowledge sharing .

H.3.2 An extensive use of information &communication technology (ICT) tools (software) among employees has appositive relationship with attitudes towards knowledge sharing.

H3.3. An adequate information &communication technology (ICT) know-how has appositive relationship with the attitudes towards knowledge sharing.

Hypothesis 4 Intention to Share Knowledge Chow and Chan (2008)[3] had claimed that personal attitudes towards a behavior are a significant predictor of

[1]Hendriks, P. (1999)" ,Why share knowledge? The influence of ICT on the motivation foknowledge sharing ,"Knowledge and Process Management ,Vol. 6 No. 2, pp. 91-100 .

[2]Coakes, E. (2006): Supporting the management of knowledge made explicit in transnational organizations. The Learning Organization, 13(6), 579-593.

[3]Chow, W.S. and Chan, L.S. (2008)" ,Social network, social trust and shared goals in organizational knowledge sharing ,"Information & Management ,Vol. 45 No. 7, pp. 1-8.

intention to engage in that behavior. It is also argued that the behavioral intention to share knowledge is determined by a person's attitude towards knowledge sharing. By limiting the domain of the behavioral intention model to the rational actor, the intention to engage in a behavior is actually determined by an individual's attitude towards that behaviour (Ajzen and Fishbein, 1980)[1]. At this point, the attitude towards knowledge sharing is defined as the degree of one's positive feelings about sharing one's knowledge (Bock et al., 2005)[2]. Employees tend to believe that they could improve their relationship with co-workers by offering their knowledge and skills.

They believe that by doing so, they would develop a more positive attitude towards knowledge sharing. This analysis leads to hypothesis

H.4.Supportive attitude towards knowledge sharing will have positive influence on the intention to share knowledge.

H.5. Employees attitudes mediate the relationship between individuals factors organizational factors variables, technological factors and intention to share knowledge.

H.5.1.1 Employees attitudes mediate the relationship between social trust and intention to share knowledge.

[1]Ajzen, I. and Fishbein, M. (1980 ,(Understanding Attitudes and Predicting Social Behavior, Prentice-Hall, Englewood Cliffs, NJ.

[2]Bock, G. W., Zmud, R. W., Kim, Y. G., and Lee, J. N. "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate," MIS Quarterly (29:1), March 2005, pp. 87-111.

H.5.1.2 Employees attitudes mediate the relationship between social network and intention to share knowledge.

H.5.1.3 Employees attitudes mediate the relationship between shared goals and intention to share knowledge.

H.5.2.1 Employees attitudes mediate the relationship between incentives and intention to share knowledge.

H.5.2.2 Employees attitudes mediate the relationship between leadership style and intention to share knowledge.

H.5.3.1Employees attitudes mediate the relationship between ICT infrastructure and intention to share knowledge.

H.5.3.2 Employees attitudes mediate the relationship between ICT tools and intention to share knowledge.

H.5.3.3 Employees attitudes mediate the relationship between ICT know-how and intention to share knowledge.

Control variable

We choose to include experience and gender as control variables. Transactive memory systems theory (Monge and Contractor, 2003[1]; Palazzolo et al., in press) states that people mainly go to people who have a higher levels of education/expertise to share knowledge with.

[1]Monge, P.R. & Contractor, N. (2003): Theories of Communication Networks, Oxford University Press, New York, NY.

3.6 Research Design

This section is designed to discuss in details the data collection procedure, sampling technique, questionnaire design and development, administration of questionnaire as well as the data analysis techniques.

3.6.1 - Sampling Procedure

The precise selection of the target population is necessary in considering the research project. The target population for this study is the employees of banking sector of Sudan specifically in Khartoum state.

3.6.2 - Development of Questionnaire

According to Kumar, Aker and Day (2001)[1], there are five steps in developing a questionnaire. These steps includes: planning what to measure, developing the questionnaire, question wording, questionnaire layout, pre-testing, correcting problems and its implementations. These steps are discussed in detail, in the subsequent sections of the chapter.

Step 1: Planning what to measure

This step is based on the research objectives, problem statement, and the research issues. The survey questions were designed precisely to give clear ideas about the problems for the target respondents to answer. The questions on the research instrument were divided into the following: (1) question on

[1]Kumar,K., Subramanian, R. (2001)."Competitive strategy, environmental scanning and performance :a context specific analysis of their relationship ,"International Journal of commerce and management ,vol.11 No. 1,pp.1-33.

personal information (2) Questions on the individuals factors covered three aspects ,social trust, social network, shared goals (3) organizational factors, the questions covered the incentives to share knowledge and leadership style. (4) technological factors, the questions concentrated on ICT infrastructure , ICT tools and soft ware and ICT know-how,(5) questions cover attitudes towards knowledge (6)questions cover intention to share knowledge.. All the responses except on the personal information were elicited on 5 points scale, (1 = strongly disagree 5 = strongly agree), Likert scale had been chosen for its clarity and ease of use .

Step 2: Formatting of the questionnaire:

This step involves the conversion of the research objectives into information required to obtain the necessary output of the questionnaire. All the research constructs in this study had been converted into the relevant questions and clearly stated, and since Sudan common language is Arabic, therefore, the questionnaire had been written in Arabic language to achieve its objectives.

Step 3: Question wording:

This step examines whether the questions are clearly understandable to all respondents. Thus it is necessary to use simple terminologies to avoid unclear or elusiveness in the meaning. It is important to avoid double-barreled or misleading and confusing questions. Beside the phrasing and length of questions, it is also designed to solicit ideas and answers from target

respondents. In the process, the instrument was revised by Professors Abdel aziz,Abdel Raheem from Nelen University ,Dr.Abdelhafiez Ali from Sudan University of Science and Technology and Dr, Abu baker Abdela from Banking Academy of science also revised by Dr.Fareza Hashim from Prince Sultan University- Saudi Arabia. Moreover, to be sure that the questionnaire will be clear for the respondents, five bankers were requested to review the wording of the questionnaire. The final version of the instrument was simplified by erasing or replacing some questions to reduce the time required in answering the questionnaire. The test of the time required to answer the questionnaire was done with the help of ten Students, from banking Academy answering the questionnaire was estimated to take approximately ten to fifteen minutes.

Step 4: Sequence and layout decisions:

This step concerns the sequence and flow of the statements for achieving the respondent's cooperation. The instrument should start with easy questions flow containing from general to specific questions. The sensitive or difficult questions must be avoided or not placed at the beginning. Moreover, an attractive layout of the questionnaire is considered for clarity of the items presented.

Step 5: Pre-testing and correcting problems:

This step involves conducting a pilot test on the questionnaire to ensure that the questions meet the researcher's expectations with no ambiguities, appropriateness in the length of the questions, and clearing the double-barreled questions. The objective of the pilot test is to eliminate confusing statements and checking the reliability of the variables.

To fulfill steps 2 to 5, five banks were selected for the pilot study.. A total of 30 questionnaires were distributed only 23questionnaires were collected from these banks . The result of the pilot test indicating that the values of Cronbach's alpha on all the items were good and acceptable range between (0.85 to 0.96). The result showed high reliabilities index of the items included in the questionnaire, however the result indicated that some questions and statements required clarity. The modifications can be summarized as follows:

- In order to initiate favorable responses some of the simple questions regarding the bank's profile were placed at the starting point of the questionnaire.
- To ensure that the questionnaire will be received by the rightful person (the Academy of banking science suggested for the researcher to consist a team from the Academy students to distribute the questionnaire . This

procedure facilitated the process of distribution and collection of the questionnaire.

3.7 Measurement of the Variables

In the following sub sections, the measurements of the variables used in this study are discussed in details.

Measurement and data collection

We developed measurement items by adopting measures that had been validated in prior studies, modifying them to fit our context of knowledge sharing. For the construct of social trust, social network, shared goals, attitudes towards knowledge and intention to share knowledge the measurement items were derived from (Chow and Chan, 2008;[1] Bock et al., 2005[2]), for the construct of leadership style questions adapted from the study by Cox and Sims (1996)[3] were used to measure leadership style .and modified by the researcher Participants were asked to what extent their leaders/supervisors allowed them to participate in the decision making process with 1 no participation at all and 5 the leader often consults with employees in decision making .The measurement items for incentives were derived from previous studies based Respondents were asked to evaluate the significance of measurement items

1Chow, W.S. and Chan, L.S. (2008" ,(Social network, social trust and shared goals in organizational knowledge sharing ,"Information & Management ,Vol. 45 No. 7, pp. 1-8.

[2]Bock, G.-W., Zmud, R.W. and Kim, Y.-G. (2005" ,(Behavorial intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate ,"MIS Quarterly ,Vol. 29 No. 1, pp. 87-111.

[3]Cox, J.F. and Sims, H.P. (1996" ,(Leadership and team citizenship behavior: a model and measures ,"Advances in Interdisciplinary Studies of Work Teams ,Vol. 3, pp. 1-14.

using a Likert scale of 1–5, where a value of 5 represented ‘‘strongly agree,’’ and 1 represented ‘‘strongly disagree.

For the construct of technology factors the measurement derived from Syed &Fyton (2004)[1]study ICT infrastructure was measured by three items modified by the researcher into six items ,ICT tool adopted four items from Syed &Fyton study modified to six and lastly ICT know-how measured by six items

3.8 Administration of Field Works:

Most of the studies using mailed questionnaires suffer from low response rate. Hence, to generate higher response, a careful administration of fielding the questionnaire is to be considered. The researcher consist a team from the banking academy students to distribute and collect the questionnaire.

The University cover letter attached to the first part of the questionnaire explains the objectives of the study and ensured the confidentiality of the information. A total of 300 copies of questionnaire were sent to the target respondents.

[1] Syed-Ikhsan, S.O.S. and Rowland, F. (2004), "Benchmarking knowledge management in a public organization in Malaysia". Benchmarking – An International Journal, Vol. 11 No. 2, in press. New York: Oxford University Press

2-5 - Data analysis:

To analyze the collected data and test the hypotheses, a number of statistical utensils were employed. Statistical Package for Science (SPSS) Version 16.0 was used with the following techniques:

1. Factor analysis (Principal component) used to validate and guarantee the integrity of measures using the following guidelines:

- Eigenvalue of 1 or greater.
- VARIMAX rotation method.
- The cut-off point for significant factor loading is > 0.35 (Hair et. Al., 1998)[1].

2. Cronbach alpha for reliability to measure the internal consistency.

3. Descriptive statistics was used to describe the respondent's characteristics.

4. Pearson correlation was used to see the degree of correlation between the variables.

5. Multiple Liner Regression was used to test the hypothesis.

[1]Hair,J.F., Anderson, RE., Tathm, R.L. &Black, W.C.(1998)). Multivariate Data Analysis, Prentice-Hall International ,Inc., USA.

3.9 Summary

The chapter presented the research framework which was derived from the literature review. It also presented the research methodology which covered the research design, sampling procedure, development and design of the research instrument and administration of the field work. Furthermore, the chapter presented the statistical techniques used in testing the hypothesis. The succeeding chapter presents the result of the analysis and hypotheses testing..

CHAPTER 4

DATA ANALYSIS AND FINDINGS

This chapter presents the findings of the data analysis and it is presented in three sections. The first section presents the respondents demographic information, followed by the goodness of measures of the data. The third section focuses on the results of the regression analysis and hypotheses testing .

Response Rate 4.1

Table 4.1 presents a summary of the response rate. A total of 300 questionnaires were sent to the respondent by hand. A total of 279 questionnaires were returned to the researcher between after two weeks. The overall response rate was 93 % whereas the usable response rate was 92.66%, this response rate is very high The higher response rate achieved in this study was attributed to the steps taken before sending the questionnaires such as consisting research team by the researcher this team is mainly consist of student from banking Academy of sciences they are well how to reach to the employees since most of them had training in some banks

Table 4.1

Questionnaires Rate of Return

Total Questionnaires sent to the banks	300
Returned questionnaires (not filled- up)	1
Potential respondents for the study	300
Completed questionnaire received from respondents	278
Returned questionnaires (partially answered)	-
Questionnaires not returned	21
Overall response Rate	93%
Usable response Rate	92.66%

4.2 Respondents Demographic Characteristics

Table 4.2, 4.3 ,4.4 show that 64.9% of respondent are males, 34.8% are females, Concerning the age of the respondents the table shows 22.2% are less than 26 years old, 30.1% are between 26-30 years,19.4% between 31-35 years, 13.3% between 36- 40 years, 6.8% between 41-45 years, 4.3% between 46-50 years, while more than 50 years old represent 3.6% .

The respondents work experience are 50.9% less than 6 years, 17.9% between 6-10 years, 12.9% between 11-15 years, 10.0% between 16-20 while7.9% represent work experience more than 20 years.

Table 4.2

Gender

Variable		Frequency	Percent
Valid	Male	181	64.9
	Female	97	34.8
	Total	278	99.6
Missing		1	0.4
Total		279	100

Chart 4.1

Gender

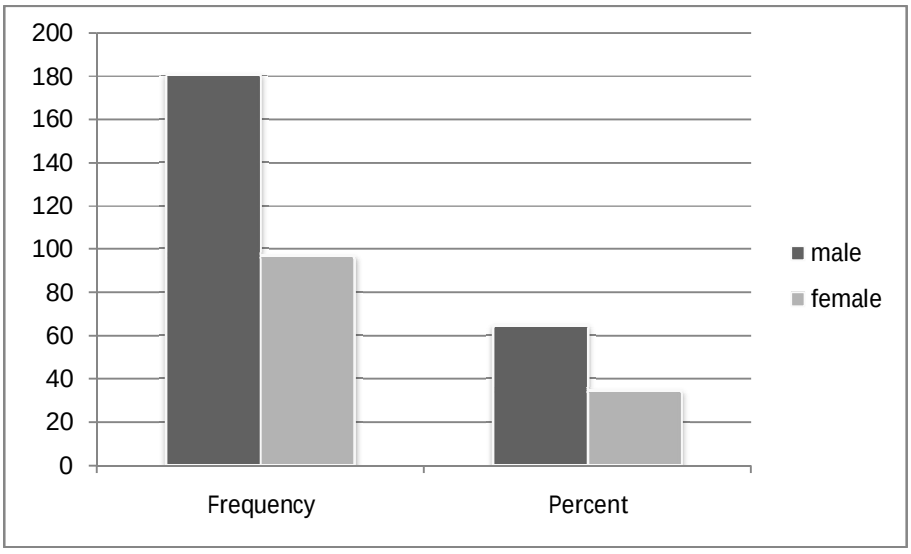


Table 4.3

age

		Frequency	Percent
Valid	less than 26	62	22.2
	26 to 30	84	30.1
	31 to 35	54	19.4
	36 to 40	37	13.3
	41 to 45	19	6.8
	46 to 50	12	4.3
	more than 50	10	3.6
	Total	278	99.6
Missing	999	1	0.4
Total		279	100

Chart 4.2

Age

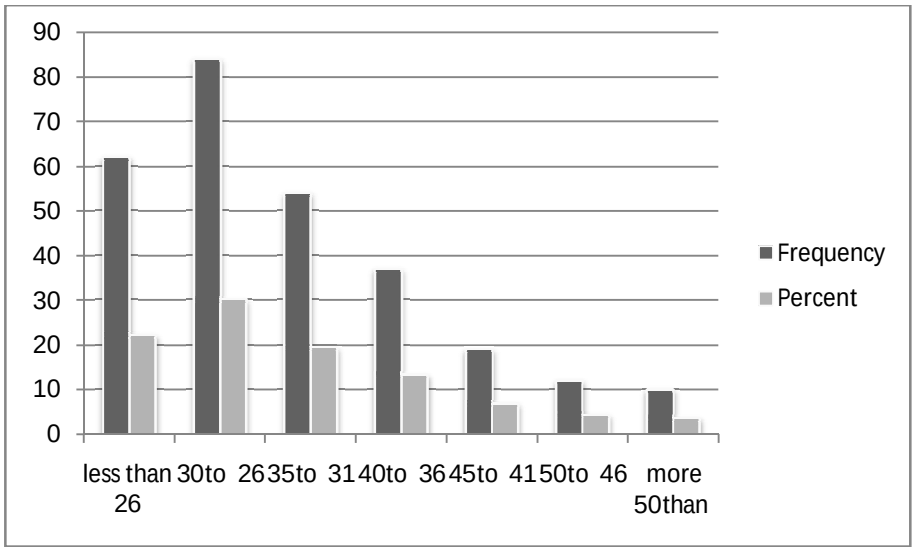


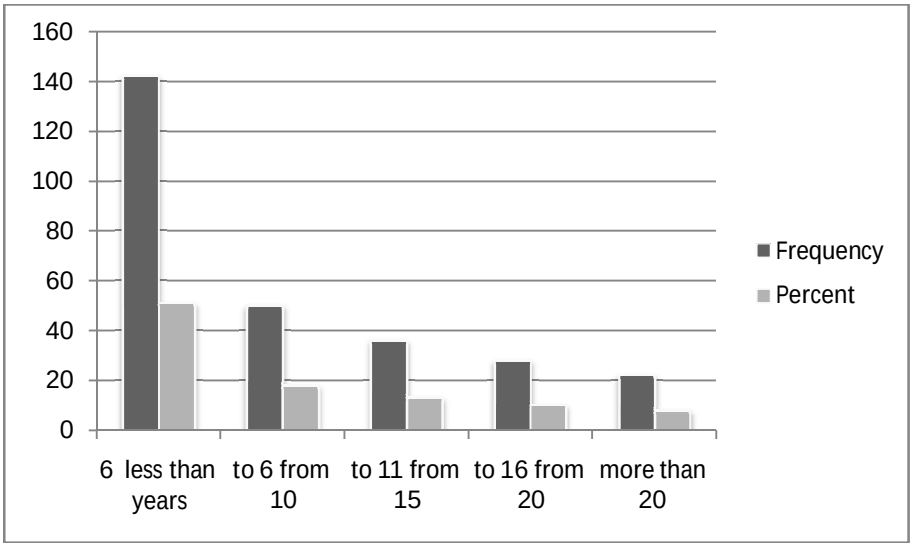
Table 4.4

Experience

		Frequency	Percent
Valid	less than 6 years	142	50.9
	from 6 to 10	50	17.9
	from 11 to 15	36	12.9
	from 16 to 20	28	10
	more than 20	22	7.9
	Total	278	99.6
Missing	999	1	0.4
Total		279	100

Chart 4.3

Experience



4.3 Goodness of the Measures

The exploratory factor analysis (Principal component analysis) was conducted on individual factors ,organizational factors, technological factors ,attitudes towards knowledge sharing and intention to share knowledge .. Reliability test (Cronbach alpha) was done to measure the internal consistency of the items used on the questionnaire. These two methods were very important to assess the goodness of the measures (Sekaran, 2000)[1]. The next sections presented the results of the factor analysis and reliability tests.

4.3.1 Factor Analysis on individual factors (social trust, social network, shared goals)

4.3.1.1 Factor Analysis on Social trust

Firstly, factor analysis was done on the five items that measure social trust. Table 4.5 summarizes the result of the analysis and the SPSS output is shown in Appendix B4.3. In the first run of factor analysis, it resulted in one factor with KMO (0.670) Bartlett's test of sphericity (p=.00), and explain (49.396%) of variance in the data. However, the items of soc3 achieved low communalities (less than 0.50). Inspection of communalities table revealed that

[1]Sekaran Uma (2000). Research in methods for business: a skill-building approach. John Wiley & Sons.

item soc3 had lowest communalities value (0.177). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.5 suggested that all assumptions for factor analysis have been met, namely, KMO (0.671), Bartlett's test of sphericity (p=.00), communalities (>.50), eigenvalue (>1), and factor loading (>.50). The factor cumulatively explains 61.273% of data variance. In addition, factor loading for the four items ranged from 0 .743 To 0.838. The full SPSS output is attached in Appendix B .

Table 4.5

Rotated Factor Loading for social trust (Soc)

Item NO.	Factor loading
Soc1 I know my organizational members will always try and help me out if I get into difficulties	0.778
Soc2 I can always trust my organizational members to lend me a hand if I need it	0.838
Soc5 I can lend a helping hand to my colleagues if they need it.	0.768
Soc6 I can supply my colleagues with information they need in the workplace.	0.743
Percentage Variance Explained	61.273
Eigenvalues	2.451

Note: N= 279, **p< 0.01

4.3.1.2 Factor Analysis on Social network

Factor analysis was done on the five items that measure social network. Table.4.6 summarizes the result of the analysis and the SPSS output is shown in Appendix B. In the first run of factor analysis, it resulted in one factor with KMO (0.711) Bartlett's test of sphericity (p=.00), and explain (50.017%) of variance in the data. Inspection of communalities table revealed that item soc3 had lowest communalities value (.520). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.6 suggested that all assumptions for factor analysis have been met, namely, KMO (0.681), Bartlett's test of sphericity (p=.00), communalities (>.50), eigenvalue (>1), and factor loading (>.50). The factor cumulatively explains 58.011% of data variance. In addition, factor loading for the four items ranged from 0.721To 0.827

Table 4.6

Rotated Factor Loading for social network (Snw)

Item NO.	Factor loading
Snw1 In general, I have a very good relationship with my organizational members	0.747
Snw2 In general, I am very close to my organizational members	0.827
Snw4 In general I respect my organization member view	0.721
Snw5 there is a high interaction between colleagues in the workplace.	0.748
Percentage Variance Explained	58.011
Eigenvalues	2.32

Note: N= 279, **p< 0.01

4.3.1.3 Factor Analysis for shared goals

Factor analysis was done on the five items related to shared goals. The result of factor analysis is presented in Table 4.7 and the SPSS output is shown in Appendix B. The table shows that the value of KMO measure of sampling adequacy is0.802 (above recommended level of 0.6) and the Bartlett's test of spherecity is significant (p=0.0). This indicates that the conditions of factor analysis were satisfactorily met and the data matrix is appropriate for subsequent analysis Table 4.7 shows that the items were loaded on one factor as conceptualized, with eigenvalue 3.061 factor cumulatively explains 61.216% of data variance. In addition, factor loading for the five items ranged from 0.717To 0.817of the total variance in the data.

Table 4.7

Rotated Factor Loading for shared goals (SHG)

Item NO.	Factor loading
SHG1 My organizational members and I always agree on what is important at work	0.779
SHG2 My organizational members and I always share the same ambitions and vision	0.798
SHG4 My organizational members and I are always enthusiastic about pursing the collective goals of the whole organization	..817
SHG5 My organizational members and I are always enthusiastic about pursing the missions of the whole organization	0.717
Percentage Variance Explained	61.216
Eigenvalues	3.061

4.3.2 Factor Analysis on organizational factors (incentives, leadership style

4.3.2.1 Factor Analysis on incentives

Factor analysis was done on the six items that measured incentives. The result of factor analysis is presented in Table 4.8 and the SPSS output is shown in Appendix B. The table shows that the value of KMO measure of sampling adequacy is0.877 (above recommended level of 0.6) and the Bartlett's test of spherecity is significant (p=0.0). This indicates that the conditions of factor analysis were satisfactorily met and the data matrix is appropriate for subsequent analysis Table 4.8 shows that the items were loaded on one factor as conceptualized, with eigenvalue 3.921factor cumulatively explains 65.350% of data variance. In addition, factor loading for the six items ranged from 0.757To 0.848of the total variance in the data.

Table 4.8
Factor Loading for incentives (MSK)

Item NO.	Factor loading
MSK1 there are moral encouragement from the administration against the sharing of knowledge among employees.	0.775
MSK2 there are promotion against share of knowledge.	0.846
MSK4 there is a feeling of satisfaction and appreciation from the administration when share knowledge.	0.848
MSK5 esteem and social excellence when sharing knowledge.	0.834
MSK6 there stimulate as much as the size of knowledge sharing.	0.785
	0.757
Percentage Variance Explained	65.35
Eigen values	3.92

4.3.2.2 Factor Analysis on leadership style

Factor analysis was done on the five items that measure leadership style. Table 4.9 summarizes the result of the analysis and the SPSS output is shown in Appendix B4.3. In the first run of factor analysis, it resulted in one factor with KMO (0.761) Bartlett's test of sphericity (p=.00), and explain (62.977%) of variance in the data. Inspection of communalities table revealed that item MST1 had lowest communalities value (.440). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.9 it resulted in one factor with KMO 0.789 Bartlett's test of sphericity (p=.00) and explain (70.146%) of variance in the data, communalities table revealed that item MST2 had low communalities value (.477) so it was dropped in the third run of factor analysis.

The third run resulted in one factor with KMO 0.738 Bartlett's test of sphericity (p=.00), communalities (>.50), eigenvalue (>1), and factor loading (>.50). The factor cumulatively explains 81.208% of data variance. In addition, factor loading for the three items ranged from 0.889To 0.919 .

Table 4.9

Factor loading on leadership style(MST)

Item NO.	Factor loading
MST3 management is ready to share knowledge with employees.	0.896
MST4 management encourage KS between employees in the bank.	0.919
MST5 management provide resources &time to contribute in k.s process .	0.889
Percentage Variance Explained	81.208
Eigenvalues	2.436

4.3.3 Factor Analysis on Technological factors

4.3.3.1 Factor Analysis ICT know how

Factor analysis was done on the six items that measure ICT know how. Table 4.10 summarizes the result of the analysis and the SPSS output is shown in Appendix B. In the first run of factor analysis, it resulted in one factor with KMO (0.831) Bartlett's test of sphericity (p=.00), and explain (58.441%) of variance in the data. Inspection of communalities table revealed that item IKH6 had lowest communalities value (.480). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.10 it resulted in one factor with KMO 0 .819 Bartlett's test of sphericity (p=.00) and explain (62.225%) of variance in the data, factor loading for the five items ranged from 0. 735 To 0.823

Table 4.10
Factor loading on ICT know how (IKH)

Item NO.	Factor loading
IKH1 All employees are given adequate training internally to use computers in the bank	.735.
IKH2 All employees are given adequate training externally to use computers in the bank	0.791
IKH3 All employees are given adequate training internally to use ICT tools (software) in the bank	0.823
IKH4 All employees are given adequate training externally to use ICT tools (software))	0.823
IKH5 the bank helps to make 1CTtools available	0.769
Percentage Variance Explained	62.225
Eigenvalues	3.111

4.3.3.2Factor Analysis ICT TOOLS

Factor analysis was done on the six items that measure leadership style. Table 4.11 summarizes the result of the analysis and the SPSS output is shown in Appendix B. In the first run of factor analysis, it resulted in one factor with KMO (0.792) Bartlett's test of sphericity (p=.00), and explain (50.604%) of variance in the data. Inspection of communalities table revealed that item ITS1 had lowest communalities value .244). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.11 it resulted in one factor with KMO 0.778Bartlett's test of sphericity (p=.00) and explain (57.186%) of variance in the data, communalities table revealed that item ITS2 had low communalities value (.395) so it was dropped in the third run of factor analysis.

The third run resulted in one factor with KMO 0.739 Bartlett's test of sphericity (p=.00), communalities (>.50), eigenvalue (>1), and factor loading (>.50). The factor cumulatively explains 64.079% of data variance. In addition, factor loading for the four items ranged from .760To 0. 837.

Table 4.11

Factor loading on ICT Tools (ITS)

Item NO.	Factor loading
ITS3 Computer-based information systems provide you with more up-to-date information than that available in manual files	0.760.
ITS4 Computer-based information systems make new information available to the bank that was not earlier available	0.787
ITS5 the bank use workshops to exchange knowledge &information	0.816
ITS6 the bank use seminars for sharing knowledge.	0.837
Percentage Variance Explained	64.079
Eigenvalues	2.563

4.3.3.3 Factor Analysis on Infrastructure

Factor analysis was done on the six items that measure infrastructure. Table 4.12 summarizes the result of the analysis and the SPSS output is shown in Appendix. In the first run of factor analysis, it resulted in one factor with KMO (0.848) Bartlett's test of sphericity (p=.00), and explain (57.174%) of variance in the data. Inspection of communalities table revealed that item ITC1 had lowest communalities value (.369). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.12 it resulted in one factor with KMO 0 .833Bartlett's test of sphericity (p=.00) and explain (62.775%) of variance in the data, factor loading for the five items ranged from .715 to .821 .

Table 4.12

Factor loading on Infrastructure (ITC)

Item NO.	Factor loading
ITC2 The bank ICT infrastructure helps in knowledge creation and sharing	.715.
ITC3 ICT can speed up your work.	0.821
ITC4 ICT can speed up your work in searching for information	0.82
ITC5 ICT facilitates employees in doing their daily work	0.815
ITC6 ICT facilitates exchange of information between employees and customers.	785
Percentage Variance Explained	62.775
Eigen values	3.139

4.3.4 Factor Analysis for Attitude towards knowledge sharing

Factor analysis was done on the six items that measure Attitude. Table 4.13 summarizes the result of the analysis and the SPSS output is shown in Appendix. In the first run of factor analysis, it resulted in one factor with KMO (0.782) Bartlett's test of sphericity (p=.00), and explain (45.157%) of variance in the data. Inspection of communalities table revealed that item AKS1 had low communalities value . .395). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.13 it resulted in one factor with KMO 0. .767Bartlett's test of sphericity (p=.00) and explain (49.171%) of variance in the data, communalities table revealed that item AKS6 had low communalities value (.044) so it was dropped in the third run of factor analysis.

The third run resulted in one factor with KMO 0. 778Bartlett's test of sphericity (p=.00), communalities (>.50), eigenvalue (>1), and factor loading (>.50). The factor cumulatively explains 60.805% of data variance. In addition, factor loading for the four items ranged from .745 to. .825

Table 4.13

Factor loading on Attitude(AKS)

Item NO.	Factor loading
AKS2 Sharing of my knowledge with organizational members is always beneficial	0.745
AKS3 Sharing of my knowledge with organizational members is always an enjoyable experience	0.825
AKS4 Sharing of my knowledge with organizational members is always valuable to me	796
AKS5 Sharing of my knowledge with organizational members is always a wise move	0.75
Percentage Variance Explained	60.8.5
Eigenvalues	2.432

4.3.5 Factor Analysis for Intension to share knowledge

Factor analysis was done on the five items that measure Intension. Table4 .14 summarizes the result of the analysis and the SPSS output is shown in Appendix. In the first run of factor analysis, it resulted in one factor with KMO (0.763) Bartlett's test of sphericity (p=.00), and explain (45.157%) of variance in the data. Inspection of communalities table revealed that item ISK1 had low communalities value .320). Therefore, this item was dropped in the second run of factor analysis.

The result of the second run of factor analysis yield presented in Table 4.14 it resulted in one factor with KMO 0. .742Bartlett's test of sphericity (p=.00) and explain (63.930%) of variance in the data, communalities table revealed that item ISK4 had low communalities value (.451) so it was dropped in the third run of factor analysis.

The third run resulted in one factor with KMO 0.704Bartlett's test of sphericity (p=.00), communalities (>.50), eigenvalue (>1), and factor loading (>.50). The factor cumulatively explains 73.176% of data variance. In addition, factor loading for the three items ranged from .870 to .877.

Table 4.14

Factor loading for Intension to share knowledge (IKS)

Item NO.	Factor loading
IKS2 I will always share my manuals, methodologies and models with my organizational members in the future	0.87
IKS3 I will always share my experience or know-how from work with my organizational members in the future	0.877
IKS5 I will always try to share my expertise obtained from education and training with my organizational members in a more effective way	0.818
Percentage Variance Explained	73.176
Eigenvalues	2.195

4.3.6 Reliability Analysis

Reliability is an assessment of the degree of consistency between multiple measurements of variables (Hair et al., 2010)[1]. To test reliability this study used Cronbach's alpha as a diagnostic measure, which assesses the consistency of entire scale, since being the most widely used measure (Sharma, 2000)[2]. According to Haire et al. (2010), the lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. While Nunnally (1978)[3] considered Cronbach's alpha values greater than 0.60 are to be taken as reliable The results of the reliability analysis summarized in Table

[1]Hair,J.F., Anderson, RE., Tathm, R.L. &Black, W.C.(2010). Multivariate Data Analysis, Prentice-Hall International,Inc., Upper Saddle, NJ.

[2]Sharma, S.(2000), "Managerial interpretation and organizational context as predictors of corporate choice of environmental strategy", The Academy of Management Journal, Vol. 26, pp. 159-80.

[3]Nunnally,J.L.(1978). Psychometric Theory,2nd ed.,McGraw-Hill,New York, NY

4.15 confirmed that all the scales display satisfactory level of reliability (Cronbach's alpha exceed the minimum value of 0.6). Therefore, it can be concluded that the measures have acceptable level of reliability. The full SPSS output is displayed in Appendix B .

Table 4.15

Cronbach's Alpha for Study Variables

Variable		**Number of items**	**Cronbach's Alpha**
Individual factors	Social trust	4.00	0.79
	Social network	5.00	0.75
	Shared goals	5.00	0.84
Organizational Factors	Incentives	6.00	0.89
	Leadership style	3.00	0.88
Technological Factors	Ict know-how	5	0.847
	Ict tools	4	0.812
	Infrastructure	5	0.849
Attitude towards knowledge		4.00	0.78
			Sharing
Intention to share knowledge		3.00	0.81

4.4 Descriptive Statistics of Variables

Table 4.16 showed the descriptive statistics of the variables specifically for the individual factors, the highest mean scored was for shared goals (1.82); followed by social trust (1.68), the lowest mean level (1.67) for social network. For organizational factors, the two component had mean scored between 2.54and 3.26 .for technological factors The highest mean (2.27) was achieved for ICTknow-how, followed by ICT Tools & Software (2.14), the

lowest mean score (1.84) for ICT infrastructure. For Attitude towards sharing the mean score was (1.92) while intention had mean score (1.68)

Table 4.16
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ICT infrastructure	272	1	4	1.84	0.698
ICT Tools & Software	271	1	5	2.14	0.793
ICT Know-how	271	1	5	2.27	0.804
Social Trust	271	1	4	1.68	0.572
Social Network	271	1	4	1.67	0.586
Shared Goals	271	1	4	1.82	0.652
Management Style	269	1	5	3.26	1.14
Incentive to share knowledge	267	1	5	2.54	0.88
Attitude towards sharing	267	1	4	1.92	0.645
Intension to sharing	269	1	4	1.68	0.642
Valid N (list wise)	266				

Table 4.17

Correlations

variables	ICT Frastructur	ITS	IKH	SOC	SNW	SHG	MST	MSK	AKS	IKS
ICT Frastructur	1									
ICT Tools & Software	.642(**)	1								
ICT Know-how	.460(**)	.585(**)	1							
Social Trust	.397(**)	.300(**)	.281(**)	1						
Social Network	.468(**)	.472(**)	.338(**)	.533(**)	1					
Shared Goals	.337(**)	.358(**)	.253(**)	.336(**)	.537(**)	1				
Management Style	-.234(**)	-.224(**)	-.127(*)	-.173(**)	-.151(*)	-.174(**)	1			
Incentive to share knowledge	.404(**)	.461(**)	.599(**)	.215(**)	.356(**)	.267(**)	-.172(**)	1		
Attitude towards sharing	.270(**)	.316(**)	.200(**)	.367(**)	.491(**)	.425(**)	-.173(**)	.326(**)	1	
Intension to sharing	.336(**)	.375(**)	.217(**)	.448(**)	.541(**)	.515(**)	-.150(*)	.209(**)	.518(**)	1

4.5Correlation Analysis

Table 4.17 presents the results of the intercorrelation among the variables. The correlation analysis was conducted to see the initial picture of the interrelationships among the variables under the study. The importance of conducting correlation analysis is to identify any potential problems associated with multicollinearity (Sekaran, 2000)[1].

Table 4.17 shows positive and significant relationship between all the three components of personal factors (social trust. Social network, shared goals) and all the three variables of technological factors are distinctively positive and statistically significant (0. .253≤r≤0.461, p<0.01), also the relationship with the organizational factors it shows positive and significant relation .215 ≤r≤.642, p<0.01 only with incentives but leadership style shows negatives significant relationship with all the variables it range between(-.172 ≤r≤-.234 . p<0.01) and (-.127 ≤r≤.-.151 p<0.05 The table shows also that all the components of personal ,organizational and technological variables correlated with attitudes towards knowledge sharing with positive and significant relationship (the correlations range between .270 ≤r≤ .491 p<0.01).

[1]Sekaran Uma (2000). Research in methods for business: a skill-building approach. John Wiley & Sons

4.6 Hypotheses Testing

4.6.1 Multiple Regression Analysis

Hierarchical regression analyses were used in all tests to show the impact of the control variables. The control variables considered in this study were gender and employees experience. The influence of the control variables on employees intention to share knowledge was considered based on the assumption that to clearly establish the cause and effect relationship between independent and dependent variable, other variables that might confound the relationship had to be tightly controlled (Sekaran, 2000).[1]

To satisfy the regression assumptions the following steps were considered

- The normality had been confirmed through the relevant Histograms. The results of probability plots of residuals indicated that the data fell within the diagonal line.
- Heteroscedasticity was checked through the scatter plots of standardized residual versus the predicted values. The test did not show any random pattern to indicate Heteroscedasticity.
- Outliers were identified and removed through using a case-wise diagnostics.

[1]Sekaran Uma (2000). Research in methods for business: a skill-building approach. John Wiley & Sons

- The result of Multicollinearity test indicated that the values of tolerance and variance inflation factor (VIF) fell within acceptable range.

4.6.1.1 The Relationship between individual factors(social trust, social network, shared goals) and attitudes towards knowledge sharing(KS)

This section deal with the first hypotheses in the study which predicts that three individual factors components (social trust, social network, , and shared goals) have positive relationship with the attitudes towards knowledge sharing As shown in figure 4.1 below.

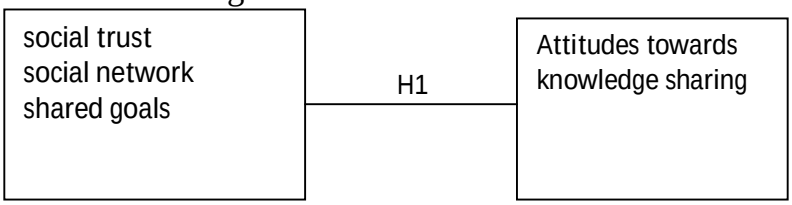


Figure 4.1

Table 4.18 shows the results of the regression equation testing the influence of the control variables, individual factors variables on attitudes towards KS. In step 1, none of the two control variables had significant influence on attitudes towards KS. The control variables explained .004% of the variance in attitudes. In step 2, the individual factors variables were cumulatively contributed 35% of the variance in attitudes.

The results showed that H1.1, H1.2,H1.3 (social trust, social network, shared goals with attitudes of KS), were accepted The regression coefficient in Table 4.18 indicated that among these independent variables, social network was the most important in explaining the variance in attitudes (β = .30),

followed by shared goals (β= .26) and social trusts (β = .16) The SPSS output is reflected in AppendixB.

Table 4.18

Multiple Regression: Control variables, individual factors ,attitudes towards KS(Beta coefficient)

Variables	Attitudes to words	Knowledge sharing
control variables	Step 1	Step 2
Gender	-0.04	-0.06
employees experience	-0.04	-0.07
Social trust		0.16*
Social network		0.3***
Shared goals		0.26**
R^2	0.004	0.36
Adjusted R^2	-0.004	0.34
ΔR^2	0.004	0.35
F change	0.46***	43.25***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

Table 4.19

Summary of Hypotheses Testing: The influence of individual factors variables on the attitudes towards knowledge sharing (KS)

No.	Statement of the hypothesis	Result
H1	Individual factors variables influence attitudes to words knowledge sharing	Fully supported
H1.1	There is a positive relationship between social trust and attitudes towards KS	Supported
H1.2	There is a positive relationship between social network and attitudes towards KS	Supported
H1.3	There is a positive relationship between shared goals and attitudes to wards KS	Supported

4.6.1.2 The Relationship between organizational factors (incentives. Leadership style) and attitudes towards knowledge sharing (KS)

This section deal with the 2th hypotheses in the study which predicts that two organizational factors (incentives, and leadership style) have positive relationship with the attitudes towards knowledge sharing As shown in figure 4.2 below

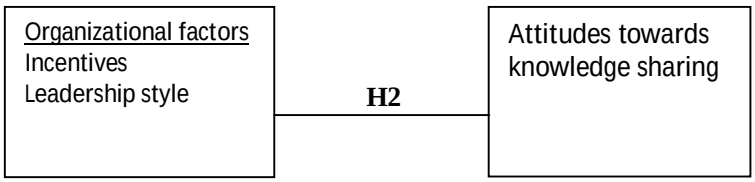


Figure 4.2

Table 4.20 shows the results of the regression equation testing the influence of the control variables, organizational factors variables on attitudes towards KS. In step 1, none of the two control variables had significant influence on attitudes towards KS. The control variables explained .004% of the variance in attitudes. In step 2, the organizational factors variables were cumulatively contributed 16% of the variance in attitudes.

The results showed that H2.1, incentives, with attitudes of KS, was accepted The regression coefficient in Table 4.20 indicated that among these independent variables, incentives was the most important in explaining the variance in attitudes ($\beta = .36$), The SPSS output is reflected in Appendix B.

Table4.20

Multiple Regression: Control variables, organizational factors, attitudes towards knowledge sharing (KS)(Beta coefficient)

Variables	Attitudes to words Knowledge sharing	
control variables	Step 1	Step 2
Gender	-0.042	-0.082
employees experience	-0.039	0.007
Incentives		0.36***
Leadership style		-0.11*
R^2	0.004	0.16
Adjusted R^2	-0.004	0.14
ΔR^2	0.004	0.16
F change	0.478***	21.85***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

Table 4.21

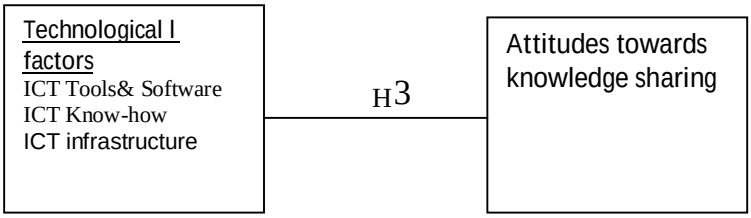
Summary of Hypotheses Testing: The influence of organizational factors variables on the attitudes towards KS.

No.	Statement of the hypothesis	Result
H2	Organizational factors variables influence attitudes to words knowledge sharing	Partially supported
H2.1	There is a positive relationship between incentives and attitudes towards KS	Supported
H2.2	There is a positive relationship between leadership style and attitudes towards KS	Not supported

4.6.1.3 The Relationship between Technological factors variables and attitudes towards KS

This section deal with the 3th hypotheses in the study which predicts that three technological factors (ICT Tools & Software, ICT Know-how, ICT in Fra structure) have positive relationship with the attitudes towards knowledge sharing As shown in figure 4.3 below

Figure 4.3



Similar analysis was conducted for the relationship between Technological factors and Attitudes towards knowledge sharing. Table 4.22 summarizes the results of two-step regression analysis. The table shows that none of the two control variables had significant influence on attitudes towards KS. The control variables explained .005% of the variance in attitudes. In step 2, the technological factors variables were cumulatively contributed 18% of the variance in attitudes.

Further analysis of the results in table 4.22showed that ICT Tools& Software have the most significant relationship on Attitudes towards knowledge sharing ß=0.35, followed by ICT infrastructure ß=0.13However ICT Know-how show no significant relationship with Attitudes towards knowledge sharing. These results give support to hypotheses H3.1 and, H3.3

Table4.22

Multiple Regression: Control variables, Technological factors, attitudes towards knowledge sharing (KS)(Beta coefficient)

Variables	Attitudes to words Knowledge sharing	
control variables	Step 1	Step 2
Gender	-0.05	-0.1
employees experience	-0.04	-.05
ICT Tools& Software		0.35***
ICT Know-how		-0.03*
ICT infrastructure		0.13*

R^2	0.005	0.19
Adjusted R^2	-0.003	0.17
ΔR^2	0.005	0.18
F change	0.658***	17.92***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

Table 4.23

Summary of Hypotheses Testing: The influence of Technological factors variables on the attitudes towards KS.

No.	Statement of the hypothesis	Result
H3	Technological factors variables influence attitudes to words knowledge sharing	Partially supported
H3.1	There is a positive relationship between ICT Tools& Software and attitudes towards KS	Supported
H3.2	There is a positive relationship between ICT Know-how and attitudes towards KS	Not supported
H3.3	There is a positive relationship between ICT infrastructure and attitudes towards KS	Supported

4.6.1.4 The Relationship between employees attitudes towards knowledge sharing and intention to share knowledge

This section deal with the 4th hypotheses in the study which predicts that attitudes towards knowledge influence intention to share knowledge as shown in figure 4.4 below

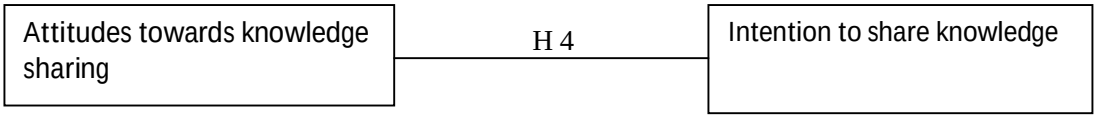


Figure 4.4

Table 4.24 shows the results of the regression equation testing the influence of the control variables, attitudes towards KS. on intention to share knowledge In step 1, none of the two control variables had significant influence on Intention to share knowledge. The control variables explained .007% of the

variance in Intention. In step 2, the Attitudes towards knowledge sharing variable is cumulatively contributed 29% of the variance in Intention Further analysis of the results in table 4.24 showed that Attitudes towards knowledge sharing have strong significant relationship on Intention to share knowledge ß=0.55.These results give support to hypothesis H4 .

Table 4.24

Multiple Regression: Control variables, attitudes towards KS, intention to share knowledge (Beta coefficient)

Variables	Intention to Share knowledge	
control variables	Step 1	Step 2
Gender	0.078	0.095
employees experience	0.01	0.04
Attitudes towards knowledge sharing		0.55***
R^2	0.007	0.302
Adjusted R^2	-0.002	0.293
ΔR^2	0.007	0.296
F change	0.783***	99.995***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

Table 4.25
Summary of Hypothesis Testing: The Attitudes towards knowledge variable on the intention to share knowledge.

No.	Statement of the hypothesis	Result
H4	Attitudes towards knowledge variable influence intention to share knowledge	fully supported
H4	There is a positive relationship between Attitudes towards knowledge and intention to share knowledge	Supported

4.6.1.5 Mediation Effect of attitudes of knowledge sharing

Baron and Kenny, (1986) advocated four steps for testing the mediation effect as presented in figure 4.3, these steps are:

1) The independent variable must affect the dependent variables, β1 must be significant
2) The independent variables should affect the mediating variable, β2 must be significant
3) The mediator must influence the dependent variable, β3 must be significant

To establish that the mediator (M) is fully mediating the relationship between the initial variable (X) and outcome variable (Z), the impact of X on Z controlling for M should be zero or β 4 is not significant, whereas, partially mediator exists when β 4 is significant.

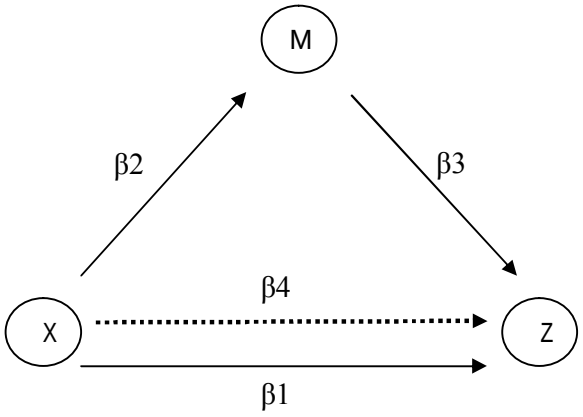


Figure 4.5 Mediation structure

In order to fulfill the conditions for testing the mediation effect of attitudes of knowledge sharing (step 1), intention to share knowledge was regressed on control variables in step 1, adding individuals factors variables, in step 2. These hierarchical regression equations as shown in Exhibit 4.5 tested the influence of the individuals factors variables on intention to share knowledge.

*In*fluence of individuals factors variables on intention to share knowledge

Figure 4.6

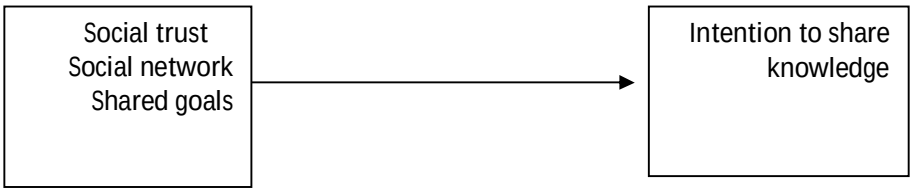


Table 4.26 shows the results of the hierarchical regression equation Testing the influence of the control variables, individuals factors variables on intention to share knowledge. In step 1, none of the control variables had significant influence on intention to share knowledge . The control variables explained .003 % of the variance in intention to share knowledge , the individual factors variables is cumulatively contributed .407% of the variance in Intention However, the result shows that the first model is not significant. In step 2, the results show that all individual factors (social trust, social network ,shared goals)significantly influenced intention to share knowledge(β = .198, .230 and .350 respectively). The SPSS output is reflected in Appendix B.

Table 4.26
Multiple regression: influence of individuals factors variables on intention to share knowledge

Variables	Intention to sharing Knowledge	
control variables	Step 1	Step 2
Gender	0.027	-0.003
employees experience	0.046	0.024
Social trust		0.198**
Social network		0.23**
Shared goals		0.35***
R^2	0.003	0.41
Adjusted R^2	-0.005	0.398
ΔR^2	0.003	0.407
F change	0.409***	55.357***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

Table 4.27 shows The Relationship between organizational factors(incentives system and leadership style) and intention to share knowledge

Step 1, none of the control variables had significant influence on intention to share knowledge .

However, the result shows that the first model is not significant. In step 2, the results show that only incentives system significantly influenced intention to share knowledge(β = . .200) The SPSS output is reflected in Appendix B.

Table 4.27

Multiple regression: influence of organizational factors variables on intention to share knowledge

Variables	Intention to sharing Knowledge	
control variables	Step 1	Step 2
Gender	0.03	0.001
employees experience	0.048	0.081
Incentives system		0.2**
Leadership style		-0.135*
R^2	0.004	0.07
Adjusted R^2	-0.004	0.055
ΔR^2	0.004	0.066
F change	0.463***	8.578***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

Influence of Technological factors variables on intention to share knowledge

Table 4.28 shows the results of the hierarchical regression equation testing the influence of the control variables, technological factors variables on intention to share knowledge. In step 1, none of the control variables had significant influence on intention to share knowledge. The control variables explained. .005% of the variance in intention to share knowledge. The technological factors variables is cumulatively contributed .18% of the variance in Intention However, the result shows that the first model is not significant. In step 2, the results show that only ICT infrastructure and ICT Tools & Software are significantly influenced intention to share knowledge (β = .126 ,and . .353 respectively.

Table 4.28

***Multiple Regression: Influence* of Technological factors variables on intention to share knowledge**

Variables	Intention to sharing	Knowledge
control variables	Step 1	Step 2
Gender	-.050.	-0.091
employees experience	-0.044	-0.049
ICT infrastructure		0.126*
ICT Tools & Software		0.353***
, ICT Know-how,		-0.025
R^2	0.005	0.189
Adjusted R^2	-0.003	0.172
ΔR^2	0.005	0.184
F change	0.658***	17.915***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

The Mediation of attitudes towards knowledge sharing had been hypothesized to mediate the relationship between individual factors variables (social trust social network and shared goals) organizational factors variables(incentives system, leadership style) and (technological factors ICT infrastructure, ICT Tools & Software and ICT Know-how) and intention to share knowledge.

4.6.1.5.1 Mediation Effect of attitudes towards knowledge sharing on the relationship between individual factors variables (social trust, social network, shared goals), and intention to share knowledge

As regard to the mediation effect of attitudes on the relationship between individuals factors variables, and intention to share knowledge, the results of regression analysis given in Table 4.18 showed that social trust, social network and shared goals significantly influenced attitudes. Table 4.26 showed that social trust, social network and shared goals significantly influenced intention to share knowledge. Likewise, Table 4.24 showed that attitudes t significantly influenced intention to share knowledge. Accordingly, the conditions for testing

the mediation effect of attitudes on intention to share knowledge were fulfilled. The mediation effect of attitudes will be considered with the relationship between social trust, social network and shared goals, and intention to share knowledge.

Table 4.29 showed the results of the hierarchical regression testing the mediation effect of attitudes on the relationship between social trust, social network and shared goals and intention to share knowledge. In model 1, the results indicated that the control variables did not show any significant impact on intention to share knowledge. In model 2, the results showed that social trust, social network and shared goals significantly influence intention to share knowledge with beta coefficient are β= .20 , .23, .35 respectively In model 3 the extent of attitudes significantly changed the variance explained by social trust, social network and shared goals, as the beta coefficient were decreased (β= **0.16,0.14** and **0.28**respectively).

Concerning the type of mediation of attitudes towards knowledge sharing on the relationship between social trust, social net work ,shared goals and intention to share knowledge, the results showed that the value of social trust, social net work ,shared goals were reduced (in model 3), this indicated that attitudes towards knowledge sharing fully mediated the relationship between social trust, social net work ,shared goals and intention to share knowledge The SPSS output is reflected in Appendix B.

Table 4.29

Hierarchical Regression: Mediation Effect of attitudes towards knowledge sharing on the relationship between individual factors variables (social trust, social network, shared goals), And intention to share knowledge

Variables	Intention to share knowledge		
Control variables	Model 1	Model 2	Model 3
EXPERIAN	0.05	0.021	0.044
Gender	0.032	0.001	0.013
Social Trust		0.197**	0.165*
Social Network		0.227**	0.144*
Shared Goals		0.35***	0.288**
Attitude towards sharing			0.262**
R Square	0.004	0.402	0.449
Adjusted R Square	-0.004	0.39	0.435
R Square Change	0.004	0.398	0.047
F Change	0.518	53.015***	20.16***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

4.6.1.5.2 Mediation Effect of attitudes towards knowledge sharing on the relationship between organizational factors variables (incentives, leadership style) and intention to share knowledge

`As regard to the mediation effect of attitudes on the relationship between organizational factors variables, and intention to share knowledge, the results of regression analysis given in Table 4.20 showed that incentives ,leadership style significantly influenced attitudes. Table 4.26 showed that incentives leadership style significantly influenced intention to share knowledge. Likewise, Table 4.24 showed that attitudes significantly influenced intention to share knowledge. Accordingly, the conditions for testing the mediation effect of attitudes on intention to share knowledge were fulfilled. The mediation effect of attitudes

will be considered with the relationship between incentives leadership style, and intention to share knowledge.

Table 4.19 showed the results of the hierarchical regression testing the mediation effect of attitudes on the relationship between organizational factors (incentives, leadership style) and intention to share knowledge. In model 1, the results indicated that the control variables did not show any significant impact on intention to share knowledge. In model 2, the results showed that (incentives, leadership style) significantly influence intention to share knowledge with beta coefficient are β= 0.20 and -.135 respectively In model 3, the extent of attitudes significantly changed the variance explained by incentives, leadership style, as the beta coefficient were decreased (β= .020and -.069respectively).

Concerning the type of mediation of attitudes towards knowledge sharing on the relationship between (incentives, leadership style and intention to share knowledge, the results showed that the value of incentives, leadership style were reduced (in model 3), this indicated that attitudes towards knowledge sharing fully mediated the relationship between incentives, leadership style and intention to share knowledge The SPSS output is reflected in Appendix B.

Table 4.30

Hierarchical Regression: Mediation Effect of attitudes towards knowledge sharing on the relationship between organizational factors variables (incentives to share knowledge, leadership style) and intention to share knowledge,

Variables	Intention to share knowledge		
Control variables	Model 1	Model 2	Model 3
EXPERIAN	0.048	0.08	0.082
Gender	0.03	0.002	34
Incentives		0.2**	0. .020*
Leadership style		-0.135*	-0.069
Attitudes towards k.s			0.522***
R Square	0.004	0.07	0.301
Adjusted R Square	-0.004	0.055	0.287
R Square Change	0.004	0.066	0.231
F Change	0.465	8.539***	78.696***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

4.6.1.5.3 Mediation Effect of attitudes towards knowledge sharing on the relationship between technological factors variables (infrastructure, ICT Tools ,ICT know how)) And intention to share knowledge

As regard to the mediation effect of attitudes on the relationship between technological factors variables, and intention to share knowledge, the results of regression analysis given in Table 4.22 showed that only (infrastructure, ICT tools) significantly influenced attitudes. With regard to the variable ICT know-how it hadn't significantly influenced attitudes accordingly the condition for testing the mediation effect of attitudes on the relationship between ICT know-how and intention to share knowledge were not fulfilled. There for, this variable had violated the third assumption of mediating effect, in that the

mediating variable must significantly influenced the criterion variable (β must be significant) Hence ,the ICT know-how could not establish the mediation effect.

Table 4.31 showed the results of the hierarchical regression testing the mediation effect of attitudes on the relationship between technological factors variables(infrastructure ,ICT tools, ICT know-how) and intention to share knowledge. In model 1, the results indicated that the control variables did not show any significant impact on intention to share knowledge. In model 2, the results showed that ((infrastructure, ICT tools,) significantly influence intention to share knowledge with beta coefficient are β= 0.124and 0.305respectively in model 3, the extent of attitudes significantly changed the variance explained by ((infrastructure ,ICT tools, as the beta coefficient were decreased (β= 0.080 and .171 respectively).

Concerning the type of mediation of attitudes towards knowledge sharing on the relationship between ((infrastructure ,ICT tools, and intention to share knowledge, the results showed that the value of infrastructure ,ICT tools, were reduced (in model 3), this indicated that attitudes towards knowledge sharing partially mediated the relationship between technological factors and intention to share knowledge The SPSS output is reflected in Appendix B .

Table 4.31

Hierarchical Regression: Mediation Effect of attitudes towards knowledge sharing on the relationship between technological factors variables (ICT infrastructure ,ICT Tools, ICT know-how) and intention to share knowledge

Variables	Intention to share knowledge		
Control variables	Model 1	Model 2	Model 3
EXPERIAN	0.05	0.047	0.07
Gender	0.032	0.002	0.027
ICT infrastructure		0.124*	0.08
ICT Tools &		0.305***	0.171*
ICT Know-how		-0.023	-0.026
Attitude towards k sharing			0.451***
R Square	0.004	0.152	0.326
Adjusted R Square	-0.004	0.134	0.309
R Square Change	0.004	0.148	0.174
F Change	0.518	13.892***	61.467***

Note: Level of significant: *p<0.10, **p<0.05,***p<0

Table 4.31 shows the summary of the hypotheses related to the mediation effect of attitudes of employees towards knowledge sharing between individual ,organizational ,technological factors variables and intention to share knowledge The findings of mediating effects implied that the component of individuals factors (social trust, social network shared goals)organizational factors(incentives, leadership style)and technological factors (infrastructure ,ICT tools)influenced the intention of Sudanese banking employees to share knowledge through the attitudes towards knowledge sharing .

Table 4.32

Summary of the Hypotheses Testing Results of Mediation Effect of Attitudes towards knowledge sharing

NO	Statement Of the hypothesis	Result
H 5.1	Attitudes towards knowledge sharing mediate the relationship between individuals factors and intention to share knowledge .	Fully supported
H.5.1.1	Attitudes towards KS mediate the relationship between social trust and intention to share knowledge.	Supported
H.5.1.2	Attitudes towards KS mediate the relationship between social network and intention to share knowledge.	Supported
H.5.1.3	Attitudes towards KS mediate the relationship between shared goals and intention to share knowledge.	Supported
H.5.2	Attitudes towards knowledge sharing mediate the relationship between organizational factors and intention to share knowledge.	Fully supported
H.5.2.1	Attitudes towards knowledge sharing mediate the relationship between incentives to share knowledge and intention to share knowledge.	Supported
H.5.2.2	Attitudes towards knowledge sharing mediate the relationship between leadership style and intention to share knowledge.	Supported
H.5.3.	Attitudes towards knowledge sharing mediate the relationship between technological factors and intention to share knowledge.	Partially supported
H.5.3.1	Attitudes towards knowledge sharing mediate the relationship between infrastructure and intention to share knowledge.	Supported
H.5.3.2	Attitudes towards knowledge sharing mediate the relationship between ICT tools and intention to share knowledge.	Supported
H.5.3.3	Attitudes towards knowledge sharing mediate the relationship between ICT know-how and intention to share knowledge.	Not supported

4.7 Summary

This chapter presents the result of analyzing data, which was generated from 280 respondent from Sudanese banking employees This data was analyzed using different tests. Chi-square test was done to test the response bias, the results did not indicate any serious response bias, the results of the factor analysis indicated that the data was appropriate for factor analysis. The Cronbach alpha indicated that the measurements were reliable. Bivarate correlation was also done to determine the interrelationships of the variables. Hierarchical regression was done to test the research hypotheses.

The next chapter reviews the findings and discusses the results and their implications as well as limitations and conclusions of the study.

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS

This chapter is for discussion and conclusion that came consistency with data analysis and findings, so it contains research recapitulation, major research outcomes, research implication ,recommendations, secondly, limitations and directions for future research, finally, an overall conclusion of the research.

The objectives of this study are 1) to determine the relationship between individual factors variable (social trust, social network. Shared goals), organizational factors variable(incentives, leadership style)technological factors variable s(infrastructure ,ICT tools ,ICT know-how) and attitudes towards knowledge sharing 2) To test the relationship between attitudes towards knowledge sharing and intention to share knowledge 3) To assess the possible relationship between individual factors variables, organizational factors , technological factors and intention to share knowledge with attitudes towards knowledge sharing as mediating variable.

Table 5.1 shows the summary of the hypotheses testing and compares the results of this study with the previous study findings. It should be noted that in some parts, it is difficult to compare the findings of this study with the previous findings, either because of the lack of previous studies or because of the different component of the construct used in the previous studies.

Table 5.1
Summary of Hypotheses Testing

	Hypotheses	Previous Studies		Results		
		Author	Relationship	Relationship	Supported	Significance
1.1	Positive relationship between social trust and attitudes towards KS	Nurlizaet(2011)[1],Gowming Dong etl(2010)[2]	+	+	Yes	< .001
1.2	Positive relationship between social network and attitudes towards KS	Nurliza etl (2011) Chow & Chan (2008)[3]	+	+	Yes	Significant
1.3	Positive relationship between shared goals and attitudes towards KS	Nurliza etl (2011) Chow & Chan (2008)	+	+	Yes	< .05
2.1	Positive relationship between incentives and attitudes towards KS	Nurliza etl (2011))	+	+	Yes	< .01
		Zahra aMosakhani(2009)[4]	-	+	Yes	
2.2	Democratic leadership style is positively influence attitudes towards KS while authoritarian style is negatively related to KS.	Zhenzhong etl (2008)[5]	+	+	No	Insignificant

[1]Nurliza etl (2011): Key Determinants of Knowledge Sharing in an Electronics Manufacturing Firm in Malaysia. Library Review Vol. 60 No. 1, pp. 53-67.

[2]Gowming Dong etl (2010): Knowledge-sharing intention in Vietnamese organizations: The journal of information and knowledge management systems; Vol. 40 No. 3/4, pp. 262-276.

[3]Chow & Chan (2008): Social network, social trust and shared goals in organizational knowledge sharing, Information & Management 45, (458–465).

[4] Zahra Tohidinia and Mohammad Mosakhani(2010) " Knowledge sharing behavior and its predictors" Industrial Management & Data SystemsVol. 110 No. 4, 2010 pp. 611-631.

[5]Zhenzhong (2008): Knowledge sharing in Chinese project teams, Chinese Management Studies Vol. 2 No. 2, pp. 97-108.

Table 5.1
Summary of Hypotheses Testing

3.1	An extensive use of ICT infrastructure among employees has apposite relationship with attitudes towards KS.	Syed-Ikhsan; Fytton Rowland(2004)[1]	+	+	Yes	Significant
3.2	An extensive use of ICT tools(software) among employees has appositive relationship with attitudes towards KS.	Syed-Ikhsan; Fytton Rowland(2004)	_	+	Yes	< .05
3.3	An adequate ICT know-how has appositive relationship with the attitudes towards knowledge sharing.	-------- Syed Omar Ikhsan; Fytton Rowland(2004)	+	_	No	in Significant
4	Supportive attitude towards knowledge sharing will have positive influence on the intention to share knowledge	---- Nurliza etl (2011)[2] Gowming Donetl(2010)[3], Chow & Chan (2008)[4]	+	+	Yes	Significant
5.1.1	Positive relationship between attitudes towards KS with social trust and intention to share k	----------	-------	+	Yes	Significant

[1]Syed-Ikhsan, S.O.S. and Rowland, F. (2004), "Benchmarking knowledge management in a public organization in Malaysia". Benchmarking – An International Journal, Vol. 11 No. 2, in press. New York: Oxford University Press.

[2]
Nurliza etl (2011): Key Determinants of Knowledge Sharing in an Electronics Manufacturing Firm in Malaysia. Library Review Vol. 60 No. 1, pp. 53-67.

[3]Gowming Dong etl (2010): Knowledge-sharing intention in Vietnamese organizations: The journal of information and knowledge management systems; Vol. 40 No. 3/4, pp. 262-276.

[4]Chow & Chan (2008): Social network, social trust and shared goals in organizational knowledge sharing, Information & Management 45, (458–465).

Table 5.1
Summary of Hypotheses Testing

5.1.2	Positive relationship between attitudes towards KS with social network and intention to share k	Chow & Chan (2008[1])	+	+	Yes	Significant
5.1.3	Positive relationship between attitudes towards KS with shares goals and intention to share k	Chow & Chan (2008)	+	+	Yes	Significant
5.2.1	Positive relationship between attitudes towards KS with incentives and intention to share k	----------	----------	+	Yes	Significant
5.2.2	Positive relationship between attitudes towards KS with leadership style and intention to share k	----------	----------	+	Yes	Significant
5.3.1	Positive relationship between attitudes towards KS with ICT infrastructure and intention to share K.	_____	_____	+	Yes	Significant
5.3.2	Positive relationship between attitudes towards KS with ICT tools and intention to share K	----------	_____	+	Yes	Significant
5.3.3	Positive relationship between attitudes towards KS with ICT know-how and intention to share K	_____	_____	+	No	In Significant

[1]Chow & Chan (2008): Social network, social trust and shared goals in organizational knowledge sharing, Information & Management 45, (458–465).

5.1 Discussion

The discussion of the results of this study begins by addressing the relationship between the individual factors variables social trust, social network and shared goals with employees attitudes towards KS. Next is the relationship between organizational factors variables incentives, leadership style and attitudes towards knowledge sharing The discussion covered the relationship between the technological factors variables ICT infrastructure, ICT tools, ICT know-know and attitudes towards knowledge sharing. The discussion also covered the mediating impact of employees attitudes towards knowledge sharing between individual, organizational and technological factors and intention to share knowledge. And the influence of the control variables.

5.1.1The extent of positive relationship between the all study variables

The first aim of the research was to test the extent of positive relationship the all study variables among Sudanese banking industry. More over, there is alack of empirical studies that explore the existence of relationship in Sudan.

The findings in this study presented the result of inter correlation among the variables. The correlation analysis was conducted because it allows the preliminary inspection and information regarding hypothesized relationships. After satisfied the reliability of the scales assessed by internal consistency using Cronbach's alph, the outcome had depicted that most of the main variables had positive relationship among each other.

5.1.1.1The relationship between individual factors (social trust, social network, shared goals) and employees attitudes towards knowledge sharing

Higher levels of reinforced positive attitudes toward knowledge sharing. In other words, in this study, the employees who felt that by sharing their knowledge they will contribute to the achievement of desired outcomes were more likely to share their knowledge the level of social trust influences expectations of a colleague's intention and behavior. Organizational members are thus more likely to expect those who are trustworthy to share their knowledge. this study revealed appositive relationship between social trust and employees intention to share knowledge ,this result consistent with previous studies (e.g---- Nurliza etl (2011))[1] Gowming Dong etl(2010)[2], Chow & Chan (2008)[3] Organizational members who had a more extensive social network with their colleagues would perceive greater social pressure for sharing their knowledge, because a good relationship results in high expectations of colleagues, including favorable actions. Thus, people who build a social network may be expected to share their knowledge owing Dong etl (2010),this

[1]Nurliza etl (2011): Key Determinants of Knowledge Sharing in an Electronics Manufacturing Firm in Malaysia. Library Review Vol. 60 No. 1, pp. 53-67.

[2]Gowming Dong etl (2010): Knowledge-sharing intention in Vietnamese organizations: The journal of information and knowledge management systems; Vol. 40 No. 3/4, pp. 262-276.

[3]Chow & Chan (2008): Social network, social trust and shared goals in organizational knowledge sharing, Information & Management 45, (458–465).

study supported this hypothesis and is consistent with previous studies ---- Nurliza etl (2011)[1] Gowming Dong etl(2010),[2] Chow & Chan (2008)[3].

The presence of shared goals among employees promotes mutual understanding and exchange of ideas. Shared goals can thus be considered the force that holds people together and lets them share what they know. Within an organization, shared goals can be achieved through cooperation and knowledge sharing .

The results of this study show positive relationship between shared goals and attitudes towards knowledge sharing this result consistent with previous studies : Nurliza etl (2011) Chow & Chan (2008).

5.1.1.2The relationship between organizational factors (incentives and leadership style) and employees attitudes towards knowledge sharing

Many organizations have established reward systems in order to motivate employees to share their knowledge (Bartol and Srivastava, 2002)[4].

[1]Nurliza etl (2011): Key Determinants of Knowledge Sharing in an Electronics Manufacturing Firm in Malaysia. Library Review Vol. 60 No. 1, pp. 53-67

[2]Gowming Dong etl (2010): Knowledge-sharing intention in Vietnamese organizations: The journal of information and knowledge management systems; Vol. 40 No. 3/4, pp. 262-276.

[3]Chow & Chan (2008): Social network, social trust and shared goals in organizational knowledge sharing, Information & Management 45, (458–465).

[4]Bartol, K. M., & Srivastava, A. (2002): Encouraging knowledge sharing: The role of organizational reward systems. Journal of Leadership and Organization Studies, 9(1), 64-76. Retrieved from; http://intl-online.sagepub.com.

Absence of clear reward and recognition systems may frustrate employees to share their knowledge (Riege, 2005)[1].

This study revealed strong relationship between incentives to share knowledge and employees attitudes towards knowledge sharing this result consistent with previous studies e.g Nurliza etl (2011)[2] Zahra and Mosakhani(2010)[3] and this result contradict with some previous studies. .The finding that extrinsic rewards did not impact knowledge sharing intention is consistent with the study by Bock et al. (2005)[4] who suggested that such incentives may only provide temporary compliance rather than true acceptance of organizational initiatives. Gammelgaard (2007)[5] found that across a variety of national cultures professional and personal development were more important than extrinsic rewards, such as salary increases and promotions.

The factor of leadership style shows insignificant impact on banks employees attitudes towards knowledge sharing this study is consistent with

[1]Riege, A. (2005): Three-dozen knowledge-sharing barriers managers must consider. Journal of Knowledge Management, 9(3), 18-35.

[2]Nurliza etl (2011): Key Determinants of Knowledge Sharing in an Electronics Manufacturing Firm in Malaysia. Library Review Vol. 60 No. 1, pp. 53-67.

[3]Zahra Tohidinia and Mohammad Mosakhani(2010) " Knowledge sharing behavior and its predictors" Industrial Management & Data SystemsVol. 110 No. 4, 2010 pp. 611-631.

[4]Bock, G. W., Zmud, R. W., Kim, Y. G., and Lee, J. N. (March 2005)"Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate," MIS Quarterly (29:1), pp. 87-111.

[5]Gammelgaard, J. (2007" ,(Why not use incentives to encourage knowledge sharing ,"?Journal of Knowledge Management Practice ,Vol. 8 No. 1.

previous study Zhenzhong (2008)[1] who conducted a study on Chinese project team is different from the expectations based on the studies from the West.

This difference may not be that surprising, though, if we put it in the context of Chinese culture. Within a collectivistic culture in China, group or team harmony and collective good has been the top priority compared with individual benefits or personal desire (Hofstede, 2001)[2]. Group members are more willing to do what is good for the group, even if it may be not desirable for individuals. For example, Earley (1989)[3] found that Chinese people are less likely to have social loafing or free riding effects within group due to their high collectivism. As a result, since knowledge sharing is good for the whole project team, Chinese team members should involve more knowledge sharing, even if there is a lack of just environment, no democratic leaders, or not empowered in the teams. In addition, the theories of a just environment, democratic leadership styles, and empowerment are all developed in the West and are meant to give individuals more freedom, better feeling, and more power so that individuals will put more efforts for the group. While this is true in the West, where individual interests often go before the ones of group, it may have no impact in China where group

[1]Zhenzhong (2008): Knowledge sharing in Chinese project teams, Chinese Management Studies Vol. 2 No. 2, pp. 97-108.

[2]Hofstede,G.(2001).Culture's consequences: comparing values, behaviors, institutions, and organizations across nations(2nd ed.)

[3]Earley, P.C. (1989): "Social loafing and collectivism: a comparison of the United States and the People's Republic of China", Administrative Science Quarterly in Business, Vol. 34, pp. 565-81.

interests are already more important than individual interests. Consequently, these individual-centered methods, such as providing a just environment, more democratic leadership style or empowerment, will not influence knowledge sharing in Chinese project teams. But concerning the Sudanese banks this result may be due to Sudanese culture since there is no barriers between the leaders and the employees. Future studies should further explore in this direction to obtain empirical evidence for this explanation.

5.1.1.3The relationship between technological factors (ICT infrastructure ICT tools ,ICT know- how) and employees attitudes towards knowledge sharing.

The results indicate that almost all variables indentified (except ICT know-how with attitudes towards knowledge sharing) have a significant relationship with both attitudes towards knowledge sharing and intention to share knowledge. These show that technology plays key roles in managing knowledge in an organization and can be considered as an effective means of capturing, storing, transforming and disseminating information. Although ICT is not the answer to the success of implementing knowledge management, ICT infrastructure seems to allow individuals in the organization to create and share knowledge effectively and contribute to the knowledge sharing.

With regard to ICT tools, the test shows that there is a positive significant relationship between ICT tools and attitudes towards and intention to share

knowledge , this result is different in Syed Ihsan (2004)[1] his study shows no significant relationship between ICT tools and knowledge transfer performance. Although descriptive analysis of his study shows that most respondents agreed to the use of various tools helps them in sharing knowledge. Pertaining to ICT know-how, the recent study shows no significant relationship with attitudes towards knowledge sharing while Syed Ihsan test shows that there is a positive relationship between ICT know-how and both the performance of knowledge transfer and knowledge assets. This results indicate that giving adequate training internally on using computers and software will allow employees to contribute to the performance of knowledge transfer and the creation of knowledge assets. This different result Management should invest substantial amount of money in providing. Adequate ICT infrastructure in their organization, as ICT will still allow employees to access, create, share and transfer the available information/ knowledge faster across the organization.

5.1.1.4The relationship between the controlled variables (gender and experience) and the attitudes towards knowledge sharing and intention to share knowledge .

Employees can also form different attitudes because of their demographic attributes this study shows no significant relationship between the employees

[1]Syed-Ikhsan, S.O.S. and Rowland, F. (2004), "Benchmarking knowledge management in a public organization in Malaysia". Benchmarking – An International Journal, Vol. 11 No. 2, in press. New York: Oxford University Press.

gender and experience and the attitudes towards knowledge sharing ,Although researcher have argued that there is no significant impact of demographic attributes on knowledge sharing behavior, still the consensus has not been achieved Ehigie (2005)[1].As in Lin (2007)[2] found that women are more inclined towards sharing knowledge than men, because they perceive to have more benefits out of it.

Age is another demographic variable, which is also perceived by many researchers as not having significant impact on knowledge sharing behavior Watson(2006)[3], but there is a possibility that if a person is older then he/she might have more experience, so work experience can have a significant impact on a person's attitude towards knowledge sharing.

5.2Theoretical implications

The theoretical implication identified by this study revealed that social trust, social net work and shared goals variables are important determinants for employees attitudes towards knowledge sharing. These results implied that the mutual trust among members or employees, the presence of the same shared-

[1]Ehigie, B.O., and Agboibon, Y. (2005). Gender, Type of Career Family and Career Nature as Antecedents of Job Involvement. International Journal of Vocational Education and Training, Volume 13, No. 2, pp. 43- 64.

[2]Lin, H.-F. (2007): Knowledge sharing and firm innovation capability: An empirical study. International Journal of Manpower, 28(3/4), 315-332. Retrieved from; http://www.emeraldinsight.com/0143-7720.htm

[3]Watson, S., & Hewett, K. (2006): A multi-theoretical model of knowledge transfer in organizations: Determinants of knowledge contribution and knowledge reuse. Journal of Management Studies, 43(2), 141-173

goals between employees and the Networks of informal relationships those factors are the most important in enhancing the employees intention to share knowledge.

A lack of incentives has been suggested to be a major barrier to knowledge sharing across cultures (Yao, Kam, & Chan, 2007).[1]

Incentives including recognition and rewards have been recommended as interventions to facilitate knowledge sharing and help build a supportive culture (e.g., Hansen, Nohria, & Tierney, 1999;[2] Liebowitz, 2003; [2]Nelson, Sabatier, & Nelson, 2006)[3].

Based on both social exchange and social capital theories, organizational rewards such as promotion, bonus, and higher salary have been shown to be positively related to the frequency of knowledge contribution made to KMSs especially when employee identify with the organization (Kankanhalli et al., 2005)[4]. Similarly, employees who perceive a higher level of incentives to share

[1]Yao, L. J., Kam, T .H. Y., & Chan, S. H. (2007). Knowledge sharing in Asian public administration sector: The case of Hong Kong .Journal of Enterprise Information Management ,(1)20 , .69−51

[2]Hansen, M. T., Nohria, N., & Tierney, T. (1999). What's your strategy for managing knowledge ? Harvard Business Review.116−106 ,(2)77 ,

[2]Liebowitz, J. (200 .(3A knowledge management strategy for the Jason organization: A case study . Journal of Computer Information Systems.5−1 ,(2)44 ,

[3]Nelson, A., Sabatier, R., & Nelson, W. (2006). Toward an understanding of global entrepreneurial knowledge management (EKM) practices: A preliminary investigation of EKM in France and the U.S .Journal of Applied Management and Entrepreneurship.89−70 ,(2)11 ,

[4]Kankanhalli, A., Tan, B. C. Y., & Wei, K. -K. (2005). Contributing knowledge to electronic knowledge repositories: An empirical investigation .MIS Quarterly,(1)29 ,14-113.

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and use knowledge are more likely to report that the content of KMS is useful (Cabrera et al., 2006;[1] Kulkarni et al., 2006)[2].

This study provides interesting insights for understanding the positive impact of incentives to share knowledge on employees attitudes this result consistent with previous studies but .the most interesting is that a study done by Hafiez & Kodai (2012) [3] showed insignificant relationship between incentives and knowledge transfer in oil industry in Sudan this means the result differs between sectors .

This study results also imply that technological factors (ICT infrastructure ,ICT tools) have positive impact on attitudes towards knowledge sharing .

The study results implied a significant relationship between attitudes towards knowledge sharing and intention to share knowledge and this supported the theory of reason action (TRA) which. suggests that there are two antecedents of the intention to perform a behavior. One is the attitude towards the behavior, i.e., measuring the extent to which people evaluate the behavior; the other is the subjective norm, measuring the extent to which others influence

[1]Cabrera, A., Collins, W. C., & Salgado, J. F. (2006). Determinants of individual engagement in knowledge sharing .International Journal of Human Resource Management.264−245 ,(2)17 ,

[2] Kulkarni, U. R., Ravindran, S., & Freeze, R. (2006). A knowledge management success model: Theoretical development and empirical validation .Journal of Management Information Systems.347−309 ,(3)23 ,

[3]Hafiez,A& kodai,Z(2012): "Factors affecting knowledge transfer performance: study on Sudan oil sector", Journal of Global Business Advancement, Vol. 5 No. 4, PP. 307-320.

one's performance of the behavior (Ajzen & Fishbein,1980).[1] According to this theory, an individual's intention to perform a behavior is affected by his/her attitude toward the behavior and subjective norm. Thus, individuals may be more inclined to engage in a certain behavior if their attitudes towards the behavior are positive. We extend the TRA into the knowledge sharing context and expect that people intend to share their knowledge if they have positive attitudes towards knowledge sharing behavior.

The study also supported the mediating effect of attitudes towards knowledge sharing on the relationship between the individual factors variable (social trust, social network. Shared goals), organizational factors (incentives, leadership style) technological factors (infrastructure, ICT tools)and intention to share knowledge).

5.3Managerial implication

There are several implications for human resource management practices we can draw from the research findings. First, the significant effect of social trust and social network on employees' knowledge sharing intention as well as an indirect effect through influencing employees' attitudes toward knowledge sharing From a practical perspective, the results of this study help practitioners better Practitioners and team leaders should try to create an environment that

[1] Ajzen, I. and Fishbein, M. (1980,) Understanding Attitudes and Predicting Social Behavior, Prentice-Hall, Englewood Cliffs, NJ.

encourage Social ties between colleagues and a good relationship and increase the interpersonal trust so that enhance knowledge-sharing behavior more members are willing to share their knowledge ,which will help the moving of knowledge from individual levels, to group or team levels, to organizational levels, and to inter-organizational levels .

The research also brought out that share goals between employees influence attitudes towards knowledge sharing ,so Management must develop a clear missions and goals so that everyone in the organization can appreciate and contribute knowledge .Recruiting employees who share common interests and goals is a critical task for human resources departments.

The outcome of this study pointed out that incentives to share knowledge will positively affect employees intention to share knowledge and their attitudes towards sharing knowledge so mangers should consider this factor when establishing a well. developed reword system .although the factor of leadership style did not show positive significant relationship with attitudes towards knowledge sharing but this is not mean to neglect this factor as it may shows different result in other sector.

Moreover the study pointed out the important of technology in facilitating knowledge sharing The results indicate that almost all variables indentified (ICT infrastructure, ICT tools) (except ICT know how) have a significant relationship with both attitudes towards knowledge sharing and intention to share a knowledge. These show that technology plays key roles in managing knowledge

in an organization and can be considered as an effective means in of capturing, storing, transforming and disseminating information. So management should invest substantial amount of money in providing adequate ICT infrastructure in their organization, as ICT will still allow employees to access, create, share and transfer the available information/ knowledge faster across the organization. Although ICT know how showed insignificant relationship with either attitudes nor intention but the researcher believed that it is still important for employees to have adequate training internally on using computers and software will allow employees to contribute to knowledge sharing.

This study will eventually facilitate and assist the banking sector as a whole in better recognizing and understanding the influencing factors that further induce KS among banks. As a consequence, various researchers and banking sector are able to include and further incorporate the factors investigated in this research in further enhancing the dominance and power of banking knowledge. Furthermore, banking institutions in general can also apply the factors presented in this study as a guideline to achieve competitive success in their KS implementation.

5. 4 Research Recommendations

The key assets of banks employees are expertise, technical knowledge, and client relationships). It is crucial for employees to share organizational knowledge to enhance competitive advantage. Implementation of the findings

from this research study is recommended for Sudanese's banks to sustain competitiveness.

1 -In order to encourage KS, banks managers should promote a culture of trust among their employees. Lack of trust is a common barrier for an organization to change to a KS culture (Dalkir, 2005)[1]. T. H. Davenport and Prusak (2000)[2] recommended the following three ways that would lead the organization to establish trust in sharing knowledge: (a) trust must be visible, (b) trust must be ubiquitous ,and (c) trustworthiness must start at the top.

2- Employees are more likely to share knowledge with other employees if they believe sharing will improve mutual relationships (Cho et al., 2007)[3]. Banks managers can increase the level of personal interactions within the banks by encouraging their employees to work in teams, as well as, by using job rotation to create opportunity for employees to interact with different groups of people and form informal networks.

3-To increase human interaction among employees, managers can create formal or informal mentoring programs that pair employees who are on the stage of retirement with younger employees .Similar mentoring programs could be

[1]Dalkir, K. (2005 .(Knowledge management in theory and practice .Boston, MA: Elsevier Butterworth-Heinemann.

[2]Davenport, T. H., & Prusak, L. (2000 .(Working knowledge: How organizations manage what they know .Boston, MA: Harvard Business School Press.

[3]Cho, N., Li, G. Z., & Su, C.-J. (2007). An empirical study on the effect of individual factors on knowledge sharing by knowledge type .Journal of Global Business and Technology, 3 ,(2) .15-1

used to create practice communities to facilitate knowledge sharing among all employees .

4-Management should invest substantial amount of money in providing adequate ICT infrastructure in their organization, as ICT will still allow employees to access, create, share and transfer the available information/ knowledge faster across the organization.

5.5 Limitation of the Study and Future Research

Since this study analyses the degree of employees attitudes towards knowledge sharing in the banking industry especially in Sudan, therefore the findings of this research may not be applicable in other interested industries.

Besides that, due to the number of limited banks that is participating in this study, i.e. as it is only conducted in a Khartoum states hence the results should not be generalized as all of the banking sector in Sudan.

It should therefore very much propose that the scope of this study be extended to the whole of the states of Sudan in better representing the banks within Sudan, increasing the numbers of respondents and augmented the reliability of the results. With this, it is expected that more critical factors in influencing employees attitudes will be further discovered and analyzed Consequently, it is also anticipated that this study will help in assisting academicians and researchers alike especially in the ever-growing field of KM to better understand the motivational factors in Influencing employees attitudes towards

knowledge sharing and in enhancing the effective sharing of vital knowledge among various banking institutions.

The research design uses cross-sectional data, rather than longitudinal data. Cross-sectional data limits the extent to which causality can be inferred from the results. Fortunately, though, the posited causal relationships in the current study are grounded in well developed theory and practice and as such have the theoretical support for the direction of the relationship. Future research, however, will certainly benefit from collecting longitudinal data. A longitudinal examination of the multiple facets of the knowledge sharing behaviors would make the findings more robust.

The study focused on some of the factors that influence knowledge sharing behaviors of employees banking industry. There may be other factors which are not part of this study but may have significant influence on knowledge sharing behaviors. Future research should add other constructs such as, , organization commitment , natural barriers such as time and space, loss of power, , perceived ownership of knowledge, task inter dependence etc to the research model to determine their influence on knowledge sharing behaviors .

In this study, we did not study the effects of these potential factors; considering these factors in future researches can reveal their influences more clearly. Moreover, we should note that this study was carried out in Sudanese organizations before any generalization is made, the cultural influences must be

taken into account. For further validity, this model can be applied to samples in different countries or different cultures. In addition, the research sample was only consisted of employees from banks industry; generalizations of research findings to different industries must be made with cautious. In this regard, further studies in other industries can provide more valuable findings about knowledge sharing behavior and its enablers.

5.6 conclusions

Knowledge has been recognized as the most important factor in determining the survival of organizations. It is therefore difficult, but not impossible, to maximize the value of knowledge by adequately understanding how to leverage and share knowledge in organizations.

This exploratory research attempted to fill the void in the extant research on knowledge sharing by investigating the factors that influence the knowledge sharing behaviors of employees banks industry in Sudan.

This research developed an integrated theoretical model and unveiled three sets of critical factors individual, organizational and technological that are believed to affect the knowledge sharing behaviors.

Using a field survey of 279 respondent from 31 banks, the theoretical model was validated within the context of a single empirical study. The findings provided significant statistical support for the research model.

Most hypothesized relationships were supported. Knowledge sharing intention was predicted by employees attitude towards knowledge sharing, social trust, social network and shared goal were positively associated with favorable attitude towards knowledge sharing, the perceptions of rewords for knowledge sharing showed appositive influence on employees attitudes towards knowledge sharing while the perceptions of leaderships style showed insignificant relationship with attitudes towards knowledge sharing and intention to share knowledge.

Additionally, up dating ICT infrastructure and facilitating ICT tools was positively associated with high levels of perceived attitudes to words knowledge sharing and intention to share knowledge.

Based on the findings, the study discussed theoretical and practical implications for sharing knowledge in the work context. Overall, the results of the study advance prior research in the area of knowledge sharing by shedding light on the determinants of employees attitudes towards knowledge sharing. In addition to contributing to theory, the findings of the study also yield insights for practice.

The insights could be used by organizations in developing realistic environments that are conducive to knowledge sharing.

LIST OF REFRENCES

& APPENDICES

LIST OF REFRENCES

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Appendix A

Appendix A1:Questionnaire Letter
Appendix A2: Questionnaire Design

Appendix A1

جامعة السودان للعلوم والتكنولوجيا

كلية الدراسات التجارية

بسم الله الرحمن الرحيم

السيد/السيدة

السلام عليكم ورحمة الله تعالى وبركاته

يسعدني أن أرفق لكم مع هذه الرسالة الاستمارة الخاصة بتجميع المادة العلمية لرسالة الدكتوراة التي أقوم بإعدادها تحت عنوان (العوامل التي تؤثر في المشاركة المعرفية بين موظفي المصارف في السودان).

ونظرا لأهمية رأيكم في هذا المجال ، أمل التكرم بالإجابة على جميع فقرات هذه الإستبانة بما لديكم من سعة العلم و المعرفة والخبرة وإعادتها إلى الجهة المكلفة باستلامها في اقرب وقت ممكن ولاشك أن تعاونكم وجهدكم المقدر سيكون له بالغ الأثر في نجاح هذه الدراسة ,علما بأن إجاباتكم ستكون في غاية السرية ولن تستخدم إلا لأغراض هذا البحث العلمي فقط .

شاكرة لكم فضل تعاونكمً ، ودمتم في حفظ الله وخيره.

مشرف البحث/بروفسور أحمد ابراهيم أبو سن

مقدم البحث / زينب محمد عثمان كوداي

Appendix A2

معلومات شخصية

الجنس : ذكر ☐ أنثى ☐

الوظيفة : .....

القسم الذى تعمل به : .....

االبنك التى تعمل به : .....

المؤهلات العلمية ضع علامة (✔) أمام المؤهل الذي ينطبق على مؤهلاتك:

درجة الدكتوراه ☐ درجة الماجستير ☐ دبلوم عالي ☐ درجة البكالوريوس ☐ اخرى حدد ☐.....

العمر : ضع علامة (✔) أسفل الفترة التي ينطبق عليها العمر:

أقل من 26	26 إلى 30	31 إلى 35	36 إلى 40	41 إلى 45	46 إلى 50	أكثر من 50

الخبرة العملية : ضع علامة (✔) أسفل الفترة التي تنطبق عليها سنوات الخبرة :

أقل من 6 سنوات	من 6 إلى 10	من 11 إلى 15	من 16 إلى 20	أكثر من 20

تعريف لبعض المصطلحات الموجودة في الاستبيان

تنقسم المعرفة الى قسمين: :- knowledgeالمقصود بالمعرفة

أ- معرفة صريحة (explicit knowledge) وتتوفر في اللوائح والملفات ونظم المعلومات.

ب- معرفة ضمنية (Tacit knowledge) وتتوفر في الموظفين من تراكم الخبرات والمهارات.

knowledge sharing المقصود بالمشاركة المعرفية

هي العملية التي يتم فيها تبادل المعرفة الصريحة والضمنية بين الافراد والمجموعات وخلق معارف جديدة

1 :- ***ادناه بعض الفوائد التي يمكن أن تعود على مؤسستكم من*المشاركة المعرفية بين الموظفين :**

فضلا ارجو ترتيب الاجوبة الاتية حسب الاولويات من وجهة نظركم وفق الارقام من1---6.

(1) تشير الى اهمية قصوى

(6) تشير الى عدم الاهمية .

تحسين نوعية خدمة العملاء.	
زيادة التعاون بين وحدات الادارات المختلفة	
تطوير آلية اتخاذ القرار	
وتوطيد العلاقات والشراكات مع باقي المؤسسات	
تطوير الكفاءة	
مواكبة الحديث من المعلومات	

2:-ادناه بعض العوامل التي قد تشكل عائقا امام تبادل الخبرات بين العاملين في البنك وضح موافقتكم او عدم موافقتكم عليها

		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	عدم الثقة المتبادلة بين العاملين					
2	العلاقات الاجتماعية					
3	الرؤى والأهداف المتباينة الخاصة بالعمل					
4	نوعية القيادة والإدارة من حيث الديمقراطية والدكتاتورية					
5	نظام المكافآت والتحفيز					
6	نوعية المعرفة					
7	تنمية ثقافة المشاركة في المعرفة					

3- ما مدى أهمية هذه الوسائل التكنولوجية التالية في اتاحة المشاركة المعرفية بين العاملين في البنك الذي تعمل به؟

م	الوسيلة	غير مهم جدا	غير مهم	محايد	مهم	هام جدا
1	إنترانت (Intranet)					
2	الإنترنت (Internet)					

3	محادثات جماعية عبر الفيديو (Video Conference)					
4	محادثات جماعية عبر الشبكة العنكبوتية (Web Conference)					
5	البريد الإلكتروني (E-mail)					
6	خدمات المجموعات الإلكترونية (برامج حاسوب تعمل بنظام الربط الإلكتروني لمجموعات العمل تساعد على تواصل الزملاء في العمل)					
7	ورش العمل					
8	السمنارات					
9	أخرى (يرجى التحديد)					

4-المعرفة الصريحة :-Explicit knowledge

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	المعرفة / المعلومات التي تم الحصول عليها وتم حفظها ضمن المستندات الورقية في هذا البنك يمكن الرجوع إليها بسهولة					
2	المعرفة / المعلومات التي تم الحصول عليها وتم حفظها ضمن المستندات الورقية في هذا البنك يمكن مشاركتها بين العاملين بسهولة					
3	المعرفة / المعلومات التي تم الحصول عليها وتم حفظها ضمن المستندات المحفوظة إلكترونياً يمكن الرجوع إليها بسهولة					
4	المعرفة / المعلومات التي تم الحصول عليها وتم حفظها ضمن المستندات المحفوظة إلكترونياً يمكن مشاركتها بين العاملين بسهولة					

5-المعرفة الضمنية Tacit knowledge

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	المعرفة / المعلومات من العاملين بالبنك يمكن مشاركتها عن طريق الاجتماعات الرسمية بكل يسر					
2	المعرفة / المعلومات من االعاملين بالبنك يمكن مشاركتها عن طريق الاجتماعات الغير رسمية بكل يسر					
3	المهارات من االعاملين بالبنك يمكن مشاركتها عن طريق التدريب.					
4	الخبرات من االعاملين باالبنك يمكن مشاركتها عن طريق التدريب					

6- البنية التحتية لتكنلوجيا المعلومات والإتصالات :-

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	يمتلك البنك الذي اعمل به أحدث بنية تحتية لتكنلوجيا المعلومات والإتصالات					
2	تساهم تكنلوجيا المعلومات والإتصالات في البنك الذي اعمل به بصورة فاعلة في المشاركة المعرفية بين العاملين					
3	تكنلوجيا المعلومات والإتصالات في البنك الذي تعمل به تساهم في سرعة أداءك لعملك					
4	تكنلوجيا المعلومات والإتصالات في البنك الذي تعمل به تساهم بتأمين المعلومات التي تحتاجها					
5	تكنلوجيا المعلومات والإتصالات في البنك الذي تعمل به تسهل على الموظفين أداء أعمالهم اليومية					

6	تكنلوجيا المعلومات والإتصالات في البنك الذي تعمل به تسهل تبادل االمعلومات بين االموظفين والعملاء					

-7-الأدوات والبرامج الإلكترونية لتكنولوجيا المعلومات والاتصالات (ICT Tools & Software) :-

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	البنك يستخدم خدمة برامج المجموعات لتشجيع مشاركة الأفكار					
2	البنك يستخدم خدمة البريد الإلكتروني لتناقل المعلومات بين المسؤولين					
3	الأنظمة المعلوماتية المعتمدة على أجهزة الحاسوب بالبنك تمدك بأحدث المعلومات بصورة أفضل من المراجع المطبوعة					
4	الأنظمة المعلوماتية المعتمدة على أجهزة الحاسوب سهلت عملية حصول البنك على أحدث المعلومات بصورة أفضل من النظم المستخدمة في السابق					
5	البنك يستخدم ورش العمل لتبادل المعلومات والمعرفة					
6	البنك يستخدم السمنارات للمشاركة المعرفية					

-8-الدراية بتكنولوجيا المعلومات والاتصالات (ICT know-how)

م	البيان	أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	يتلقى موظفي البنك دورات تدريبية داخلية مناسبة لاستخدام جهاز الحاسوب					
2	يتلقى موظفي االبنك دورات تدريبية خارجية مناسبة لاستخدام جهاز الحاسوب					
3	يتلقى موظفي البنك دورات تدريبية داخلية مناسبة لاستخدام أدوات وبرامج تكنلوجيا المعلومات ولإتصالات (ICT tools / software)					
4	يتلقى موظفي البنك دورات تدريبية خارجية مناسبة لاستخدام أدوات وبرامج تكنلوجيا المعلومات والإتصالات (ICT tools / software)					
5	تعمل الادارة على توفر وسائل الدراية بتكنولوجيا المعلومات					
6	تعمل الادارة على تيسير وتسهيل التعامل مع تكنولوجيا المعلومات					

-9-الثقة الاجتماعية :-Social trust

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	زملائي بالبنك يسعون دوماً لمساعدتي في حال مواجهتي لأية مصاعب					
2	يمكنني أن أثق دائماً في قيام زملائي بالبنك بتقديم يد العون لي في حال إحتياجي					
3	يمكنني دوماً الإعتماد على زملائي باالبنك لتيسير الأعمال الموكلة لي					
4	يمكنني ان اثق في زملائي بالبنك في ما يقدمونه لي من معلومات.					
5	يمكنني تقديم يد العون لزملائي بالبنك في حال احتياجهم لي					
6	يمكنني مد زملائي بالبنك بما يحتاجونه من معلومات في مجال العمل					

7	الثقة المتبادلة بين الزملاء ضرورية لتدفق المعلومات و المعرفة بسهولة في الوسط االبنكي					
8	اعتقد ان المعلومات الشخصية لا يجب ان تشارك					

-10-الشبكة الإجتماعية :-social network

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	علاقاتي ممتازة مع زملائي في العمل					
2	أني قريب جداً من زملائي في العمل					
3	دوماً أناقش زملائي في العمل نقاش مستفيض ومطول لضمان إتقان العمل					
4	دوما احترم راي زملائي في العمل مهما اختلفت معهم					
5	يوجد تفاعل عالي بين الزملاء في البنك في مجال العمل					

-11-الأهداف المشتركة :-shared goals

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	دوماً أتفق وزملائي في العمل على ما هو مهم لأداء العمل					
2	دوماً أنا وزملائي في العمل نتشارك نفس الطموح لمصلحة العمل .					
3	دوماً أنا وزملائي في العمل نتشارك نفس الرؤى لمصلحة العمل					
4	أنا وزملائي في العمل نكون دوماً حريصين على تحقيق المهام الموكلة الينا					
5	أنا وزملائي في العمل نكون دوماً حريصين على تحقيق الأهداف المنشودة لترقية العمل بكل الأقسام					

-12-أسلوب الادارة :-management style

م		غير متاحة	نادراً ما يتم ذلك	ضئيلة نسبياً	متوسطة نسبياً	عالية نسبياً
1	ما هي الدرجة التي تتيحها لك الإدارة / الرئيس المباشر في المشاركة في آلية إتخاذ القرارات					
2	الى أي درجة قامت الادارة بمشاركتكم المعرفة					
3	الادارة على استعداد للمشاركة المعرفية مع الموظفين					
4	تقوم الادارة بتشجيع المشاركة المعرفية بين العاملين بالبنك					
5	تقوم الإدارة العليا بتخصيص الوقت والموارد اللازمة من أجل المساهمة في عملية المشاركة المعرفية					

-13-التحفيز لمشاركة المعرفة :-incentives

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	هنالك تشجيع معنوي من الادارة مقابل مشاركة المعرفةبين العاملين بالبنك					
2	هنالك تحفيز بالترقية مقابل مشاركة المعرفة					
3	هنالك تحفيز بمكافأت مالية مقابل مشاركة المعرفة					
4	هنالك شعور بالرضاء والتقديرمن جانب الادارة عند استثمار بعض الوقت والجهد في مشاركة المعرفة.					
5	التقدير والتميز الإجتماعي عند مشاركة المعرفة					
6	هنالك تحفيز بقدر حجم المشاركة في المعرفة					

14-الإنطباعات والنظرة العامة حيال مشاركة المعرفة :-attitudes towards knowledge sharing

م		أوافق بشدة	أوافق	محايد	أرفض	أرفض بشدة
1	مشاركتي بما أعرف من معلومات مع زملائي في البنك أجدها دوماً جيدة					
2	مشاركتي بما أعرف من معلومات أجدها دوماً مفيدة ومثمرة					
3	مشاركتي بما أعرف من معلومات أجدها دوماً تجربة ممتعة					
4	مشاركتي بما أعرف من معلومات أجدها دوماً قيمة ومفيدة لي					
5	مشاركتي بما أعرف من معلومات أجدها دوماً خطوة حكيمة					
6	مشاركتي بما أعرف من معلومات أجدها مضرة					

15- النية لتبادل المعرفة

		اوافق بشدة	اوافق	محايد	ارفض	ارفض بشدة
1	سوف أشارك زملائي في البنك تقارير العمل والمستندات الرسمية على نحو اكثر تواترا في المستقبل					
2	سوف أشارك دائما في المستقبل زملائي في البنك بما لدي من منهجيات ونماذج في العمل					
3	سوف أشارك دائما في المستقبل زملائي في البنك تجربتي وخبراتي عن العمل					
4	سوف أشارك دائما بما لدي من خبرات بناء على طلب من العاملين بالبنك					
5	سوف أحاول دائما تبادل الخبرات التي اكتسبتها عن طريق التعليم والتدريب مع العاملين بالبنك بطريقة فعالة					

Appendix B

SPSS OUTPUT

Descriptive Statistics

Std. Deviation	Mean	Maximum	Minimum	N	
.698	1.84	4	1	272	ICT Frastructur
.793	2.14	5	1	271	ICT Tools & Software
.804	2.27	5	1	271	ICT Know-how
.572	1.68	4	1	271	Social Trust
.586	1.67	4	1	271	Social Network
.652	1.82	4	1	271	Shared Goals
1.140	3.26	5	1	269	Management Style
.880	2.54	5	1	267	Incentive to share knowledge
.645	1.92	4	1	267	Attitude twords sharing
.642	1.68	4	1	269	Intension to sharing
				266	Valid N (listwise)

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	EXPERIAN, Gender(a)	1
Enter	.	Attitude twords sharing(b)	2

a Tolerance = .000 limits reached.
b All requested variables entered.
c Dependent Variable: Intension to sharing

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.458	237	2	.783	.007	.571	-.002	.007	.081(a)	1
.000	236	1	99.995	.296	.480	.293	.302	.550(b)	2

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Attitude twords sharing
c Dependent Variable: Intension to sharing

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.458(a)	.783	.256	2	.511	Regression	1
		.326	237	77.370	Residual	
			239	77.881	Total	
.000(b)	34.072	7.846	3	23.537	Regression	2
		.230	236	54.344	Residual	
			239	77.881	Total	

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Attitude twords sharing
c Dependent Variable: Intension to sharing

Coefficients(a)

Collinearity Statistics				Standardized Coefficients	Unstandardized Coefficients			
VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	33.039		.049	1.607	(Constant)	1
1.050	.953	.239	1.179	.078	.078	.092	Gender	
1.050	.953	.880	.151	.010	.090	.014	EXPERIAN	
		.000	6.380		.103	.659	(Constant)	2
1.051	.952	.089	1.707	.095	.066	.112	Gender	
1.053	.950	.469	.725	.040	.076	.055	EXPERIAN	
1.005	.995	.000	10.000	.545	.049	.488	Attitude twords sharing	

a Dependent Variable: Intension to sharing

Excluded Variables(c)

Collinearity Statistics								
Minimum Tolerance	VIF	Tolerance	Partial Correlation	Sig.	t	Beta In		Model
.000	.	.000	.	.	.	.(a)	AGE1	1
.950	1.005	.995	.546	.000	10.000	.545(a)	Attitude twords sharing	
.000	.	.000	.	.	.	.(b)	AGE1	2

a Predictors in the Model: (Constant), EXPERIAN, Gender

b Predictors in the Model: (Constant), EXPERIAN, Gender, Attitude twords sharing

c Dependent Variable: Intension to sharing

Collinearity Diagnostics(a)

Variance Proportions							
Attitude twords sharing	EXPERIAN	Gender	(Constant)	Condition Index	Eigenvalue	Dimension	Model
	.10	.10	.10	1.000	2.024	1	1
	.88	.21	.09	1.856	.587	2	
	.02	.69	.81	2.282	.389	3	
.01	.04	.05	.01	1.000	2.777	1	2
.02	.81	.01	.01	2.029	.675	2	
.02	.13	.92	.01	2.358	.500	3	
.95	.01	.02	.97	7.518	.049	4	

a Dependent Variable: Intension to sharing

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
240	.314	1.64	2.49	1.15	Predicted Value
240	.477	.00	1.33	-1.24	Residual
240	1.000	.000	2.689	-1.586	Std. Predicted Value
240	.994	.000	2.778	-2.593	Std. Residual

a Dependent Variable: Intension to sharing

Correlations

Intension to sharing	Attitude twords sharing	Incentive to share knoledge	Management Style	Shared Goals	Social Network	Social Trust	ICT Know-how	ICT Tools & Software	ICT Frastructur		
.336(**)	.270(**)	.404(**)	-.234(**)	.337(**)	.468(**)	.397(**)	.460(**)	.642(**)	1	Pearson Correlation	ICT Frastructur
.000	.000	.000	.000	.000	.000	.000	.000	.000	.	Sig. (2-tailed)	
269	267	267	269	271	271	271	271	271	272	N	
.375(**)	.316(**)	.461(**)	-.224(**)	.358(**)	.472(**)	.300(**)	.585(**)	1	.642(**)	Pearson Correlation	ICT Tools & Software
.000	.000	.000	.000	.000	.000	.000	.000	.	.000	Sig. (2-tailed)	
269	267	267	269	271	271	271	271	271	271	N	
.217(**)	.200(**)	.599(**)	-.127(*)	.253(**)	.338(**)	.281(**)	1	.585(**)	.460(**)	Pearson Correlation	ICT Know-how
.000	.001	.000	.037	.000	.000	.000	.	.000	.000	Sig. (2-tailed)	
269	267	267	269	271	271	271	271	271	271	N	
.448(**)	.367(**)	.215(**)	-.173(**)	.336(**)	.533(**)	1	.281(**)	.300(**)	.397(**)	Pearson Correlation	Social Trust
.000	.000	.000	.005	.000	.000	.	.000	.000	.000	Sig. (2-tailed)	
269	267	267	269	271	271	271	271	271	271	N	
.541(**)	.491(**)	.356(**)	-.151(*)	.537(**)	1	.533(**)	.338(**)	.472(**)	.468(**)	Pearson Correlation	Social Network
.000	.000	.000	.013	.000	.	.000	.000	.000	.000	Sig. (2-tailed)	
269	267	267	269	271	271	271	271	271	271	N	
.515(**)	.425(**)	.267(**)	-.174(**)	1	.537(**)	.336(**)	.253(**)	.358(**)	.337(**)	Pearson Correlation	Shared Goals
.000	.000	.000	.004	.	.000	.000	.000	.000	.000	Sig. (2-tailed)	
269	267	267	269	271	271	271	271	271	271	N	
-.150(*)	-.173(**)	-.172(**)	1	-.174(**)	-.151(*)	-.173(**)	-.127(*)	-.224(**)	-.234(**)	Pearson Correlation	Management Style
.014	.005	.005	.	.004	.013	.005	.037	.000	.000	Sig. (2-tailed)	
268	266	267	269	269	269	269	269	269	269	N	
.209(**)	.326(**)	1	-.172(**)	.267(**)	.356(**)	.215(**)	.599(**)	.461(**)	.404(**)	Pearson Correlation	Incentive to share knoledge
.001	.000	.	.005	.000	.000	.000	.000	.000	.000	Sig. (2-tailed)	
267	266	267	267	267	267	267	267	267	267	N	
.518(**)	1	.326(**)	-.173(**)	.425(**)	.491(**)	.367(**)	.200(**)	.316(**)	.270(**)	Pearson Correlation	Attitude twords

											sharing
.000	.	.000	.005	.000	.000	.000	.001	.000	.000	Sig. (2-tailed)	
267	267	266	266	267	267	267	267	267	267	N	
1	.518(**)	.209(**)	-.150(*)	.515(**)	.541(**)	.448(**)	.217(**)	.375(**)	.336(**)	Pearson Correlation	Intension to sharing
.	.000	.001	.014	.000	.000	.000	.000	.000	.000	Sig. (2-tailed)	
269	267	267	268	269	269	269	269	269	269	N	

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

* Correlation is significant at the 0.05 level (2-tailed).

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	EXPERIAN, Gender(a)	1
Enter	.	Social Trust, Shared Goals, Social Network(b)	2

a Tolerance = .000 limits reached.
b All requested variables entered.
c Dependent Variable: Intension to sharing

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.665	244	2	.409	.003	.651	-.005	.003	.058(a)	1
.000	241	3	55.357	.407	.504	.398	.410	.640(b)	2

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network
c Dependent Variable: Intension to sharing

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.665(a)	.409	.173	2	.347	Regression	1
		.424	244	103.441	Residual	
			246	103.788	Total	
.000(b)	33.487	8.509	5	42.547	Regression	2
		.254	241	61.241	Residual	
			246	103.788	Total	

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network

c Dependent Variable: Intension to sharing

Coefficients(a)

Collinearity Statistics				Standardized Coefficients	Unstandardized Coefficients			
VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	30.279		.055	1.657	(Constant)	1
1.046	.956	.681	.412	.027	.088	.036	Gender	
1.046	.956	.484	.700	.046	.100	.070	EXPERIAN	
		.046	2.002		.120	.240	(Constant)	2
1.070	.934	.960	-.050	-.003	.069	-.003	Gender	
1.069	.936	.635	.476	.024	.078	.037	EXPERIAN	
1.495	.669	.001	3.273	.198	.068	.223	Social Trust	
1.919	.521	.001	3.361	.230	.075	.251	Social Network	
1.508	.663	.000	5.757	.350	.061	.350	Shared Goals	

a Dependent Variable: Intension to sharing

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.955	1.002	.998	.459	.000	8.065	.459(a)	Social Trust	
.947	1.009	.991	.541	.000	10.038	.543(a)	Social Network	
.945	1.013	.987	.553	.000	10.347	.556(a)	Shared Goals	
.000	.	.000	.	.	.	.(b)	AGE1	2

a Predictors in the Model: (Constant), EXPERIAN, Gender

b Predictors in the Model: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network

c Dependent Variable: Intension to sharing

Collinearity Diagnostics(a)

Variance Proportions						Condition Index	Eigenvalue	Dimension	Model
Shared Goals	Social Network	Social Trust	EXPERIAN	Gender	(Constant)				
			.10	.10	.10	1.000	2.025	1	1
			.87	.23	.08	1.859	.586	2	
			.03	.67	.82	2.281	.389	3	
.00	.00	.00	.01	.01	.00	1.000	4.559	1	2
.00	.00	.01	.68	.10	.00	2.468	.749	2	
.00	.00	.00	.28	.84	.00	2.934	.530	3	
.61	.01	.41	.00	.01	.04	8.191	.068	4	
.00	.25	.11	.00	.03	.83	8.959	.057	5	
.38	.73	.47	.02	.00	.13	10.987	.038	6	

a Dependent Variable: Intension to sharing

Casewise Diagnostics(a)

Residual	Predicted Value	Intension to sharing	Std. Residual	Case Number
1.88	2.45	4	3.730	105
1.68	2.65	4	3.333	214

a Dependent Variable: Intension to sharing

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
247	.416	1.69	2.71	1.06	Predicted Value
247	.499	.00	1.88	-1.24	Residual
247	1.000	.000	2.469	-1.505	Std. Predicted Value
247	.990	.000	3.730	-2.459	Std. Residual

a Dependent Variable: Intension to sharing

---------- F A C T O R A N A L Y S I S ----------

Factor Analysis for Attitude Run (1)

KMO and Bartlett's Test

.782	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
365.836	Approx. Chi-Square	Bartlett's Test of Sphericity
15	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.395	1.000	AKS 1
.584	1.000	AKS 2
.699	1.000	AKS 3
.603	1.000	AKS 4
.508	1.000	AKS 5
.932	1.000	AKS 6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Rotation Sums of Squared Loadings			Extraction Sums of Squared Loadings			Initial Eigenvalues			Comp-onent
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
44.031	44.031	2.642	45.157	45.157	2.709	45.157	45.157	2.709	1
62.010	17.979	1.079	62.010	16.853	1.011	62.010	16.853	1.011	2
						75.949	13.939	.836	3
						85.057	9.108	.546	4
						93.287	8.230	.494	5
						100.000	6.713	.403	6

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component		
2	1	
-.214	.591	AKS 1
.079	.760	AKS 2
.271	.791	AKS 3
.073	.773	AKS 4
.013	.712	AKS 5
.938	-.228	AKS 6

Extraction Method: Principal Component Analysis.
a 2 components extracted.

Rotated Component Matrix(a)

Component		
2	1	
-.327	.536	AKS 1
-.074	.760	AKS 2
.108	.829	AKS 3
-.083	.772	AKS 4
-.129	.701	AKS 5
.965	-.037	AKS 6

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

Component Transformation Matrix

2	1	Component
-.200	.980	1
.980	.200	2

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Factor Analysis for Attiude Run (2)

KMO and Bartlett's Test

.767	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
299.596	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.549	1.000	AKS 2
.661	1.000	AKS 3
.635	1.000	AKS 4
.570	1.000	AKS 5
.044	1.000	AKS 6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
49.171	49.171	2.459	49.171	49.171	2.459	1
			69.166	19.995	1.000	2
			81.078	11.913	.596	3
			91.903	10.825	.541	4
			100.000	8.097	.405	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.741	AKS 2

.813	AKS 3
.797	AKS 4
.755	AKS 5
-.209	AKS 6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for Attiude (Run3)

KMO and Bartlett's Test

.778	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
288.561	Approx. Chi- quare	Bartlett's Test of Sphericity
6	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.555	1.000	AKS 2
.681	1.000	AKS 3
.634	1.000	AKS 4
.563	1.000	AKS 5

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
60.805	60.805	2.432	60.805	60.805	2.432	1
			75.881	15.076	.603	2
			89.582	13.700	.548	3
			100.000	10.418	.417	4

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.745	AKS 2
.825	AKS 3
.796	AKS 4
.750	AKS 5

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for ICT Know-how (Run1)
KMO and Bartlett's Test

.831	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
683.492	Approx. Chi-Square	Bartlett's Test of Sphericity
15	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.497	1.000	IKH 1
.572	1.000	IKH 2
.667	1.000	IKH 3
.644	1.000	IKH 4
.647	1.000	IKH 5
.480	1.000	IKH 6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
58.441	58.441	3.506	58.441	58.441	3.506	1
			71.977	13.537	.812	2
			81.772	9.794	.588	3
			88.737	6.966	.418	4
			95.348	6.611	.397	5
			100.000	4.652	.279	6

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.705	IKH 1
.756	IKH 2
.816	IKH 3
.802	IKH 4
.804	IKH 5
.693	IKH 6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for ICT Know-how (Run2)

KMO and Bartlett's Test

.819	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
538.258	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.540	1.000	IKH 1
.626	1.000	IKH 2
.677	1.000	IKH 3
.677	1.000	IKH 4
.592	1.000	IKH 5

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
62.225	62.225	3.111	62.225	62.225	3.111	1
			74.153	11.928	.596	2
			85.757	11.604	.580	3
			93.899	8.141	.407	4
			100.000	6.101	.305	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.735	IKH 1
.791	IKH 2
.823	IKH 3
.823	IKH 4
.769	IKH 5

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for ICT Tools (Run1)

KMO and Bartlett's Test

.792	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
503.447	Approx. Chi-Square	Bartlett's Test of Sphericity
15	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.244	1.000	ITS1
.402	1.000	ITS2
.584	1.000	ITS3
.570	1.000	ITS4
.581	1.000	ITS5
.655	1.000	ITS6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
50.604	50.604	3.036	50.604	50.604	3.036	1
			65.194	14.590	.875	2
			78.976	13.782	.827	3
			87.612	8.636	.518	4
			94.951	7.339	.440	5
			100.000	5.049	.303	6

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.493	ITS1
.634	ITS2
.764	ITS3
.755	ITS4
.762	ITS5
.809	ITS6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for ICT Tools (Run2)

KMO and Bartlett's Test

.778	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
457.571	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.395	1.000	ITS2
.598	1.000	ITS3
.617	1.000	ITS4
.592	1.000	ITS5
.657	1.000	ITS6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
57.186	57.186	2.859	57.186	57.186	2.859	1
			73.815	16.630	.831	2
			84.819	11.004	.550	3
			93.938	9.118	.456	4
			100.000	6.062	.303	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.628	ITS2
.774	ITS3
.785	ITS4
.769	ITS5
.811	ITS6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for ICT Tools (Run3)

KMO and Bartlett's Test

.739	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
379.168	Approx. Chi-Square	Bartlett's Test of Sphericity
6	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.578	1.000	ITS3
.619	1.000	ITS4
.667	1.000	ITS5
.700	1.000	ITS6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
64.079	64.079	2.563	64.079	64.079	2.563	1
			80.789	16.709	.668	2
			92.319	11.531	.461	3
			100.000	7.681	.307	4

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.760	ITS3
.787	ITS4
.816	ITS5
.837	ITS6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for Incentive

KMO and Bartlett's Test

.877	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
867.194	Approx. Chi-Square	Bartlett's Test of Sphericity
15	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.601	1.000	MSK 1
.716	1.000	MSK 2
.719	1.000	MSK 3
.696	1.000	MSK 4
.616	1.000	MSK 5
.574	1.000	MSK 6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
65.350	65.350	3.921	65.350	65.350	3.921	1
			75.310	9.960	.598	2
			84.324	9.014	.541	3
			90.713	6.389	.383	4
			95.967	5.254	.315	5
			100.000	4.033	.242	6

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.775	MSK 1
.846	MSK 2
.848	MSK 3
.834	MSK 4
.785	MSK 5
.757	MSK 6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for Infrastructure (Run 1)

KMO and Bartlett's Test

.848	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
639.195	Approx. Chi-Square	Bartlett's Test of Sphericity
15	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.543	1.000	ITC2
.668	1.000	ITC3
.647	1.000	ITC4
.630	1.000	ITC5
.573	1.000	ITC6
.369	1.000	ITC1

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
57.174	57.174	3.430	57.174	57.174	3.430	1
			71.267	14.093	.846	2
			80.028	8.761	.526	3
			88.447	8.419	.505	4
			94.554	6.107	.366	5
			100.000	5.446	.327	6

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.737	ITC2
.818	ITC3
.804	ITC4
.794	ITC5
.757	ITC6
.607	ITC1

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for Infrastructure (Run2)

KMO and Bartlett's Test

.833	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
552.911	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.511	1.000	ITC2
.674	1.000	ITC3
.673	1.000	ITC4
.665	1.000	ITC5
.616	1.000	ITC6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
62.775	62.775	3.139	62.775	62.775	3.139	1
			75.635	12.859	.643	2
			86.035	10.400	.520	3
			93.392	7.357	.368	4
			100.000	6.608	.330	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.715	ITC2
.821	ITC3
.820	ITC4
.815	ITC5
.785	ITC6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for Leadership Style Run (1)

KMO and Bartlett's Test

.761	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
696.027	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.440	1.000	MST 1
.569	1.000	MST 2
.757	1.000	MST 3
.697	1.000	MST 4
.685	1.000	MST 5

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
62.977	62.977	3.149	62.977	62.977	3.149	1
			82.088	19.111	.956	2
			90.067	7.978	.399	3
			95.700	5.634	.282	4
			100.000	4.300	.215	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.663	MST 1
.755	MST 2

.870	MST 3
.835	MST 4
.828	MST 5

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for leadership Style Run (2)

KMO and Bartlett's Test

.789	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
538.204	Approx. Chi-Square	Bartlett's Test of Sphericity
6	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.477	1.000	MST 2
.802	1.000	MST 3
.793	1.000	MST 4
.733	1.000	MST 5

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
70.146	70.146	2.806	70.146	70.146	2.806	1
			86.408	16.261	.650	2
			94.188	7.780	.311	3
			100.000	5.812	.232	4

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.691	MST 2
.896	MST 3
.891	MST 4
.856	MST 5

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for Leadership Style Run (3)
KMO and Bartlett's Test

.738	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
443.856	Approx. Chi-Square	Bartlett's Test of Sphericity
3	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.802	1.000	MST 3
.844	1.000	MST 4
.790	1.000	MST 5

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
81.208	81.208	2.436	81.208	81.208	2.436	1
			92.095	10.887	.327	2
			100.000	7.905	.237	3

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.896	MST 3
.919	MST 4
.889	MST 5

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for social Trust (Run1)

KMO and Bartlett's Test

.670	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
386.598	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.609	1.000	SOT 1
.703	1.000	SOT 2
.589	1.000	SOT 5
.538	1.000	SOT 6
.031	1.000	SOT 3

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
49.396	49.396	2.470	49.396	49.396	2.470	1
			69.687	20.291	1.015	2
			86.317	16.630	.831	3
			94.406	8.089	.404	4
			100.000	5.594	.280	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.780	SOT 1
.839	SOT 2
.767	SOT 5
.733	SOT 6
.177	SOT 3

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for social trust (Run2)

KMO and Bartlett's Test

.671	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
379.613	Approx. Chi-Square	Bartlett's Test of Sphericity
6	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.605	1.000	SOT 1
.703	1.000	SOT 2
.590	1.000	SOT 5
.552	1.000	SOT 6

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
61.273	61.273	2.451	61.273	61.273	2.451	1
			82.696	21.423	.857	2
			93.002	10.306	.412	3
			100.000	6.998	.280	4

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.778	SOT 1
.838	SOT 2
.768	SOT 5
.743	SOT 6

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated.

Factor Analysis for Share Goals

KMO and Bartlett's Test

.802	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
539.445	Approx. Chi-Square	Bartlett's Test of Sphericity
10	Df	
.000	Sig.	

Communalities

Extraction	Initial	
.607	1.000	SHG 1
.636	1.000	SHG 2
.637	1.000	SHG 3
.667	1.000	SHG 4
.514	1.000	SHG 5

Extraction Method: Principal Component Analysis.

Total Variance Explained

Extraction Sums of Squared Loadings			Initial Eigenvalues			Component
Cumulative %	% of Variance	Total	Cumulative %	% of Variance	Total	
61.216	61.216	3.061	61.216	61.216	3.061	1
			76.505	15.289	.764	2
			86.486	9.981	.499	3
			93.494	7.008	.350	4
			100.000	6.506	.325	5

Extraction Method: Principal Component Analysis.

Component Matrix(a)

Component	
1	
.779	SHG 1
.798	SHG 2
.798	SHG 3
.817	SHG 4
.717	SHG

	5

Extraction Method: Principal Component Analysis.
a 1 components extracted.

Rotated Component Matrix(a)

a Only one component was extracted. The solution cannot be rotated

Regression

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	EXPERIAN, Gender(a)	1
Enter	.	Social Trust, Shared Goals, Social Network(b)	2

a Tolerance = .000 limits reached.
b All requested variables entered.
c Dependent Variable: Attitude twords sharing

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.631	240	2	.461	.004	.642	-.004	.004	.062(a)	1
.000	237	3	43.247	.352	.519	.343	.356	.597(b)	2

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network
c Dependent Variable: Attitude twords sharing

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.631(a)	.461	.190	2	.379	Regress	1

					ion	
		.412	240	98.828	Residual	
			242	99.207	Total	
.000(b)	26.230	7.068	5	35.342	Regression	2
		.269	237	63.866	Residual	
			242	99.207	Total	

a Predictors: (Constant), EXPERIAN, Gender

b Predictors: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network

c Dependent Variable: Attitude twords sharing

Coefficients(a)

Collinearity Statistics				Standardized Coefficients	Unstandardized Coefficients			
VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	35.908		.054	1.952	(Constant)	1
1.050	.952	.538	-.617	-.041	.087	-.054	Gender	
1.050	.952	.561	-.583	-.038	.100	-.058	EXPERIAN	
		.000	5.178		.126	.652	(Constant)	2
1.072	.932	.277	-1.089	-.059	.071	-.078	Gender	
1.073	.932	.181	-1.342	-.072	.081	-.109	EXPERIAN	
1.472	.679	.011	2.574	.163	.071	.182	Social Trust	
1.889	.529	.000	4.234	.303	.077	.327	Social Network	
1.483	.674	.000	4.023	.255	.063	.253	Shared Goals	

a Dependent Variable: Attitude twords sharing

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.951	1.001	.999	.424	.000	7.241	.424(a)	Social Trust	
.942	1.010	.990	.537	.000	9.830	.538(a)	Social	

							Network	
.942	1.014	.987	.482	.000	8.499	.484(a)	Shared Goals	
.000	.	.000	.	.	.	.(b)	AGE1	2

a Predictors in the Model: (Constant), EXPERIAN, Gender

b Predictors in the Model: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network

c Dependent Variable: Attitude twords sharing

Collinearity Diagnostics(a)

Variance Proportions						Condition Index	Eigenvalue	Dimension	Model
Shared Goals	Social Network	Social Trust	EXPERIAN	Gender	(Constant)				
			.10	.10	.10	1.000	2.030	1	1
			.88	.22	.09	1.868	.582	2	
			.02	.68	.81	2.285	.389	3	
.00	.00	.00	.01	.01	.00	1.000	4.565	1	2
.00	.00	.01	.67	.11	.00	2.470	.749	2	
.00	.00	.00	.29	.84	.00	2.953	.524	3	
.61	.01	.40	.00	.01	.04	8.151	.069	4	
.00	.30	.09	.00	.03	.80	9.013	.056	5	
.38	.69	.50	.02	.00	.16	10.996	.038	6	

a Dependent Variable: Attitude twords sharing

Casewise Diagnostics(a)

Residual	Predicted Value	Attitude twords sharing	Std. Residual	Case Number
1.59	1.41	3	3.054	210

a Dependent Variable: Attitude twords sharing

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
243	.382	1.92	2.96	1.23	Predicted Value
243	.514	.00	1.59	-1.14	Residual
243	1.000	.000	2.730	-1.809	Std. Predicted Value
243	.990	.000	3.054	-2.194	Std. Residual

a Dependent Variable: Attitude twords sharing

Charts

Regression

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	EXPERIAN, Gender(a)	1
Enter	.	Social Trust, Shared Goals, Social Network(b)	2

a Tolerance = .000 limits reached.
b All requested variables entered.
c Dependent Variable: Intension to sharing

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.665	244	2	.409	.003	.651	-.005	.003	.058(a)	1
.000	241	3	55.357	.407	.504	.398	.410	.640(b)	2

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network
c Dependent Variable: Intension to sharing

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.665(a)	.409	.173	2	.347	Regression	1
		.424	244	103.441	Residual	
			246	103.788	Total	
.000(b)	33.487	8.509	5	42.547	Regression	2
		.254	241	61.241	Residual	
			246	103.788	Total	

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network
c Dependent Variable: Intension to sharing

Coefficients(a)

Collinearity Statistics				Standardized Coefficients	Unstandardized Coefficients			
VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	30.279		.055	1.657	(Constant)	1
1.046	.956	.681	.412	.027	.088	.036	Gender	
1.046	.956	.484	.700	.046	.100	.070	EXPERIAN	
		.046	2.002		.120	.240	(Constant)	2
1.070	.934	.960	-.050	-.003	.069	-.003	Gender	
1.069	.936	.635	.476	.024	.078	.037	EXPERIAN	
1.495	.669	.001	3.273	.198	.068	.223	Social Trust	
1.919	.521	.001	3.361	.230	.075	.251	Social Network	
1.508	.663	.000	5.757	.350	.061	.350	Shared Goals	

a Dependent Variable: Intension to sharing

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.955	1.002	.998	.459	.000	8.065	.459(a)	Social Trust	
.947	1.009	.991	.541	.000	10.038	.543(a)	Social Network	
.945	1.013	.987	.553	.000	10.347	.556(a)	Shared Goals	
.000	.	.000	.	.	.	.(b)	AGE1	2

a Predictors in the Model: (Constant), EXPERIAN, Gender
b Predictors in the Model: (Constant), EXPERIAN, Gender, Social Trust, Shared Goals, Social Network
c Dependent Variable: Intension to sharing

Collinearity Diagnostics(a)

Variance Proportions						Condition Index	Eigenvalue	Dimension	Model
Shared Goals	Social Network	Social Trust	EXPERIAN	Gender	(Constant)				
			.10	.10	.10	1.000	2.025	1	1
			.87	.23	.08	1.859	.586	2	
			.03	.67	.82	2.281	.389	3	
.00	.00	.00	.01	.01	.00	1.000	4.559	1	2
.00	.00	.01	.68	.10	.00	2.468	.749	2	
.00	.00	.00	.28	.84	.00	2.934	.530	3	
.61	.01	.41	.00	.01	.04	8.191	.068	4	
.00	.25	.11	.00	.03	.83	8.959	.057	5	
.38	.73	.47	.02	.00	.13	10.987	.038	6	

a Dependent Variable: Intension to sharing

Casewise Diagnostics(a)

Residual	Predicted Value	Intension to sharing	Std. Residual	Case Number
1.88	2.45	4	3.730	105
1.68	2.65	4	3.333	214

a Dependent Variable: Intension to sharing

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
247	.416	1.69	2.71	1.06	Predicted Value
247	.499	.00	1.88	-1.24	Residual
247	1.000	.000	2.469	-1.505	Std. Predicted Value
247	.990	.000	3.730	-2.459	Std. Residual

a Dependent Variable: Intension to sharing

Charts

Regression

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	EXPERIAN, Gender(a)	1
Enter	.	Management Style, Incentive to share knoledge(b)	2

a Tolerance = .000 limits reached.
b All requested variables entered.
c Dependent Variable: Attitude twords sharing

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.620	240	2	.478	.004	.644	-.004	.004	.063(a)	1
.000	238	2	21.849	.155	.594	.144	.158	.398(b)	2

a Predictors: (Constant), EXPERIAN, Gender
b Predictors: (Constant), EXPERIAN, Gender, Management Style, Incentive to share knoledge
c Dependent Variable: Attitude twords sharing

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.620(a)	.478	.198	2	.396	Regression	1
		.414	240	99.414	Residual	
			242	99.810	Total	
.000(b)	11.205	3.954	4	15.818	Regression	2

		.353	238	83.992	Residual	
			242	99.810	Total	

a Predictors: (Constant), EXPERIAN, Gender

b Predictors: (Constant), EXPERIAN, Gender, Management Style, Incentive to share knoledge

c Dependent Variable: Attitude twords sharing

Coefficients(a)

Collinearity Statistics				Standardized Coefficients	Unstandardized Coefficients			
VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	35.835		.055	1.954	(Constant)	1
1.050	.952	.528	-.631	-.042	.088	-.055	Gender	
1.050	.952	.555	-.591	-.039	.100	-.059	EXPERIAN	
		.000	8.355		.180	1.507	(Constant)	2
1.062	.942	.182	-1.340	-.082	.081	-.109	Gender	
1.065	.939	.907	.117	.007	.093	.011	EXPERIAN	
1.046	.956	.000	5.917	.360	.044	.263	Incentive to share knoledge	
1.041	.961	.061	-1.882	-.114	.035	-.065	Management Style	

a Dependent Variable: Attitude twords sharing

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.943	1.014	.986	.378	.000	6.303	.380(a)	Incentive to share knoledge	
.946	1.010	.990	-.176	.006	-2.758	-.176(a)	Management Style	
.000	.	.000	.	.	.	.(b)	AGE1	2

a Predictors in the Model: (Constant), EXPERIAN, Gender

b Predictors in the Model: (Constant), EXPERIAN, Gender, Management Style, Incentive to share knoledge

c Dependent Variable: Attitude twords sharing

Collinearity Diagnostics(a)

Variance Proportions								
Management Style	Incentive to share knoledge	EXPERIAN	Gender	(Constant)	Condition Index	Eigenvalue	Dimension	Model
		.10	.10	.10	1.000	2.030	1	1
		.88	.22	.09	1.868	.582	2	
		.02	.68	.81	2.285	.389	3	
.01	.01	.02	.02	.00	1.000	3.618	1	2
.01	.01	.74	.06	.00	2.250	.715	2	
.01	.00	.22	.89	.00	2.650	.515	3	
.40	.43	.02	.02	.00	5.448	.122	4	
.58	.55	.00	.01	.99	10.989	.030	5	

a Dependent Variable: Attitude twords sharing

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
243	.256	1.92	2.69	1.35	Predicted Value
243	.589	.00	1.56	-1.69	Residual
243	1.000	.000	3.019	-2.244	Std. Predicted Value
243	.992	.000	2.633	-2.848	Std. Residual

a Dependent Variable: Attitude twords sharing

Charts

Regression

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	EXPERIAN, Gender(a)	1
Enter	.	Management Style, Incentive to share knoledge(b)	2

a Tolerance = .000 limits reached.

b All requested variables entered.

c Dependent Variable: Intension to sharing

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.630	242	2	.463	.004	.647	-.004	.004	.062(a)	1
.000	240	2	8.578	.066	.627	.055	.070	.265(b)	2

a Predictors: (Constant), EXPERIAN, Gender

b Predictors: (Constant), EXPERIAN, Gender, Management Style, Incentive to share knoledge

c Dependent Variable: Intension to sharing

ANOVA(c)

Sig.	F	Mean Square	Df	Sum of Squares		Model
.630(a)	.463	.194	2	.388	Regression	1
		.418	242	101.202	Residual	
			244	101.590	Total	
.002(b)	4.535	1.785	4	7.139	Regression	2
		.394	240	94.451	Residual	
			244	101.590	Total	

a Predictors: (Constant), EXPERIAN, Gender

b Predictors: (Constant), EXPERIAN, Gender, Management Style, Incentive to share knoledge

c Dependent Variable: Intension to sharing

Coefficients(a)

Collinearity Statistics				Standardized Coefficients	Unstandardized Coefficients			
VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	30.181		.055	1.652	(Constant)	1
1.045	.957	.646	.459	.030	.087	.040	Gender	
1.045	.957	.465	.732	.048	.099	.073	EXPERIAN	
		.000	8.093		.190	1.536	(Constant)	2

1.058	.945	.983	.021	.001	.085	.002	Gender	
1.062	.942	.207	1.266	.081	.097	.123	EXPERIAN	
1.044	.957	.002	3.143	.200	.047	.147	Incentive to share knoledge	
1.043	.958	.035	-2.123	-.135	.036	-.077	Management Style	

a Dependent Variable: Intension to sharing

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.948	1.014	.986	.222	.000	3.531	.223(a)	Incentive to share knoledge	
.948	1.013	.987	-.168	.009	-2.649	-.169(a)	Management Style	
.000	.	.000	.	.	.	.(b)	AGE1	2

a Predictors in the Model: (Constant), EXPERIAN, Gender

b Predictors in the Model: (Constant), EXPERIAN, Gender, Management Style, Incentive to share knoledge

c Dependent Variable: Intension to sharing

Collinearity Diagnostics(a)

Variance Proportions					Condition Index	Eigenvalue	Dimension	Model
Management Style	Incentive to share knoledge	EXPERIAN	Gender	(Constant)				
		.10	.10	.10	1.000	2.028	1	1
		.87	.23	.08	1.861	.586	2	
		.03	.66	.82	2.291	.386	3	
.01	.01	.02	.02	.00	1.000	3.620	1	2
.01	.01	.76	.05	.00	2.261	.708	2	
.01	.00	.19	.90	.00	2.636	.521	3	
.40	.43	.03	.02	.00	5.465	.121	4	
.57	.55	.00	.01	.99	10.997	.030	5	

a Dependent Variable: Intension to sharing

Casewise Diagnostics(a)

Residual	Predicted Value	Intension to sharing	Std. Residual	Case Number
1.90	1.77	4	3.028	101
2.41	1.92	4	3.845	105
2.26	1.74	4	3.595	203
2.58	1.75	4	4.114	214

a Dependent Variable: Intension to sharing

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
245	.171	1.68	2.15	1.30	Predicted Value
245	.622	.00	2.58	-1.15	Residual
245	1.000	.000	2.699	-2.263	Std. Predicted Value
245	.992	.000	4.114	-1.827	Std. Residual

a Dependent Variable: Intension to sharing

Charts

Reliability for Attitude

****** Method 1 (space saver) will be used for this analysis ******

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. AKS2
2. AKS3
3. AKS4
4. AKS5

		Mean	Std Dev	Cases
1.	AKS2	1.9363	.8132	267.0
2.	AKS3	1.9101	.8131	267.0
3.	AKS4	1.8801	.8275	267.0
4.	AKS5	1.9700	.8579	267.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	7.6966	6.6557	2.5799	4

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
AKS2	5.7603	4.1754	.5473	.7521
AKS3	5.7865	3.9054	.6502	.7003
AKS4	5.8165	3.9624	.6096	.7208
AKS5	5.7266	4.0114	.5553	.7494

Reliability Coefficients

N of Cases = 267.0 N of Items = 4

Alpha = .7838

Reliability for Social Trust

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. SOT1
2. SOT2
3. SOT5
4. SOT6

	Mean	Std Dev	Cases
1. SOT1	1.7712	.7548	271.0
2. SOT2	1.8524	.7937	271.0
3. SOT5	1.5277	.6654	271.0
4. SOT6	1.5720	.7054	271.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	6.7232	5.2379	2.2887	4

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
SOT1	4.9520	3.0903	.5946	.7378
SOT2	4.8708	2.8018	.6797	.6916
SOT5	5.1956	3.3801	.5784	.7468
SOT6	5.1513	3.3437	.5414	.7632

Reliability Coefficients

N of Cases = 271.0 N of Items = 4

Alpha = .7886

Reliability for Social Network

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. SNW1
2. SNW2
3. SNW4
4. SNW5

		Mean	Std Dev	Cases
1.	SNW1	1.4280	.6508	271.0
2.	SNW2	1.6236	.7035	271.0
3.	SNW4	1.7232	.8216	271.0
4.	SNW5	1.9004	.8992	271.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	6.6753	5.4868	2.3424	4

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
SNW1	5.2472	3.7794	.5074	.7148
SNW2	5.0517	3.3899	.6184	.6562
SNW4	4.9520	3.2458	.5290	.7019
SNW5	4.7749	2.9603	.5552	.6926

Reliability Coefficients

N of Cases = 271.0 N of Items = 4

Alpha = .7497

Reliability for Shared Goals

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. SHG1
2. SHG2
3. SHG3
4. SHG4
5. SHG5

		Mean	Std Dev	Cases
1.	SHG1	1.7269	.8295	271.0
2.	SHG2	1.9225	.8550	271.0
3.	SHG3	1.9373	.8072	271.0
4.	SHG4	1.7196	.8089	271.0
5.	SHG5	1.7897	.8714	271.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	9.0959	10.6204	3.2589	5

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
SHG1	7.3690	7.1004	.6406	.8082
SHG2	7.1734	6.9217	.6597	.8029
SHG3	7.1587	7.1192	.6615	.8028
SHG4	7.3764	6.9911	.6954	.7936
SHG5	7.3063	7.2133	.5657	.8296

Reliability Coefficients

N of Cases = 271.0 N of Items = 5

Alpha = .8399

Reliability for Leadership Style

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. MST3
2. MST4
3. MST5

		Mean	Std Dev	Cases

1.	MST3	3.2416	1.2597	269.0
2.	MST4	3.3717	1.2590	269.0
3.	MST5	3.1561	1.2776	269.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	9.7695	11.7004	3.4206	3

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
MST3	6.5279	5.5710	.7639	.8450
MST4	6.3978	5.3897	.8084	.8054
MST5	6.6134	5.5440	.7520	.8557

Reliability Coefficients

N of Cases = 269.0 N of Items = 3

Alpha = .8841

Reliability for Incentive

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. MSK1
2. MSK2
3. MSK3
4. MSK4
5. MSK5
6. MSK6

		Mean	Std Dev	Cases
1.	MSK1	2.3296	1.0387	267.0
2.	MSK2	2.6816	1.1238	267.0
3.	MSK3	2.7566	1.2127	267.0
4.	MSK4	2.4382	1.0291	267.0
5.	MSK5	2.4457	.9733	267.0
6.	MSK6	2.6142	1.1492	267.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	15.2659	27.8651	5.2787	6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
MSK1	12.9363	20.4809	.6707	.8801
MSK2	12.5843	19.0709	.7673	.8648
MSK3	12.5094	18.4012	.7683	.8649
MSK4	12.8277	19.9627	.7441	.8693
MSK5	12.8202	20.8473	.6830	.8787
MSK6	12.6517	19.8369	.6553	.8833

Reliability Coefficients

N of Cases = 267.0 N of Items = 6

Alpha = .8925

Reliability for ICT Infrastructure

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

		Mean	Std Dev	Cases
1.	ITC2	1.9081	.9065	272.0
2.	ITC3	1.7647	.8481	272.0
3.	ITC4	1.8162	.8479	272.0
4.	ITC5	1.7978	.8502	272.0
5.	ITC6	1.9375	.9604	272.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	9.2243	12.1746	3.4892	5

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
ITC2	7.3162	8.3572	.5715	.8414
ITC3	7.4596	8.0869	.6983	.8081
ITC4	7.4081	8.1096	.6929	.8095
ITC5	7.4265	8.1127	.6895	.8103

ITC6	7.2868	7.7625	.6521	.8210

Reliability Coefficients

N of Cases = 272.0 N of Items = 5

Alpha = .8491

Reliability

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

		Mean	Std Dev	Cases
1.	ITS3	2.1070	1.0182	271.0
2.	ITS4	1.9114	.9426	271.0
3.	ITS5	2.2103	.9832	271.0
4.	ITS6	2.3469	1.0209	271.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	8.5756	10.0674	3.1729	4

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
ITS3	6.4686	6.1092	.5805	.7886
ITS4	6.6642	6.2683	.6167	.7712
ITS5	6.3653	5.9809	.6487	.7558
ITS6	6.2288	5.7104	.6794	.7404

Reliability Coefficients

N of Cases = 271.0 N of Items = 4

Alpha = .8123

Reliability for ICT Tools & Software

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. ITS3
2. ITS4

3. ITS5
4. ITS6

		Mean	Std Dev	Cases
1.	ITS3	2.1070	1.0182	271.0
2.	ITS4	1.9114	.9426	271.0
3.	ITS5	2.2103	.9832	271.0
4.	ITS6	2.3469	1.0209	271.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	8.5756	10.0674	3.1729	4

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
ITS3	6.4686	6.1092	.5805	.7886
ITS4	6.6642	6.2683	.6167	.7712
ITS5	6.3653	5.9809	.6487	.7558
ITS6	6.2288	5.7104	.6794	.7404

Reliability Coefficients

N of Cases = 271.0 N of Items = 4

Alpha = .8123

Reliability for ICT Know-how

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1. IKH1
2. IKH2
3. IKH3
4. IKH4
5. IKH5

		Mean	Std Dev	Cases
1.	IKH1	2.0037	.9408	271.0
2.	IKH2	2.4576	1.0874	271.0
3.	IKH3	2.3173	1.0553	271.0
4.	IKH4	2.4613	1.0738	271.0

5.	IKH5	2.1328	.9334	271.0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	11.3727	16.1754	4.0219	5

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
IKH1	9.3690	11.5078	.5926	.8327
IKH2	8.9151	10.3594	.6619	.8155
IKH3	9.0554	10.3191	.6995	.8046
IKH4	8.9114	10.2069	.7018	.8040
IKH5	9.2399	11.3386	.6309	.8236

Reliability Coefficients

N of Cases = 271.0 N of Items = 5

Alpha = .8477

Regression

Variables Entered/Removed(c)

Method	Variables Removed	Variables Entered	Model
Enter	.	EXPERIAN, Gender(a)	1
Enter	.	ICT Tools & Software, ICT Know-how, ICT Frastructur(b)	2

a Tolerance = .000 limits reached.
b All requested variables entered.
c Dependent Variable: Attitude twords sharing

Model Summary(c)

Change Statistics					Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
Sig. F Change	df2	df1	F Change	R Square Change					
.519	240	2	.658	.005	.644	-.003	.005	.074(a)	1
.000	237	3	17.915	.184	.585	.172	.189	.435(b)	2

a Predictors: (Constant), EXPERIAN, Gender

b Predictors: (Constant), EXPERIAN, Gender, ICT Tools & Software, ICT Know-how, ICT Frastructur

c Dependent Variable: Attitude twords sharing

ANOVA(c)

Sig.	F	Mean Square	df	Sum of Squares		Model
.519(a)	.658	.273	2	.546	Regression	1
		.415	240	99.569	Residual	
			242	100.115	Total	
.000(b)	11.068	3.790	5	18.951	Regression	2
		.342	237	81.163	Residual	
			242	100.115	Total	

a Predictors: (Constant), EXPERIAN, Gender

b Predictors: (Constant), EXPERIAN, Gender, ICT Tools & Software, ICT Know-how, ICT Frastructur

c Dependent Variable: Attitude twords sharing

Coefficients(a)

Collinearity Statistics				Standardized Coefficients	Unstandardized Coefficients			
VIF	Tolerance	Sig.	t	Beta	Std. Error	B		Model
		.000	36.070		.055	1.968	(Constant)	1
1.050	.952	.446	-.763	-.050	.088	-.067	Gender	
1.050	.952	.504	-.669	-.044	.100	-.067	EXPERIAN	
		.000	8.936		.131	1.174	(Constant)	2
1.064	.940	.131	-1.516	-.091	.080	-.122	Gender	
1.077	.929	.424	-.800	-.049	.092	-.074	EXPERIAN	
1.788	.559	.109	1.611	.126	.073	.118	ICT Frastructur	
2.110	.474	.000	4.154	.353	.072	.299	ICT Tools & Software	

1.575	.635	.736	-.338	-.025	.057	-.019	ICT Know-how	

a Dependent Variable: Attitude towards sharing

Excluded Variables(c)

Collinearity Statistics			Partial Correlation	Sig.	t	Beta In		Model
Minimum Tolerance	VIF	Tolerance						
.000	.	.000	.	.	.	.(a)	AGE1	1
.943	1.016	.984	.342	.000	5.635	.344(a)	ICT Frastructur	
.945	1.007	.993	.419	.000	7.142	.420(a)	ICT Tools & Software	
.942	1.016	.984	.240	.000	3.818	.241(a)	ICT Know-how	
.000	.	.000	.	.	.	.(b)	AGE1	2

a Predictors in the Model: (Constant), EXPERIAN, Gender

b Predictors in the Model: (Constant), EXPERIAN, Gender, ICT Tools & Software, ICT Know-how, ICT Frastructur

c Dependent Variable: Attitude towards sharin

Collinearity Diagnostics(a)

Variance Proportions						Condition Index	Eigenvalue	Dimension	Model
ICT Know-how	ICT Tools & Software	ICT Frastructur	EXPERIAN	Gender	(Constant)				
			.10	.10	.10	1.000	2.030	1	1
			.88	.22	.09	1.868	.582	2	
			.02	.68	.81	2.285	.389	3	
.00	.00	.00	.01	.01	.00	1.000	4.568	1	2
.01	.00	.00	.69	.09	.00	2.455	.758	2	
.00	.00	.00	.26	.90	.00	2.986	.512	3	
.11	.07	.40	.00	.00	.48	8.231	.067	4	
.66	.02	.10	.04	.00	.51	8.852	.058	5	
.22	.90	.48	.00	.00	.00	11.185	.037	6	

a Dependent Variable: Attitude towards sharing

Residuals Statistics(a)

N	Std. Deviation	Mean	Maximum	Minimum	
243	.280	1.93	2.70	1.45	Predicted Value
243	.579	.00	1.69	-1.55	Residual
243	1.000	.000	2.758	-1.712	Std. Predicted Value
243	.990	.000	2.892	-2.650	Std. Residual

a Dependent Variable: Attitude towards sharing