Doctoral Dissertation

Knowledge Sharing in Indian Organizations

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March 2015

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D111236

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A Dissertation Submitted to
the Graduate School for International Development and Cooperation
of Hiroshima University in Partial Fulfillment
of the Requirement for the Degree of
Doctor of Philosophy

March 2015

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Abstract

This dissertation has focused on knowledge sharing (KS), mainly the process around KS in Indian organizations, with attentions to different type of organizations (public or private sectors) and to information technology (IT) facilitation with knowledge management system (KMS). KS process is not always supported by advance level of KM tools or IT supported KMS in all the organizations in India. Especially public sector is lagging behind in adopting such system and many private sector organizations too. However this is not because of less importance of KS in those organizations. Its importance cannot be denied generally.

However sharing is hard to ensure, because knowledge is generated and initially stored within the employees. Early initiatives in KM focused on providing electronic databases, network systems, and software to encourage the distribution of knowledge but these mechanisms have proved far from satisfactory. More recent efforts have focused on socio-cognitive approaches to motivate behavior that would help in promoting KS, including factors such as teamwork, trust, shared goal, etc. KS involves a set of behaviors that aid the exchange of acquired knowledge. Therefore, organizations need to motivate their employee to improve KS within the organizations.

The significance for the process around KSI and KSB, and the current situation of KMS in India are practical rationales for implementing this study. This dissertation has followed the approach of integrating different theories in one study, applying theoretical foundations of KM field. Arguments on basis of the literature review as well as the practical situation of KS in India have led to the overall research framework that explains organizational KS process. *The research questions of this dissertation with regards to KS are what factors determine KSI and KSB in private and public sector organizations in India? And whether IT does or does not impact on KS process? Do KSI and KSB affect organizational performance?* In order to test hypotheses of the research framework, and thus answering research questions above, this dissertation has used data

mainly from the questionnaire survey by the author.

After analyzing the framework on empirical data through meta-analysis and path analysis in chapters 3, 4, 5, and 6, we obtained the following main findings by answering the research questions of overall dissertation.

Chapter 3 summarizes the quantitative findings of prior empirical studies. We use meta-analytic techniques to examine the antecedents of organizational KSB, with a focus on comparing public vs. private organizations and IT vs. non-IT facilitation. The meta-analysis tests the efficacy of the theory of planned behavior (TPB) in a KS context and identifies the effectiveness of the respective organizational antecedents in fostering KS. Public organizations are an important area where KS has received relatively little attention. After identifying the effect sizes of the relationships examined in all the studies, we consider the effects of public vs. private sectors as moderators on the antecedents of KSI and KSB. We include IT facilitation as our second moderator to examine whether all the antecedents are contingent on IT facilitation. Our results indicate that KSI has the largest influence on KSB, and that attitude towards KS has the largest influence on KSI. The results demonstrate the presence of moderating variables as well. This study demonstrates that private organizations provide better environments for employees to positively change their KSI, as compared to public organizations. Enhancing face-to-face communication might be more effective for KS since the impact of IT facilitation was not significant.

Chapter 4 has focused on organizational KS among employees in public sector organizations. In order to explore the process toward KSI and KSB within a government organization, this empirical study integrated the social cognitive theory (SCT) and TPB to construct a model that also takes into consideration the social dilemma theory. It examined organizational KS practices (OKSP), knowledge sharing-oriented training (KST), knowledge sharing self-efficacy (KSSE), and greed, which provide an integrative view of the antecedents of KSI and KSB. The proposed research model was then evaluated with path analysis. The results confirm that OKSP, KST, and KSSE can facilitate KSI and KSB, while greed can hinder KSI and KSB.

To identify the features of the private sector compared with the public sector, Chapter 5 examines the model that is mostly as same one as in chapter 4 but uses data from private organizations in India. The results confirm that OKSP, and KSSE can facilitate KSI and KSB, while KST can influence one's intention to share knowledge through self-efficacy. Greed can hinder KSI and KSB. Further it has proved that KSI and KSB can improve organizational effectiveness and performance in private sector.

The aim of chapter 6 is to further develop an understanding of social capital in organizational KS. We first developed a measurement tool and then a theoretical framework in which three dimension of social capital theory (structural, relational and cognitive) were combined with TPB; their relationships were then examined by path analysis. The results confirm that a social network, shared goals, teamwork and top management support significantly contributed to a person's KSI and KSB.

Although this study may provide several useful contributions, like all other researches, it has some limitations. Due to unavailable data from several government organizations in India our research for public sector limited to one organization only. This may cause biases. In addition, in

terms of analysis methods, this study did not implement SEM. The SEM analysis may lead to the proper procedure to get the results because it is considered more reliable.

ACKNOWLEDGEMENTS

It is a pleasant task to express my thanks to all those who contributed in many ways to the success of this study and made it an unforgettable experience for me. I would never have been able to finish my dissertation without the guidance of my supervisors, help from friends, and support from my family.

I would like to express my deepest gratitude to my guide, Assistant Professor Dr. Takahashi Yoshi, for his excellent guidance, providing me with an excellent atmosphere for doing research, patiently corrected my writing and supported my research. I am very much thankful to him for picking me up as his student, providing me his valuable advice, constructive criticism and his extensive discussions around my work.

I would also like to express my sincere thanks to my sub-supervisor Dr. Ichihashi Masaru, Dr. Goto Daisaku, for helping me to develop my background in Statistical Analyses and Micro Economics respectively. My special thanks go to Dr. Uno Yoshifumi and Dr. Takao Yoshiaki, who was willing to participate in my prelim and final defense committee.

At this moment of accomplishment, I pay homage to my father, Late. Mr. J. N. Singh This work would not have been possible without his emotional support and encouragement. His unflinching courage and conviction have always inspired me, and made me successfully overcame many difficulties during my stay in Japan. I wish his soul rests in peace and solace in the heaven. I can only say a proper thanks to him through my future work. It is to him that I dedicate this work.

I take this opportunity to sincerely acknowledge the Accountant General, Bihar, Government of India, for allowing me to conduct survey in their organization. I gratefully acknowledge FICCI (Federation of Indian Chamber of Commerce and Industry) authority for providing me adequate information about the major private sector organizations in India.

It is my fortune to gratefully acknowledge the support of some special individuals. Words fail me to express my appreciation to Ms. Junko Satake and her family who as a good friend was always willing to help me in nurturing my baby alone here in Japan and give her best support so that I could concentrate on my study. It is also a pleasure to mention my good friend Ms. Setsu Togawa, for her support, generous care and the homely feeling. I would have been very lonely without two of them in Japan.

I am indebted to my many student colleagues for providing a stimulating and fun filled environment. My thanks go in particular to Dr, Tanvir with whom I had many rounds of discussions on my project helped me a lot. I am ever indebted to Vikas and I admire his distinguished helping nature. My special appreciation goes to Anand for her friendship and encouragement. I wish to thank my best friends, Dr. Biswajeet Pike, Dr. Ankur Jain, Dr. Shrikant Saini, Isaivati, Sushil Raut, Bulbul Jha and other for their love, care and moral support. My research would not have been possible without their helps.

I would also like to thank my mother, my sisters, and my brother. They were always supporting me and encouraging me with their best wishes.

Finally, I would like to thank my husband, Ritesh Kumar for his understanding and support. Besides this, several people have knowingly and unknowingly helped me in the successful completion of this project.

Nisha Kumari

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February 20, 2015

Table of Contents

Figures

Tables

Chapter 1 Introduction

1.1 Background

Knowledge sharing (KS), one of the main components of overall knowledge management system (KMS) is a critical human behavior that organizations need to carefully cultivate and harvest to be competitive. When an individual join an organization they bring learned behaviors from experiences that either promote or inhibit effective KS. Management needs to take holistic and integrated approach to get best organizational performance and competitive advantage. Indian organizations also step into this knowledge intensive world to gain insight and understanding from its own experience and to make position in the global knowledge economy as the Planning Commission of the Government of India produced a report in 2001 on India as a Knowledge Superpower: Strategy for Transformation that focused on IT and biotechnology and India Vision 2020 in 2002 (The Planning Commission, 2001). The President of India at that time, Dr. A. P. J. Abdul Kalam's 2002 strategy *India 2020: A Vision for the New Millennium* also stressed the importance of knowledge and ways to facilitate India's transition to the knowledge economy. In a related initiative, the Prime Minister of India also set up a National Knowledge Commission in 2005 to leverage

various knowledge networks to make India a knowledge engine of the world. Though India has aimed to be the knowledge power by 2020, some unavoidable facts such as Indian economy facing problems like inequalities in income and low levels of employment, regional imbalances in economic development and lack of trained manpower, also exist and became great barriers in proper adoption of an advance level of KMS in all the sectors.

A growing number of organizations in India, especially in knowledge-intensive industries (such as Infosys Technologies, WIPRO, HCL, TCS etc.) have introduced KMS long back in order to use the knowledge as resource more effectively and efficiently and have made their mark, domestically and globally, in science, engineering, IT, and research and development (R&D). But they represent only a small fraction of the total population.

Teleos, an independent knowledge management and intellectual capital research company, in association with The KNOW Network, established the Global Most Admired Knowledge Enterprises (MAKE) research program in 1998 to identify and recognize those Parent Organizations (including all companies/divisions/business units/agencies, etc.), Groups or Holding Organizations which are creating shareholder/stakeholder wealth by transforming new as well as existing enterprise

knowledge into superior products/services/solutions. The MAKE research program consists of the annual Global MAKE study – the international benchmark for best practice knowledge organizations. In addition, MAKE studies are conducted to identify leading knowledge-driven organizations at the regional/national level, including the Americas, Asia and Europe; and Brazil, China, Hong Kong, India, Indonesia, Iran and Russia.

As per Indian MAKE Report, growth of KM in business enterprises in India is as follows. Many of the Indian MAKE leaders adopted their corporate knowledge strategies during the late 1990s and early 2000s. Although starting several years after pioneering Western companies, Indian-based organizations have been very successful at benchmarking and transferring knowledge as best practices found in Asian, European and North American MAKE Winners. Today, only a few Indian MAKE leaders have reached parity with their Western MAKE counterparts–most Indian organizations still lag behind regional and global MAKE leaders.

To meet the emerging need of proper KMS, Indian organizations should focus on KS behavior (KSB) of individual employee. According to an Ernst & Young Center for Business Innovation survey (1997) entitled "Executive Perspectives on Knowledge in the Organization," the biggest difficulty in managing knowledge is changing people's

behavior (Ruggles, 1998). Therefore, organizations must find ways to motivate individual or community members to share what they know and to apply the knowledge of others. In the absence of advance level of KM tools such as IT based KMS, organizational leaders in India need to raise the quality of organizational culture which can bring a change in the people behavior for KS for the successful KMS. This study investigates KS in public and private sector organizations respectively in order to understand the potential differences of KS process in the two different sectors. Because the objectives of these two sectors differ, it is natural to believe that the manner and extent to which public and private sector organizations adopt the existing and emerging management practices would differ. But to date, most organizations in India, in both private and public sectors, have embarked on KM work in search of near-term efficiency, productivity, and service quality improvements through knowledge reuse. Particularly in private sector, taking firms in IT industry that is considered to be one of the most advanced, the need for a generic IT based KM must be taken into account.

1.1.1 Conceptualization of Knowledge

Before being able to understand and analyze KS, one has to understand the way knowledge is perceived. It is difficult to define the meaning of knowledge. One way of defining knowledge is by distinguishing it from information. Alavi & Leidner (2001)

posit that information is converted to knowledge once it is processed in the mind of individuals and knowledge becomes information once it is articulated and presented in the form of text, graphics, words, or other symbolic forms.

Davenport and Prusak (1998) give the following description which is very close to the definition in this research: ‘Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms. Knowledge derives from information as information derives from data. If information is to become knowledge, humans must do virtually all the work.’

Grant (1996) addresses the following characteristics as pertinent to the utilization of knowledge within the firm to create value: transferability, capacity for aggregation, appropriability.

Rather than talking of knowledge, it may be more helpful to talk about the process of knowing’ (Blackler, 1995). Machlup (1980) identifies thirteen different elements of knowing, including: being acquainted with, being familiar with, being aware of, remembering, recollecting, recognizing, distinguishing, understanding, interpreting,

being able to explain, being able to demonstrate, being able to talk about, and being able to perform.

Different perspectives on knowledge exist among scholars and practitioners (Wasko and Faraj, 2000). Frequently, knowledge has been perceived as an object, defined as "justified true belief". In this perspective knowledge is considered to be 'an integral, self-sufficient substance, theoretically independent of the situations in which it is learned and used' (Brown, *et al.*, 1990). A second perspective on knowledge is that knowledge could *only* reside in the mind of people and can be defined as "that which is known", i.e. knowledge being embedded in individuals (Polanyi, 1998).

In line with defining knowledge based on Alavi and Leinder (2001) that information is converted to knowledge once it is processed in the mind of individuals and that increases an entity's capacity for effective action' (Huber, 1991; Nonaka, 1994), in this research knowledge is defined as follows:

"The processed information (Alavi & Leidner, 2001) which enable a person to transform this into actions (skills) (Machlup, 1980), which further resulted in his/her performance (Grant, 1996), dependent on the environment in which it is learned and used"

1.1.2 KS Processes

Levitt and March (1988) explained KS as a process meant to obtain experiences from others. Knowledge is not like a commodity that can be passed around freely. It is tied to a knowing subject. KS presumes a relation between at least two parties, one that possesses knowledge and the other that acquires knowledge. The first party should communicate its knowledge, consciously and willingly or not, in some form or other (either by acts, by speech, or in writing, etc.). The other party should be able to perceive these expressions of knowledge, and make sense of them (by imitating the acts, by listening, by reading the book, etc.).

To analyze the process toward KSB, some general theories on human behavior such as Theory of Planned Behavior (TBP), Theory of Reasoned Action (TRA), Social Capital Theory (SCaT) and Social Cognitive Theory (SCoT) etc. can be applied. They are vastly used to understand human behavior and are also considered as a critical base to understand individual's behavior. A series of narrative and quantitative reviews (e.g. Ajzen, 1991; Conner & Armitage, 1998; Conner & Sparks, 1996; Godin & Kok, 1996; Sparks, 1994; van den Putte, 1991) have shown the efficacy of the TPB in predicting a wide range of intentions and behaviors. However, in the KS context while doing meta-analysis research (chapter 3) we found several gaps incorporated with TPB. TPB can

distinguish that an individual may decide to share or not to share their knowledge for some limited reasons; attitude, subjective norm and perceived control. There are many other internal, external, social, and technical factors that influence the intention of KS. These factors result from complex interactions among human behavior, organizational behavior, information systems, and social networks in an organization. In KS, people do not always perform in a manner consistent with their espoused attitudes and intentions.

This inconsistency can be explained by including other theories with TPB such as SCoT, SCaT, social dilemma etc. Specifically, SCoT plays roles in motivating individuals to share and use knowledge whereas SCaT explains the relationship between people while exchanging knowledge. Moreover, if behavior is not under complete volitional control, the performers need to have requisite resources and opportunities in order to perform the behavior. SCaT provides those requisite resources (such as, social network, shared vision, share goal etc) which can not only enhance the performer's ability but to motivate them to share their knowledge. Next people often come across some kind of dilemma to perform or not to perform the behavior especially in KS context, as they consider knowledge as an asset to them. The belief that sharing knowledge means losing power and position scared a person to share knowledge. The social dilemma factors also have control over KS intention (KSI) and KSB. That is why the present

study is designed to assess the past research of the TPB as a reliable predictor of intentions and behavior in KS context using meta-analysis and to check the possible replacement of some of the TPB factors with other cognitive theories.

It is assumed that a person may possess a large number of beliefs about a particular behavior, but that at any one time only some of these are likely to be salient. It is the salient beliefs that are assumed to determine a person's attitude. The KSI and KSB can be predicted based on different kind of beliefs (behavioral, normative etc.), but to ensure the actual KSB in organizations, they cannot just wait for their employees to get driven by the beliefs, which could be overcome within a certain timeframe. Moreover, Eiser (1994) has criticized the assumption that behavioral beliefs consistently predict attitudes, arguing that different beliefs will become salient at different times (see also Ajzen, 1996). That is, attitudes may not necessarily be determined by behavioral beliefs, but beliefs may be inferred from attitudes or behavior.

1.2 Motivation

As knowledge is also considered as the source of power and a person's core-competency, it will be very difficult to command employees contribute selflessly. Consequently, compared to other processes of KM, KS is the biggest challenge to an organization's KM activities. That is also why I am interested in figuring out what could

possibly affect the willingness of a knowledge possessor, and by identifying the preceding factors affecting the willingness, we therefore are able to leverage the improvement of such sharing activities within an organization. In this regard, it is considered that this study will be of interest to the researchers, academics and practitioners of KM. Hence, we hope future researchers interested in examining social and organizational antecedents to KSB will get a great insight in conducting more studies in these areas to determine the more sightless aspects.

1.3 Scope of the study

This study provides a small organizing framework for current KS perspectives. Experimental studies here are conducted to explore more ambiguous angles of this concept. According to KS literature most of the researches have been conducted in developed countries. So considering different cultural characteristics and economical situations, which influence the type of organizational structure as well as interpersonal communication between members, we have taken steps to investigate one of the developing countries. Furthermore, considering the importance of different theories as a significant issue, which affects KSB for more profound studies, we tried to investigate the factors related to some important theories.

1.4 Research Objectives

The objective of this study is to investigate what factors determine KSI and KSB in private and public sector organizations in India. Although there have been a number of research studies that have investigated the two concepts in private and public sectors independently, there has been relatively little research effort directed towards understanding the specificities. In private sector, specific analysis is also implemented on IT sector, as the advanced case of KS, especially under the condition of IT facilitation of the process. In terms of theoretical perspectives, this dissertation also examines ways of expanding the TPB model through inclusion of other important theories such as SCoT, SCaT, and Social Dilemma etc. in TPB model.

1.5 Significance of Study

This dissertation is expected to provide significant information about factors' contribution to KS performance of individual in Indian organizations. For researchers, this study will be an important contribution to the theoretical discussion of individual level KS in the public and private organizations. After analyzing different theories based factors and their relationships with KSI and KSB, the results are used to clarify the validity of these theories. This study will provide more empirical evidence to

support the literature and will show more comprehensive and innovative approach for academics.

As for practitioners this study will suggest to create favorable environment and the management strategies which motivate individuals for KS so that the firm could improve the performance.

1.6 Organization of the study

The organization of this dissertation is described in Figure 1.1 and consists of seven chapters. Chapter 1 covers research background and research questions, objectives of the study and organization of the study.

Chapter 2 Literature Review contains the overview of different KS models and their strengths and weaknesses.

Chapter 3 contains meta-analyses of previous research studies. The chapter tests the efficacy of TPB in KS context with attentions to the public vs. private sectors and IT facilitation as moderators in KS process.

Chapter 4 empirically investigates the factors affecting individual level KSI and KSB in a government organization in India. The framework is based on TPB and SCoT.

Chapter 5 empirically examines the factors influencing individual level KSI and KSB in private sector organizations in India. Here we tested the model that is similar to that of chapter 4 in order to find the specificities of private organizations.

Chapter 6 examines the predictors of KSI and KSB in IT industries in India. The investigation is based on SCaT and TPB.

The final chapter is the conclusion including a summary of the main findings, limitation of the study and policy implication.

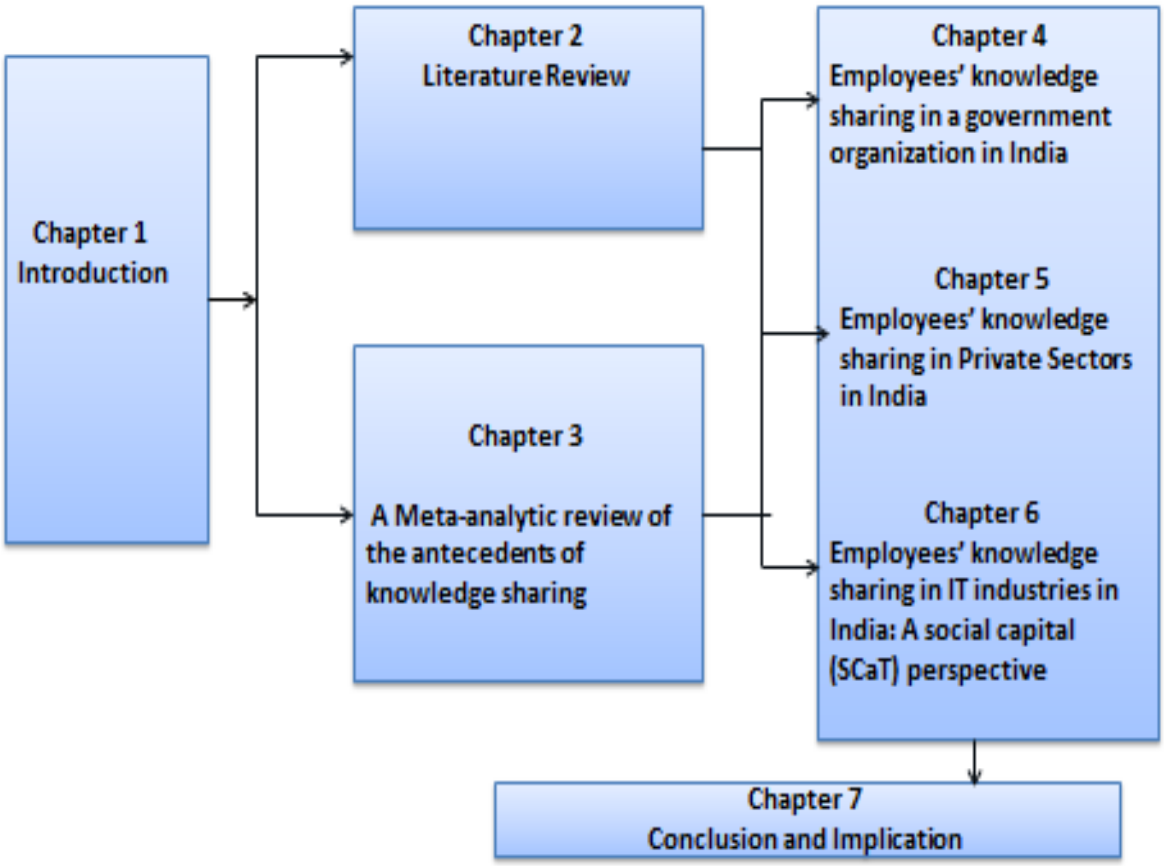

Figure 1.1 Organization of overall dissertation

Chapter 2 Literature Review

2.1 Introduction

Numerous studies have addressed issues related to increase the ability to manage KS at various levels within organizations and in different types of organizations (Bock & Kim, 2002; Bock et al., 2005; Kyu & Young, 2008). Since the knowledge became the foundation of a firm's competitive advantage, managing KS has become one of the major challenges facing contemporary organizations. And thus the organizations have taken numerous steps to improve its information systems to strengthen internally and externally the KS activities. Inherently, however, knowledge resides within individuals (Nonaka & Konno, 1998) and, more specifically, in the employees who create, recognize, archive, access, and apply knowledge in carrying out their tasks. Consequently, the flow of knowledge across individual and organizational boundaries is ultimately dependent on employees' KSBs. When KS is limited across an organization, the likelihood increases that knowledge gaps will arise, and these gaps are likely to produce less-than-desirable work outcomes (Baird & Henderson 2001).

Because of the potential benefits that can be realized from KS, many researchers and practitioners tried to find how the organization could achieve a successful KS process in

organizations. Organizations have invested considerable time and money into KM initiatives including the development of KMS to facilitate the collection, storage and distribution of knowledge. However, despite these investments it has been estimated that at least $31.5 billion are lost per year by Fortune 500 companies as a result of failing to share knowledge (Babcock, 2004). An important reason for the failure of KMS to facilitate KS is the lack of consideration of how the organizational and interpersonal contexts as well as individual characteristics influence KS (Carter & Scarbrough, 2001; Voelpel et al., 2005).

Seeking to understand the ways in which firms organize and benefit from KS, research has increasingly focused on its antecedents. Prior studies have examined organizational characteristics, such as decentralization and formalization (Gupta & Govindarajan, 2000), or have primarily focused on attributes that typically operate at the dyad- or network-level, such as trust and cultural distance (Lane et al., 2001). Another set of studies has centred on outcomes, such as financial performance, new products introduced and innovativeness (Katila & Ahuja, 2002). After two decades of research, however, a systematic overview of the underlying mechanisms and outcomes of KS is still lacking. Prior studies on KS exhibit variation in magnitude, statistical significance, and direction of relationships studied based on several theories. For instance, the

dominant theory of the theory of reasoned action (TRA) proposed by Ajzen and Fishbein (1980), and later on the extended version, the theory of planned behaviour (TPB) (Ajzen, 1991) have been used over the past two decades to examine various behavioural intentions and behaviours in KS context. The TRA/TPB applies to volitional behaviours and has been applied widely in a number of domains, where behaviour is posited as resulting from behavioural intention.

There are several other social cognition models that need to be investigated to see the effectiveness of behavioural interventions. Locke (1991) identifies "key motivational concepts in chronological sequence" (from "Needs" to "Satisfaction") and shows "where in the sequence each major theory of motivation is focused".

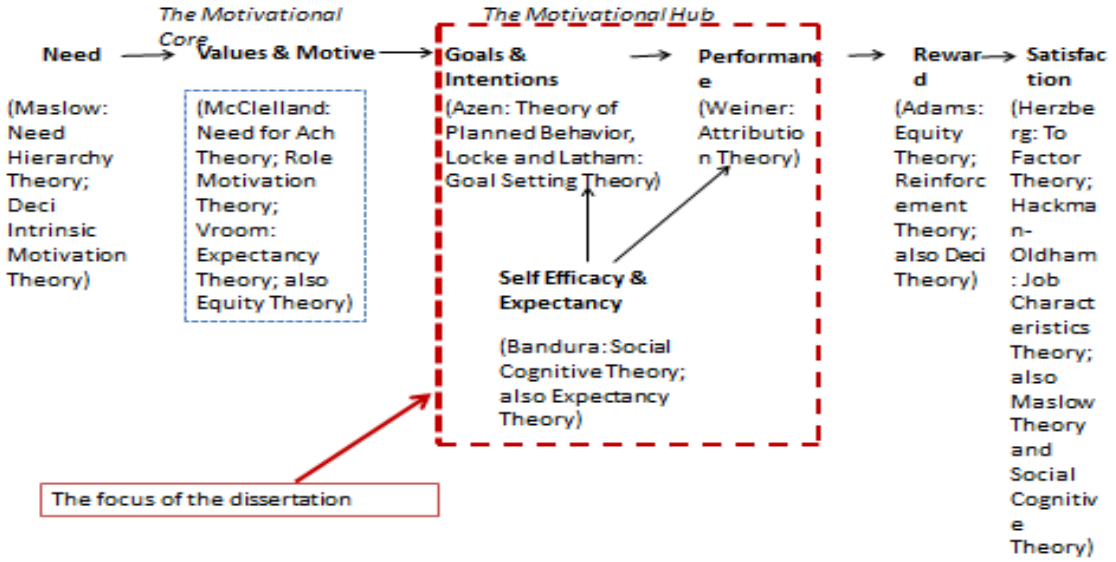

Figure 2.1The motivation sequence by Locke (1991)

He argues that organizational intervention at the "Need" stage and later stage of "Value" is difficult in that "it would require either some form of therapy or very intense, structured experiences which would be of questionable ethical status" (Locke, 1991: 296). Instead, Locke advises considering theories constituting the action oriented stage "Motivational Hub" in order to intervene the KS process in an ethically correct way and to achieve better KS output. One of the theories outlined by Locke as the Motivational Hub theory is the Ajzen's TPB which is influenced by SCoT. KS mechanisms are deployed in the belief that influencing the conditions of individual actions in a certain manner will lead employees to take those decisions that, when aggregated, lead to

favorable organizational outcomes (such as organizational performance through individual performances and their interactions).

Lock did not include the theories like SCaT and social dilemma in his 'motivational sequence'; however, these theories influence the relationship between the two parties and their expectations with each other while sharing knowledge. Thus the theories can be adjusted in the 'self-efficacy and outcome expectation stage'.

This dissertation contributes to the existing literature by examining how individual level KS within organizations relates differently to their antecedents based on some theories. In particular, this literature review chapter has tried to provide some theoretical indications as to the key variables that may determine KSB. Based on TRA/ TPB, it is suggested that intentions to share knowledge are an immediate predictor of KSB. We then use SCoT, social dilemma and SCaT to identify factors that influence KSI and KSB. After having identified the key factors predicted to encourage and facilitate KS, general different natures of public and private sectors as well as the role of IT are discussed. Lastly we then reviewed research to pinpoint specific discussion points that would be useful to analyze KS.

2.2 Overview of the Literature

The literature review process for this dissertation starts by selecting suitable literature about KS. After the selection procedure the literature will be analyzed and we will go for the construct selection procedure based on the explanations and predictions.

2.2.1 Literature selection procedure

For the selection of the KS literature, we use a structured selection procedure.

1. Start search via scholar.google.com with the following keywords: knowledge sharing, knowledge sharing theories, knowledge sharing model etc.

2. Sort the results by cited by descending, so the most cited paper are on top.

3. Read the abstract of the paper and check whether there is a KS model or KS theory (Such as TPB, TRA, social exchange theory (SET), SCoT, social dilemma etc.) discussed.

In order to gain the systematic understanding of determinants of KS based on the theories above we have reviewed articles published between 2000 and 2010. Our focus was on whether the article considered one of the KS theories and that should be an empirical one. To examine the claim that the literature is preoccupied with examining

private sector organizations we also evaluated whether the articles that considered all the theories above mentioned looked into public, private, or a combination of the two types of organization. Table 2.1 summarizes studies based on KS theories.

Table 2.1Recent KS Studies and Theories

No.	Study Name	TPB/ TRA	SET	SCaT	S CoT	Social Dilemma	IT as variable	Types of organization
1.	Bakker et al. (2006)		O				×	private
2.	Burgess (2005)		O				×	private
3.	Bock et al. (2005)	O					×	public
4.	Bock & Kim (2002)	O	O		O	O	×	public
5.	Cabrera et al. (2006)	O	O			O	×	private
6.	Chen et al. (2009)	O					×	
7.	Cress et al. (2004)					O	×	
8.	Chiu et al. (2006)			O	O		×	private
9.	Cho et al. (2010)	O	O		O	O	×	prívate
10.	Choi et al. (2008)						×	prívate
11.	Chow & Chan (2008)	O					×	prívate
12.	Gupta & Govindarajan (2000)	O					×	private
13.	Hsu et al. (2007)				O		×	
14.	He & Wei (2009)	O					×	private
15.	Inkpen & Tsang (2005)			O			×	private

16.	Jiacheng et al. (2010)	O					×	private
17.	Kankanhalli et al. (2005)	O	O				×	public
18.	King & Marks (2008)		O				×	public
19.	Kuo & Young (2008b)	O					×	public
20.	Lin (2007)	O	O				×	private
21.	Lin (2008)						×	
22.	Lin & Lee (2004)	O					×	private
23.	Liu (2008)						×	
24.	Liu & Liu (2008)	O					×	private
25.	Lu et al. (2006)					O	O	private
26.	Monteiro et al. (2008)						×	private
27.	Minbaeva & Pedersen (2010)	O			O		×	private
28.	Quigley et al. (2007)	O					×	
29.	Reychav & Weisberg (2010)	O						
30.	Ryu et al. (2003)	O					×	public
31.	Wah et al. (2007)							public
32.	Wasko & Faraj (2005)			O			×	
33.	Willem & Buelens (2007)		O				×	public
34.	Yu et al. (2010)		O				×	private

2.3. Theories Relevant to Knowledge Sharing

In order to promote KS, it needs to understand the mechanism that drives individuals to contribute their valuable knowledge. Several theories have been applied to study KSB.

Each theory has its strengths and weaknesses. In this section we are going to discuss these strengths and weaknesses of some of the main theories of KS.

2.3.1 Theory of Reasoned Action (TRA)/ Theory of Planned Behavior (TPB)

TRA (Fishbein & Ajzen's, 1975) is a well-established general theory of social psychology that assumes human beings as quite a rational and makes systematic use of information. TRA posits that a proximal determinant of volitional behavior is intention to engage in that behavior. This intention is jointly influenced by attitude and subjective norm. Ajzen (1991) extended the TRA model to include a measure of perceived behavioral control (PBC) —a variable that had received a great deal of attention in social cognition models (Armitage & Conner, 2000; Conner & Norman, 1996a). PBC is held to influence both intention and behavior. The explanatory power of TPB makes it a useful model for understanding organizational encouragement of KSB. The TPB is an individual-level theory, and it is important to study this theory since this model has been the base model for all other theories.

In suggesting that behavior-intention relationship is solely under the control of belief components (such as attitude, subjective norm etc.), the TRA/TPB restricts itself to volitional and control behaviors. Behaviors requiring skills, resources, or opportunities

not freely available are not considered to be within the domain of applicability of the TRA/TPB, or are likely to be poorly predicted by the TRA/TPB (Fishbein, 1993). The TPB attempts to also predict non-volitional behaviors by incorporating perceptions of control over performance of the behavior as an additional predictor (Ajzen, 1988, 1991). The consideration of perceptions of control are important because they extend the applicability of the theory beyond easily performed, volitional behaviors to those complex goals and outcomes which are dependent upon performance of a complex series of other behaviors (e.g., sharing knowledge). The link between intentions and behavior reflects the fact that people tend to engage in behaviors they intend to perform. However, the link between PBC and behavior is more complex. This relationship suggests that we are more likely to engage in (attractive/desirable) behaviors we have control over and suggests that we are prevented from carrying out behaviors over which we have no control. Conversely, it is suggested that if intentions are held constant, behavior will be more likely to be performed as PBC increases.

Thus, TRA/ TPB alone cannot be sufficient to explain the mechanism of the complete process of KS. Extending the work on TPB may allow us to go a step further and consider how the antecedents of individual behavior may be influenced by managerial

interventions. For the above reason we need to go deep into other theories such as SCoT, SCaT, SET or Social Dilemmas, etc.

Table 2.2 Relationship among TPB Constructs

Relationships	Theories	Studies
KSI －＞ KSB	TRA/TPB	Bock & Kim (2002), Chen et al., (2009), Choi et al. (2008), Gupta et al. (2008), Kuo & Young, (2008), Lin & Lee (2004), Minbaeva & Pedersen (2010), Ryu et al. (2003)
Attitude－＞KSI	TRA/TPB	Bock & Kim (2002), Bock et al. (2005), Chen et al. (2009), Chow & Chang (2008), Cho et al. (2010), He & Wei (2009), Jiacheng et al. (2010), Kuo & Young (2008), Lin (2007), Lin & Lee (2004), Minbaeva & Pedersen, (2010), Ryu et al. (2003)
SN－＞KSI	TRA/TPB	Bock et al. (2005), Chen et al. (2009), Jiacheng et al. (2010), Kuo & Young (2008), Lin & Lee (2004), Minbaeva & Pedersen (2010), Ryu et al. (2003),
KSSE－> KSI	TPB	Kuo and Young (2008), Lin (2007a)
KSSE－> KSB	TPB	Cabrera et al. (2006), Cho et al. (2010), Hsu et al (2007), Kankhali et al. (2005), Kuo & Young, (2008), Liu & Liu (2011), Quigley et al. (2007), Ye et al. (2006)

2.3.2 Research Based on Social Cognitive Theory (SCoT)

SCoT (Bandura, 1986; 1989) has been widely applied in the KS literature. According to the SCoT, a person's behavior is partially shaped and controlled by the influences of social network (i.e., social systems) and the person's cognition (e.g., expectations, beliefs). Of all the factors that affect individual behavior, and standing at the core of the theory, are self-efficacy and outcome expectations. Self-efficacy is a judgment of one's ability to organize and execute given type of performances.

Outcome expectation is "a judgment of the likely consequence such performances will produce" (Bandura, 1997). Outcome expectations refer to the expected consequences of one's own behavior (Hsu et al., 2007). The importance of outcome expectations in determining KS is consistent with the value-expectancy theory which states that ''an individual's behavior is a function of the perceived likelihood, or expectancy, that his or her behavior will result in a valued outcome'' (Cabrera & Cabrera, 2002).

However, the SCoT is limited in addressing what components are within a social network and how they influence an individual's behavior generally, necessitating the introduction of an additional theory as the foundation for exploring the impact of social network on KS, in particular.

Researchers interested in understanding the motivations prompting people to share knowledge have focused on the relationship between people or units (e.g., community ties or social interaction) and the network of relationships (e.g., trust, norms, and identification). For example, strong community ties could provide important environmental conditions for knowledge exchange (Wellman, 1990). Therefore, we next consider the social capital theory and SCaT.

2.3.3 Social Capital Theory

Our interest throughout the study is, how KS between network members occurs, and what role social capital plays in the KS. The primary motivator here is the key concepts of networks, social capital, and organizational KS. As the concept evolved, through work by Coleman (1988), Burt (1992), and others, a consensus emerged that social capital represents the ability of actors to secure benefits by virtue of membership in social networks or other social structures (Portes, 1998). At an organizational level, benefits include privileged access to knowledge and information, preferential opportunities for new business, reputation, influence, and enhanced understanding of network norms. Although Adler & Kwon's (2002) comprehensive review identifies many different approaches used in studying social capital, two patterns emerge from the various definitions (Leana & Van Buren, 1999). The first is derived from social network

theorists (e.g., Belliveau et al., 1996; Burt, 1997; Useem & Karabel, 1986), who emphasize personal benefits, such as career advancement, that actors gain directly from their social capital. Proponents of this perspective consider social capital a private good possessed by individuals. Other scholars conceptualize social capital as a public good (e.g., Bourdieu, 1986; Coleman, 1988; Putnam, 1993). They regard social capital as an attribute of a social unit, rather than an individual. As a public good, social capital is available to and benefits not only those who create it but also group members at large (Kostova & Roth, 2003).

This gap is the result of four interconnected theoretical research threads operating at an organizational level. First, there is a well-established body of literature underscoring important relationships between knowledge and networks. Second, in the network area there is an increasing interest in understanding how the social context in which firms are embedded influences their behavior and performance (Gulati et al., 2000; Uzzi & Gillespie, 2002). Third, social capital has been identified as a concept that can add value to the study of network social processes (Lee et al., 2001; Leenders & Gabbay, 1999). Fourth, in various academic (e.g., Adler & Kwon, 2002; Gargiulo & Benassi, 2000; Nahapiet & Ghoshal, 1998) and practitioner-oriented publications (e.g., Anand et al., 2002; Baker, 2000), researchers recently have argued that access to new sources of

knowledge is one of the most important direct benefits of social capital. Moreover, there is evidence suggesting that KS is facilitated by intensive social interactions of organizational actors (Lane & Lubatkin, 1998; Yli-Renko et al., 2000; Zahra et al., 2000). There are few studies that examine how the social capital dimensions of networks affect an organization's ability to acquire new knowledge from the network and facilitate the transfer of knowledge among network members.

2.3.4 Research Based on Social Exchange Theory

According to the SET (Blau, 1964), individuals interact with other individuals based on a self-interest analysis of the costs and benefits of such an interaction. People seek to maximize their benefits. However these benefits need not be tangible since individuals may engage in an interaction with the expectation of reciprocity (Gouldner, 1960), such as gaining desired resources through social reciprocity or some other kind of future return. In order to maximize the resources gained, individuals may build social relationships with others by sharing their knowledge. Davenport & Prusak (1998) have analyzed KSB and have outlined some of the perceived benefits that may regulate such behavior. These benefits include future reciprocity, status, job security, and promotional prospects. From this perspective, KS will be positively affected when an individual expects to obtain some future benefits through reciprocation (Cabrera et al., 2005).

Despite the usefulness of SET, all the studies faced some critical problems. First, the factors under SET have not been fully identified. Different studies test different set of the critical theoretical variables. Second, some formulations of SET can be interpreted in multiple ways. As a result, the presence of any vagueness renders a model difficult to test. For example, the foundational ideas of SET's explanatory power are (a) rules and norms of exchange, (b) resources exchanged, and (c) relationships that emerge. Each of these ideas is of considerable importance, but each has lacked clear definition and/or has been the source of conceptual misunderstanding. Therefore, we need to highlight these conceptual uncertainties and provide suggestions for clarity.

2. 3.5 Research Based on Social Dilemma

Social dilemmas describe paradoxical situations in which individual rationality — simply trying to maximize individual pay-off— leads to collective irrationality (Kollock, 1998). This situation constitutes a dilemma because individual attempts to maximize pay-off can result in collective damage.

According to several researchers of KM (Wasko & Faraj, 2000; Connolly & Thorn 1990; Connolly et al., 1992; Kalman, 1999; Monge et al., 1998), access to a public good is not restricted to contributors only, there is a temptation for individuals to *free-ride,* i.e.

to enjoy the resource without contributing to its provision (Sweeney, 1973). In other words one can improve one's work performance by employing methods and ideas available from co-workers, until the use of these ideas does not diminish their potential value to others. Also, in organizations with a competitive intimal work environment, the contributor of an idea may be assuming a great deal of personal vulnerability by revealing the secrets of his or her own competitive edge. Depending on the relative weight of these costs and benefits, some individuals may feel that they are better off hoarding, rather than sharing, what they know.

Why do some people choose to cooperate in public-good situations? As mentioned earlier, there are perceived benefits of contributing, as well as costs. Some people may expect that their contributions will earn them a good reputation and improve their status within their social group. Others may choose to participate because it gives them positive feelings of sociability or of 'doing the right thing' (Wasko & Faraj, 2000; Kalman, 1999). Perhaps others do so in hopes of reciprocity, that is, they trust that their participation will encourage others to follow (Wasko & Faraj, 2000; Axelrod, 1984).

Table 2.3 Relationship of Important Constructs and Theories

Relationships	Theories	Studies
Expected Rewards → Attitude	Social Dilemma, SET	Bock & Kim (2002), Bock et, al. (2005), Lin (2007)
Expected Association/ expected relationship → Attitude	SET	Bock & Kim (2002), Bock et al. (2005), Hsu & Lin (2008)
Expected Contribution → Attitude	SCoT	Bock & Kim (2002), Bock et al. (2005)
Trust KSB	SET, SCT	L-F Liao (2008), Hsu et al. (2007)
Outcome expectation → KSB	SCoT	Hsu et al. (2007)
Reciprocity → KSB	SET	Cabrera & Cabrera (2005)
Organizational commitment → KSB	SET	Ye et al. (2006)
Organizational Support → KSB	SET	King & Marks (2008)
LEVEL of IT usage (Moderation)	TRA	Bock & Kim (2002)
Greed → KS	SD	Lu et al. (2006)
OKSP → KSI	SCoT, SCaT	Chiu et al. (2006)

2.3.6 Organizational / environmental Structure

All the major KS theories except TRA/TPB found organizational structures and its culture are very important for KS. This is the only way one can actually enhance the mechanism of KS process. There are many different types of organizations. We have divided them into two broad categories for our discussion: public and private sector organizations.

Different type of organization (public and private)

Organizations in the public sector are quite different in many aspects with those in the private sector, in terms of organizational structure, organizational goal, managerial systems or values etc. For example, public sectors have relatively more formal procedures for decision making, and are less flexible and more risk-averse than their private sector counterparts (Bozeman & Kingsley, 1998; Farnham & Horton, 1996). Managers in public organizations have less freedom to react as they see fit to the circumstances that they face. Weinberg (1983) notes that 'private sector executives are often assumed to be able to formulate and carry out "rational" strategies because they control tightly structured hierarchical organizations'. By contrast, public managers have the costs of hierarchy (rules and bureaucracy) without the benefits (the freedom and power to manage their subordinates). It has been argued that public managers' discretion on personnel issues is especially low because rules on hiring, firing and promotion are inflexible. For example, 'public employees enjoy greater job security because the procedures for taking greater punitive actions are so complex and time consuming that few people choose to pursue them' (Baldwin, 1987, p. 183; see also Perry & Porter, 1982). From the above mentioned differences we can conclude that it is not easy to consider similar management principles, policies and processes for both

sectors together. To understand KS context in both sectors the KS literatures should be examined first.

2.3.7 Role of IT within SET context

The minimization of cost is one of the central criterions of SET. One of the best ways to reduce the cost of sharing knowledge is to have a well-designed, user-friendly technological tool that simplifies the task and reduces the time necessary for sharing one's ideas with others. Organization can reach to their goal of KS if the information technology or systems that support KS activities should remain in harmony.

From the Table 2.1 it can be easily observed that the necessity of IT facilitation has not been taken seriously, as much of the literature in SET context has focused only on socio- psychological behavior of individual. There are 10 studies under SET context listed in the table 2.1. But no article used IT facilitation as one of the factors influencing KSI or KSB. Why are the IT facilitation factors unavailable from KS research though it should be the major determinants of KS? This may be because how IT based network relations influence communication channels in organizations, and how such channels determine KS outcomes at organizational level is still not clear.

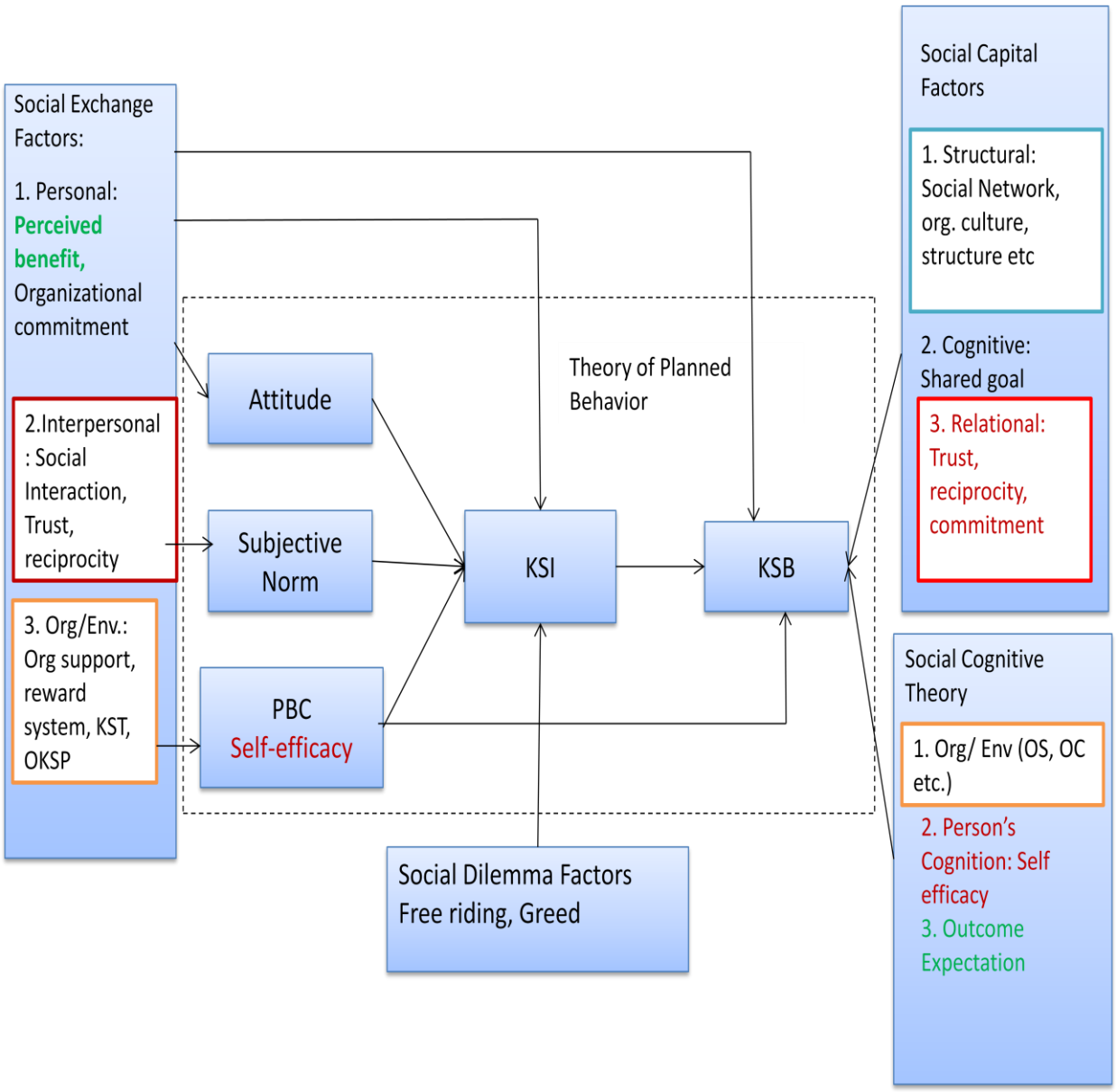

Figure 2.2 Model for KSB (by integrating all the major KS theories)

2.4. Discussion

2.4.1 Difference between Self-efficacy as Person's Cognition (SCoT) and as Perceived Behavioral Control (TPB)

Self-efficacy, a principal factor is a part of many theories. The large majority of contributions to the KS literature are not founded on clear assumptions about the similarities or the differences of the same component discussed as person's cognition within SCoT and as perceived behavioral control within TPB.

Perceived behavioral control, the person's belief as to how easy or difficult performance of the behavior is likely to be. According to TPB, among the beliefs that ultimately determine intention and action is a set that deals with the presence or absence of requisite resources and opportunities. The more resources and opportunities individuals think they possess, and the fewer obstacles or impediments they anticipate, the greater should be their perceived control over the behavior. Bandura and his associates (e.g., Bandura et al., 1977; Bandura et al., 1980) have provided evidence showing that people's behavior is strongly influenced by their confidence in their ability to perform it (i.e., by perceived behavioral control) . In other words it means task specific confidence. The concept of self-efficacy has also been applied to KM to validate the effect of personal efficacy belief in KS that is KS self-efficacy (KSSE). SCoT highlights self-efficacy, noting that our expectations of positive outcomes of a behavior will be fruitless if we doubt our capability to successfully execute the behavior. This is perhaps an important issue in KS. Because of complexity of and barriers to the exchange of

existing knowledge, SCoT extends the conception of human agency to collective agency (Bandura, 1977). In this regard, people shared belief in their collective power to produce desired results is a key ingredients of collective agency. A person's belief in the collective performance of a social system involves transactional dynamics. However it is people acting conjointly on a shared belief, and that is the reason behind the measuring individual level self-efficacy. From the above discussion what we believe is a sound goal for conducting a multi-level analysis about behavioral and cognitive assumptions of self-efficacy exists in both theories.

2.4.2 Emphasis on Private Sectors in Comparison to the Public Sector

Many contributions in KS context as we see in the Table 2.1 are focusing on the private sectors. In other words, most of the popular theories and models are mainly explained or discussed in the private sectors environment, although we expect the differences in KS process in two sectors. Our review confirms that researcher in KS area prefer private sectors in comparison with public sectors. Twenty out of 37 reviewed articles presented private sectors' employees as their samples. Only eight articles explore the public sectors area. It is likely that either the emphasis on private sectors that we note is because of well-known difficulties of sampling data (Becker & Huselid, 2006; Rousseau, 1985), a preference for sampling on the private sector level, or the

consequent neglect of public sector cannot be supported by available data. Moreover, there is a possibility that the research on KS may have been discouraged due to the presence of *publicness of organizational structure* (Boyney, 2002) such as more bureaucracy; highly formalized hierarchy etc. The existence of this kind of structure implies an unnecessary and counter-productive obsession with rules rather than results, and with processes instead of outcomes. Therefore empirical attempts to analyze KS in public sectors are to be appreciated in the literature.

2.4.3 Role of IT

The introduction of new technology has failed because inadequate attention was paid to the non-technical or human factors which are critical determinants of the effectiveness of the new systems (Cabrera et al., 2001). The most successful IT is the one designed to enhance the human networks that already exist. Training in the use of these tools can help people use the systems more efficiently and thus further reduce not only the cost (Cabrera & Cabrera, 2002) but time too.

Human resource managers should play an active role in the selection of IT to ensure that the technology chosen builds upon or enhances, rather than clashes with, the existing KS networks within the firm KS by creating an environment conducive for sharing, as

well as positive attitudes toward sharing. Each of these practices may simultaneously affect a number of the socio-psychological factors previously identified as facilitating or encouraging KS.

2.5. Conclusion

Discussions of the determinants of KS theories and on the practical use of those determinants in different organizational context have shed considerable light on different theories. Some points may still exist and could not be solved such as the managerial intervention under these theories. However, some basic distinctions are fairly settled. Chief among these is the distinction between self-efficacy concepts under TPB and SCoT. The link between self-efficacy and behavior under TPB is found very complex.

There is also much agreement on the type of organizational distinction; as we concluded that the structure of private organization is much more appropriate for achieving effective KS as described by the KS theories.

KS can be encouraged in public organization by reducing the bureaucracy and formalization and by introducing IT supported KM systems that may contribute to the sustainability of competitive advantage of public sectors.

At the same time, since more research effort has been devoted to private sectors and in developed countries, it seems highly relevant to examine the public sectors KS and moreover in developing countries which are fairly underexplored area in the KS literature.

Chapter 3

Meta-analytic Review of the Antecedents of Knowledge Sharing

3. 1 Introduction

In the present chapter, meta-analysis will be applied to detect moderating effects as well as general relationships among the factors concerned. As discussed in the previous chapter, KS has led to various theories concerned. Since TPB is one of the most influencing theories and has received considerable attention in the KS literature, the present meta-analysis considers KSI and KSB in the context of the TPB.

Meta-analysis is particularly appropriate with empirical studies having diverging results. It allows empirical generalisations across multiple studies (Hunter and Schmidt, 2004) and enables researchers to estimate the true relationships among the study variables. Since we have found some insignificant empirical results in the relation between KSB and its antecedents, it is meaningful to conduct meta-analysis on this issue. The evidence obtained can be used to generate a more comprehensive list of attributes and to assess their relative effects on KS. For the moderation analysis, this review explicitly distinguishes KSB in different organisational types (public vs. private) and in contexts with or without IT facilitation to provide new insights into how both these moderators change the relative importance of the antecedents of KSB.

A number of studies demonstrated the significance of KSB in organization; however, there is a relative lack of significant KS within public firms compared to KS in private firms. Many prior efforts were made to find approaches and mechanisms to enhance KS in private firms (Bock, Zmud, Kim, and Lee, 2005; Chow, Deng, and Ho, 2000). However, very few studies investigated what actually influences individual KSI and KSB in public sector. Studies on public organisations included benchmarking of KM, KS, KM initiatives, and KM practices (Liebowitz and Chen, 2003; Syed-Ikhsan and Rowland, 2004). Liebowitz and Chen (2003) found that KS in a government context presents unique challenges since government organizations are typically hierarchical and bureaucratic that makes KS difficult. According to New Public Management (NPM), public organisations should import the managerial processes from the private sector, emulating their successful techniques. However, critics of NPM argue that the differences between public and private sectors are so great that the practices cannot be transferred from one sector to the other (Boyne, 2002). Boyne (2002) further explains that there is no established body of knowledge on successful management strategies in the private sector that public agencies can draw upon (Boyne, 2002). Thus, a strategy designed especially for the public sector is required to fill the gaps in KS.

IT presents various unique opportunities to overcome the barriers of space and time in

KS (Dimmick, Kline, and Stafford, 2000; Hammer and Mangurian, 1997). The use of IT in KS can lead to hyper-personal interactions, i.e. communications with a richer level of social relationships, stronger identification with the group, and more collective behaviour (Walther, 1996). The diversity of IT artefacts available to practitioners to facilitate KS, are not just limited to email, collaboration and communication tools through telecommunications and videoconferencing technologies, but to group decision support tools, social network analysis tools, and knowledge codification tools too (Davenport and Prusak, 1998; Chua, 2004). Research by Massey et al. (2002), Gottschalk (2005), Benbya (2006), Jennex and Olfman (2005, 2006) and Butler et al. (2007) indicate that effective, i.e., successful, KMS are constituted by highly accessible and well-integrated web-based Intranet technologies that facilitate KS. Benbya (2006) argues that effective KS technologies are integrative, highly accessible, and searchable, because the ability of a system to integrate knowledge from a variety of sources and present it in a manner that enables easy access and reuse is associated with both knowledge quality and knowledge usage."

Thus, the agenda of the chapter is as follows. First, we discuss the set of antecedents and their relationship with KSB based on theoretical investigations. Next, we develop the database for our meta-analysis. Subsequently, we use meta-analysis to provide a

quantitative summary of the mean values and range of effects for the antecedents of KSI and KSB. We provide empirical results at private and public organisational levels of analysis and additionally examine IT vs. non-IT facilitation as moderators for the relationships found. We conclude with a discussion of the implications and directions for future research.

3.2 Theoretical Development

3.2.1 Theory of Planned Behavior and Knowledge Sharing

The TPB is the most preferred intention–behaviour model within the KM field. Intention refers to the degree to which people are willing to try or how much of effort they plan to exert to perform the behaviour (Ajzen, 1991). Regarding antecedents of the intention, attitude towards behaviour is defined as the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. Subjective norms (SNs) towards behaviour are defined as the perceived social pressure to perform a particular behaviour. Perceived behavioural control refers to the amount of control over the achievement of personal goals that is introduced to deal with situations in which people may lack complete volitional control over a particular behaviour (Ajzen, 1985; 1988). Previous research has revealed several control factors that can influence a person's control over a given behaviour (Ajzen, 1988). These include

individual differences (such as abilities and skills) and the degree to which individuals have control over their actions in the form of will power. The former (i.e. individual differences) is generally recognised as perceived self-efficacy and the latter as controllability (Ajzen, 2002). In the formulation of the TPB, perceived self-efficacy and controllability serve as antecedents to intention as well as actual behaviour (Ajzen, 2002). However, due to data constraints, we examined only the relationship between self-efficacy and KSB.

3.2.2 Knowledge Sharing Intention and Knowledge Sharing Behaviors

The interrelation between intention and behaviour to share knowledge is important for organisational learning and a firm's competitive advantage (Teo, 2005). In all types of organisations, competitive advantage derives from individuals who possess specific knowledge and from the organisation's ability to leverage this knowledge. The intention construct is central not only to the TPB but also to TRA (Ajzen and Fishbein, 1975, 1980). Intentions capture the motivational factors that influence a behaviour and indicate how hard people are willing to try to perform that behaviour (Ajzen, 1991). Thus the hypothesis 1 examines the relationship between KSI and KSB.

H1: KSI is positively associated with KSB.

3.2.3 Attitude and KSI

A person's attitude towards an object influences the overall pattern of his/her response to the object; however, it need not predict any given action. A person's intention is a function of his/her attitude towards performing the behavior (Ajzen and Fishbein, 1977). It follows that a single act is predictable from the attitude towards that act if there is a high correlation between KSI and KSB. People's actions are systematically related to their attitude through their intention. Thus, we propose our second hypothesis.

H2: Attitude is positively associated with KSI.

3.2.4 Subjective Norm and Attitude

Subjective norm reflects participants' perception of whether the behavior is accepted, encouraged and implemented by participant's circle of influence (Pavlou and Fyenson, 2006). The literature suggests a positive relationship between SN and intended behavior. Bock et al. (2005) conducted a survey with 30 organizations to test a KS model. Results suggested that SN has significant influence on KSI. One's social environment will better place of information to reduce uncertainty and help you to determine whether behaviors are within the rules and acceptable. The present meta-analysis, therefore, considered the SN-KSI correlations.

H3: SN is positively associated with KSI.

3.2.5 Knowledge Sharing Self-efficacy and KSB

Self-efficacy is a form of self-evaluation that influences decisions about what behaviours to undertake. In general, perceived self-efficacy plays an important role in influencing individuals' motivation and behaviour (Bandura, 1982, 1986). People with high self-efficacy will be more likely to perform related behaviour than those with low self-efficacy. Recently, the concept of self-efficacy has been applied to KM to validate the effect of personal efficacy belief in KS, i.e. knowledge sharing self-efficacy (KSSE). Our expectations of positive outcomes of behaviour will be fruitless if we doubt our capability to successfully execute the behaviour. This is an important issue in KS because low self-efficacy may cause complexity in sharing existing knowledge among members of an organisation. A knowledge producer must also have the perceived capabilities to complete it. These capabilities include authoring knowledge content, codifying knowledge into ''knowledge objects'' by adding context, contributing personal knowledge to the organisational database, and sharing personal knowledge in formal interactions with/ across teams/work units or in informal interactions among individuals. Several researchers examined the effect of KSSE on KSB. Following Bock and Kim (2002) and Kankanhalli, Tan and Wei (2005), we recognise that self-efficacy is a critical determinant for users' behaviour in various contexts. Therefore, this study

uses KSSE as a behavioural control variable to deal with situations in which people face the challenge of combining and exchanging knowledge among individuals in the organisation.

H4: KSSE is positively associated with KSB.

3.2.6 Organizational Type and Role of IT

In order to be more precise and to resolve inconsistent findings when investigating KSB, we add two potential contingency factors: public vs. private sector organisation and IT vs. non-IT facilitation. Previous studies reported that different types of organisations and technology facilitations could influence KS. The effect of different antecedents of KSI and KSB may vary across contexts.

Organisational type (public and private) is expected to function as the moderator, although there have been conflict findings in previous studies. Liebowitz and Chen (2003) showed that in government organisations, most people seem reluctant to share their knowledge because knowledge is the power paradigm for moving up the ranks. KM in private organisation is culture driven, while the level of accountability and regulation are stricter in the public sector (McAdams and Reid, 2000).

H5a: The relationship between an individual's KSI and KSB differs across public and private sector organisations.

H5b: The relationship between an individual's attitude and KSI differs across public and private sector organisations.

H5c: The relationship between an individual's SN and KSI differs across public and private sector organisations.

H5d: The relationship between an individual's KSSE and KSB differs across public and private sector organisations.

Prior studies showed that another moderator, IT facilitation exists. IT-facilitated KS may be different from KS without IT facilitation. IT is used at a broader level to heighten the level of cooperation between people and groups (Alavi and Leidner, 2001). Further, IT has the potential to acquire, store, process, retrieve, and transfer the knowledge that enables KS even if people are geographically far or close. Thus, we explore whether IT accounts for the moderating effect on TPB-based antecedents and KS.

H6a: The relationship between an individual's KSI and KSB differs according to IT and non-IT facilitations.

H6b: The relationship between an individual's Attitude and KSI differs according to IT and non-IT facilitations.

H6c: The relationship between an individual's SN and KSI differs according to IT and non-IT facilitations.

H6d: The relationship between an individual's KSSE and KSB differs according to IT and non-IT facilitations.

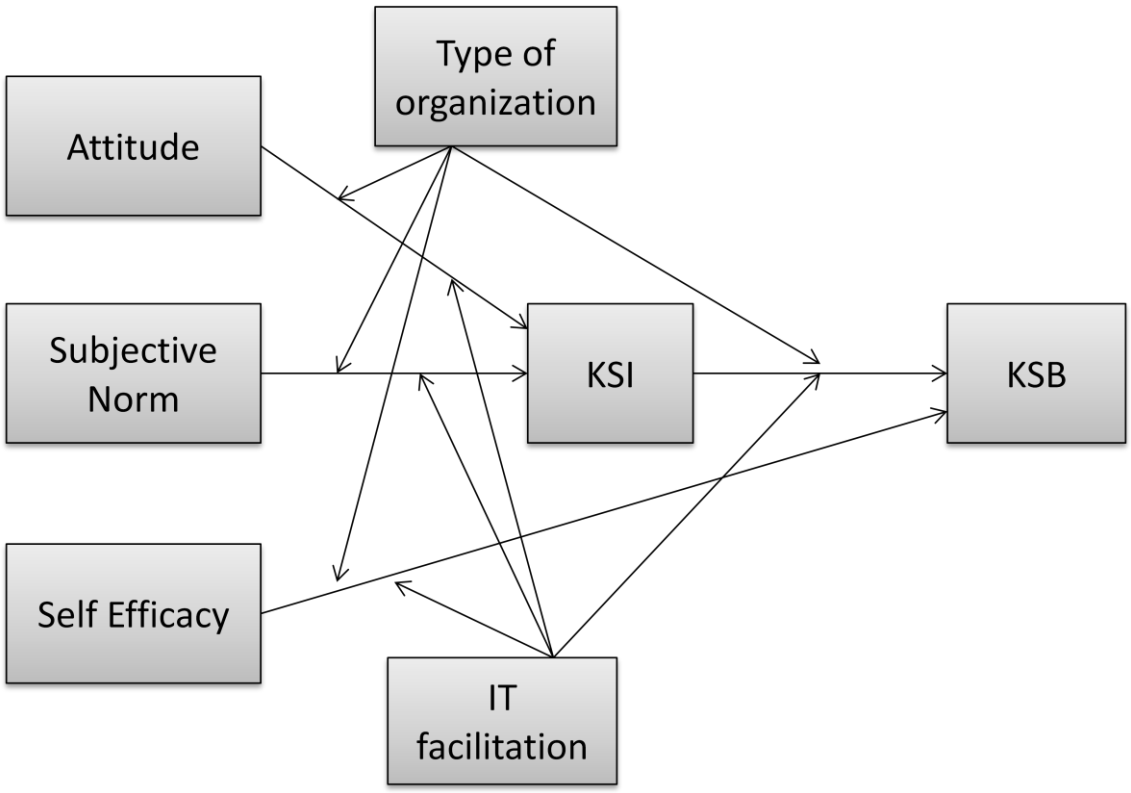

Figure 3.1 Research Model

Notes: Research Model based on Theory of Planned Behavior by Ajzen (1991)

3.3 Methodology

3.3.1 Data Collection

For identifying the literature relevant to this meta-analysis, we used EBSCO Academic Search Premier, Google Scholar, and the Social Science Research Network. The keyword search terms 'KS', 'knowledge management', and 'knowledge systems' were used; we used the keywords 'knowledge shar*', 'information shar*', and 'knowledge transfer' for Google Scholar. Searches in additional databases did not reveal additional comparable KS-based publications. The reference lists of these articles were reviewed to find additional articles for possible inclusion. When an article was identified, it was compared against the established inclusion criteria to determine its suitability for the meta-analysis. We scanned the results for papers containing analysable quantitative data (i.e. correlations, *t*-tests), KSI or KSB as the dependent variable, and at least one measured or manipulated independent variable. We limited the search to publications in English. In addition to peer-reviewed journal publications, our sample included working papers because unpublished studies are less likely to include significant results, and their omission could bias the meta-analysis results towards significance (Rothstein, Sutton, and Borenstein, 2005).

Table 3.1 presents the studies included in our sample. Removing the irrelevant publications yielded a sample of 56 usable studies.

Table 3.1 Studies used in Meta –analysis

	Study	Sample Size	Country	Sample Characteristics	Type of organization	IT context
1.	Bock et al. (2005)	154	South Korea	University students employed by 27 organizations	Public	Non-IT
2.	Bock & Kim (2002)	467	South Korea	Employees of 4 large organizations	Public	Non-IT
3.	Cabrera et al. (2006)	372	Spain	Employees of an information technology company	Private	IT
4.	Chen et al. (2009)	396		Full time senior college student and MBA student		Non-IT
5.	Chiu et al. (2006)	310	Taiwan	IT virtual community members	Private	IT
6.	Cho et al. (2010)	223		Wikipedia		IT
7.	Choi et al. (2008)	164	South Korea	KM employees from 2 manufacturing companies	Private	Non-IT
8.	Chow & Chan (2008)	190	Hong Kong	Managers from D&B Key Decision Makers 2004/05	Private	Non-IT

				directory		
9.	Cockrell (2010)	424	U.S.	Certified Management Accountants	Private	IT
10.	Connelly & Kelloway (2003)	126	Canada	MBA, MPA students at 4 universities, undergraduate students, & individuals who are not students		Non-IT
11.	Faraj & Wasko (2010)	1,023	U.S.	Individuals posting to online forum discuss computer tech. issues	Private	IT
12.	Fey & Furu (2008)	164	Finland, China	Managers of subsidiaries owned by multi-national corporations (MNCs)	Private	IT
13.	Thakadu et al. (2013)	120	Botswana	community-based natural resources management projects	Public	Non-IT
14.	Gupta & Govindarajan (2000)	374	U.S., Japan, Europe	Presidents & managers of MNCs	Private	IT
15.	Hsu et al. (2007)	274	Taiwan, Hong Kong, China	Wikipedians		IT
16.	He & Wei (2009)	362		Members of marketing, R&D, mfg	Private	Non-IT

17.	Jeon et al. (2011)	179	Korea	Members of 70 CoPs	Private	IT
18.	Jiacheng et al. (2010)	200	U.S., China	R&D team members	Private	Non-IT
19.	Kankanhalli et al. (2005)	150	Singapore	KM practitioners from public organizations	Public	Non-IT
20.	Kim & Ju (2008)	70	South Korea	Faculty at a 4-year, private university	Public	Non-IT
21.	Kuo & Young (2008b)	264	Taiwan	Elementary & jr. high teachers	Public	Non-IT
22.	Lawson et al. (2009)	111	U.K.	Purchasing managers from 750 manufacturing firms	Private	Non-IT
23.	Lee et al. (2006)	42	Unknown	Organizations implementing KM systems		IT
24.	Lin (2008)	130	Taiwan	MBA students	Private	Non-IT
25.	Lin (2007)	318	Taiwan	Management information systems students	Private	IT
26.	Lin & Lee (2004)	154	Taiwan	Senior managers from the 2,000 largest firms in Taiwan	Private	Non-IT
27.	Lin, H. (2007)	172	Taiwan	Survey of 50, Top 1,000 firms in 2005 Common Wealth magazine	Private	IT
28.	Liu (2008)	325	Taiwan	University students		Non-IT

29.	Liu & Liu (2008)	371	Taiwan	Research & development professionals	Private	IT
30.	Liu & Liu (2011)	368	Taiwan	Research & development professionals	Private	IT
31.	Lu et al. (2006)	246	China	MBA student n firm employees	Private	Non-IT
32.	Monteiro et al. (2008)	171	Sweden	Marketing managers of MNC subsidiaries & executives of the respective headquarters	Private	IT
33.	Nelson & Cooprider (1996)	86	U.S.	Information system departments & its line customers in 7 firms	Private	IT
34.	Quigley et al. (2007)	120		Undergraduate students		Non-IT
35.	Ryan et al. (2010)	428	U.S., Japan	Chief information officers		IT
36.	Ryu et al. (2003)	286	South Korea	Physician in hospital	Public	Non-IT
37.	Salim et al. (2011)	113	Pakistan	Manager n non mangers	Private	Non-IT
38.	Seba et al. (2012)	519	Dubai	Police force	Public	Non-IT
39.	Schultz (2003)	229	U.S., Denmark	Heads of subsidiary subunits	Private	Non-IT
40.	Siemsen (2008)	191	U.S.	Professional, technical, & line workers from 4	Private	Non-IT

				companies		
41.	Srivastav et al. (2006)	498	US	Hotel mangers	Private	Non-IT
42.	Sohail et al. (2009)		Malaysia	University teaching staffs	Public and Private	Non-IT
43.	Taylor & Murthy (2009)	69	Various	Accounting academics using online networks of practice		IT
44.	Taylor & Wright (2004)	132	U.K	Healthcare providers		Non-IT
45.	Tsai (2002)	24	Unknown	Directors & senior deputy directors of units of a large petrochemical company	Private	Non-IT
46.	Hoff & Ridder (2004)	417	Holland	Five various organizations		Non-IT
47.	Wah et al. (2007)	169-190	Singapore	Tertiary educational institution (staff, admin., & students)	Public	Non-IT
48.	Wasko & Farajj (2005)	604	US	US legal professional association	Online users	IT
49.	Wang (2004)	85	Taiwan	University students		Non-IT
50.	Willem & Buelens (2009)	408	U.S., Japan	Energy and finance companies' employees	Private	
51.	Willem & Buelens (2007)	358	Belgium		Public	Non-IT

52.	Yahya & Goh (2002)	300	Malaysia	Company managers	Private	Non-IT
53.	Yang & Chen (2007)	256	Taiwan	Company managers	Private	Non-IT
54.	Yang & Lai (2011)	219		Wikipedian		IT
55.	Zboralski (2009)	222	Unknown	Community of practice members of multinational firms	Private	IT
.	Zhang & Ng (2013)	256	Hong Kong	Construction company	Private	Non-IT

3.3.2 Meta-analysis Procedures

We coded demographics (organisation type), sample size, and countries of study. The coded methodological characteristics included research design and data source (survey, experiment, archival), independent variables, and dependent variable (KSB or KSI). Each paper was coded separately with comparisons for accuracy. This study largely followed the protocols of Cooper and Hedges' (1994) and Lipsey and Wilson's (2001) approaches to meta-analysis. Effect sizes were the correlation coefficients, averaged across studies; we followed Hunter et al.'s (1982) guidelines for stating the overall significance of each pair wise relationship.

Table 3.2 KSB and its Antecedent Constructs and Measures

Construct	Definition or Operationalization
Knowledge Sharing Behavior (KSB)	Exchanging the acquired knowledge among other members of the organization
Intention to share knowledge (KSI)	The degree to which one is willing to perform the particular behavior
Attitude towards KS	The degree of one's positive feelings about sharing one's knowledge
Subjective Norm (SN)	Participants' beliefs about others' expectations regarding KS or perceived social pressure to perform a behavior
Knowledge sharing self-efficacy (KSSE)	Participants' beliefs about the value their KS provides

The size-adjusted correlation was calculated for the sample. To estimate the effect sizes of the relationships, the correlation coefficient (*r*) was calculated; specifically, the corrected correlation coefficients (i.e. Fischer's Z-transformed correlations) were weighted with the product of sample size and the reliability coefficients for correlated variables. The weighted coefficients were then summed up and divided by the sum of the weights; the result is an estimate of the true population correlation. Effect sizes were weighted and computed using the Comprehensive Meta-Analysis software (Borenstein, Hedges, Higgins, and Rothstein, 2005). Following previous meta-analyses, we provide meta-analytic estimates where at least three independent effect sizes were available.

For each study, coders determined the zero-order effect sizes in the form of correlations (Cooper and Hedges, 1994). When correlations were unavailable, other statistics (e.g. *t*-tests) were transformed into correlations following Lipsey and Wilson (2001). Although a wide range of statistics are appropriate for meta-analysis, findings generated by multivariate analyses would generally be excluded (Lipsey and Wilson, 2001). Multivariate relationships across studies complicate the analysis as the regression coefficients from each analysis are assumed to estimate a different population parameter. Following Lipsey and Wilson (2001), several studies that included variables of interest were excluded because their findings were generated by multiple regression, discriminant analysis, factor analysis, and structural equation modelling. After identifying studies with the appropriate statistics, we retained independent variables used in two or more studies.

3.3.3 Q-statistic: Effect Size Variability across Studies (Homogeneity Estimates)

The homogeneity estimates (Q) measures whether the effect sizes of different studies estimate the same population effect size (Lipsey and Wilson, 2001). A significant Q-statistic may be associated with unique study characteristics (such as differences in participant characteristics) and could indicate that the between-study variability in effect

sizes is greater than expected based on sampling error alone. This gives an indication of the possible moderating effects. Q value, which is based on Fisher Z score, is compared to a critical value, which is chi-square for α=0.05 and k-1 degrees of freedom (k being the number of studies). If Q exceeds the critical value, the hypothesis of the homogeneity of study effects is rejected and the heterogeneity of study effects suggests the presence of moderating variables. Accordingly, we test for and report (where significant) moderator effects (Lipsey and Wilson, 2001).

3.3.4 Moderator Analyses

Two types of moderating variables were considered: type of organisation (H5) and IT facilitation (H6). Moderator variables were included in the analysis if (1) they evidenced a significant Q-statistic, indicating high, between-study variability; (2) they were investigated in more than five studies ($k > 5$); and (3) at least two studies were represented at each level of a moderator (e.g. private vs. public sector organisations).

Finally, the moderators (organisational type and IT facilitation) were analysed in relation to the remaining antecedents for KSI and KSB.

3.4 Results

3.4.1 Correlation Analysis

Table 3.3 presents the results of the meta-analysis of the antecedents of KSI and KSB. We obtained 38 effect sizes for the antecedents of KSI or KSB, including 9 effects involving KSI, 14 effects related to attitude, 8 effects concerning SN, and 7 effects related to KSSE. Additionally, we obtained 29 effect sizes for organisational type and 38 effect sizes for IT facilitation as the moderating effects. The range of total *N* across *r* reported in Table 3.3 varies from 1,709 to 3,973. Support for the hypotheses for all the examined relationships were established when the 95% confidence intervals (CI) around the correlation effect *r* did not contain zero. Thus, results in Table 3.3 support hypotheses H1 to H4.

Table 3.3 Meta-analyses Result for KSI and KSB Relations

Relation -ship	No of studies (k)	Total N	True Population effect size (r)	Z Value	Lower Limit	Upper Limit	Q value	SE	Variance
KSI-KSB	9	2126	0.419***	7.796	0.322	0.507	61.939***	0.015	0.00
Attitude-KSI	14	3973	0.512***	5.818	0.359	0.639	473.459***	0.056	0.003
SN- KSI	8	1709	0.405***	3.514	0.188	0.584	188.676***	0.066	0.004
KSSE – KSB	7	1771	0.268***	2.961	0.093	0.428	87.942***	0.036	0.001

*Notes: k = number of samples in which relationship was estimated; Total N = cumulative N for all k studies; Sample-weighted mean r = mean of uncorrected correlations weighted by sample size (N); Corrected mean r = mean of correlations individually corrected for unreliability; 95% CI = confidence interval around the mean correlation; z value difference = the z value associated with the difference in means between the groups;; * p < 0.05; ** p < 0.01; *** p < 0.001.*

The statistical significance of the correlations was inferred from the combined Z scores for each construct.

According to the classical hypothesis (H1), KSI influences KSB. We obtained a positive significant correlation (r) for the relationship between KSI and KSB (r = 0.419; p < 0.001). Regarding the relationship between attitude and KSI (H2) (r = 0.512; p < 0.001), the meta-analytic evidence reveals that attitude is positively associated with KSI. The effect of size on KSI was studied extensively (k = 14; total N = 3,973).

Our study showed that a significant relationship (r = 0.405; p < 0.001) exists between SN and KSI (H3); the magnitude of the effect was positive. As it would take 1,709 studies with a true population effect of r = 0.405 to sufficiently widen the reported confidence interval to justify inclusion, the effect we found is robust. In addition, the meta-analytic results corroborate the importance of self-efficacy in KSB (H4). As expected, from the above-average number of studies (k = 7), we obtained a positive association between KSSE and KSB (r = 0.268; p < 0.001). These results support hypotheses H1 to H4. The heterogeneity test result show the existence of moderators in all the relationships which further motivate us to go for moderation analyses.

3.4.2 Moderating Effects

The result in Table 3.3 shows that all four pair-wise relationship fail the homogeneity test ($p<0.001$). That is, moderators exist. So the sample was further divided into different groups (as shown in the categories in the table 3.4 and 3.5) to separately test the effect of independent variables. The effect of organizational type was examined by comparing public sectors and private sectors (H5a to H5d). Similarly the effect of IT support was examined by the difference between the two groups IT and Non-IT (H6a to H6d).

The number of studies on KSI and KSB in the public sector (k = 11) and in the private sector (k = 35) were comparable. We tested the significance of the differences in effect sizes by computing z values; the effect sizes were significant for all the pair-wise relations both in public and private sectors (Table 3.4). To investigate the moderating effect of organisational type (public vs. private), the homogeneity estimate (Q value) for each relationship was calculated based on the Hedges and Olkin (1985) procedure. The only Q-statistic that could be interpreted was Q-between, the one between groups (the combined effect of public vs. private organisations).

Table 3.4 Moderator Analyses (Public vs. Private Organizations)

Pair wise relation	No of studies (k)	Total N	True Population effect size (r)	Z Value	95% CI LL and UL		SE	Variance	Q bet/ P value
KSI- KSB Public (H5a)	4	1,119	0.405	3.299	0.173	0.594	0.059	0.003	1.662/ 0.197
KSI- KSB Private	3	788	0.432	6.698	0.316	0.535	0.014	0.000	
Attitude- KSI Public (H5b)	6	2,160	0.500	5.792	0.410	0.478	0.155	0.024	9.507 **/ 0.002
Attitude- KSI Private	5	975	0.572	5.477	0.489	0.579	0.052	0.003	
SN-KSI Public (H5c)	3	559	0.617	2.833	0.506	0.608	0.197	0.039	61.129 ***/ 0.00
SN- KSI Private	4	763	0.236	1.865	0.147	0.283	0.055	0.003	
SE– KSB Public (H5d)	2	414	0.113	1.718	0.024	0.215	0.013	0.060	35.837 ***/ 0.00
SE– KSB Private	2	1,040	0.455	2.875	0.395	0.510	0.083	0.007	

*Notes: k = number of samples in which relationship was estimated; Total N = cumulative N for all k studies; Sample-weighted mean r = mean of uncorrected correlations weighted by sample size (N); Corrected mean r = mean of correlations individually corrected for unreliability; 95% CI = confidence interval around the mean correlation; z value difference = the z value associated with the difference in means between the groups;; * p < 0.05; ** p < 0.01; *** p < 0.001.*

The organisation type moderator was examined using the differences between the two groups (public: $k = 15$; private: $k = 35$); the Q-between public and private organisation was statistically significant ($p < 0.001$) in all the relationships except the KSI-KSB relation. This shows that the relationship between employees' KSB and KSI does not differ between public and private organisations. The relationships between attitude and KSI ($p < 0.01$) as well as between KSSE and KSB ($p < 0.01$) were significantly stronger in private organisations compared to public organisations, whereas the relationship between SN and KSI was significantly weaker in private organisations.

Thus, the results support H5b, H5c, and H5d but do not support H5a.

In order to investigate the effect of IT facilitation as a moderator, the homogeneity estimate (Q) for each relationship was calculated based on the Hedges and Olkin (1985) procedure. We further divided the sample into two groups, cases with IT facilitation vs. non-IT facilitation (as shown in the categories in Table 3.5), to separately test the effect of the independent variables. The effect of IT facilitation was examined based on the differences between the two groups using IT ($k = 22$) and non-IT ($k = 36$) facilitation.

Table 3.5 Result for Moderator Analyses (IT vs. Non-IT)

Pair wise Relation-ship	*No of studies (k)*	*Total N*	*True Population effect size (r)*	*Z Value*	*95% CI LL and UL*		*SE*	*Variance*	*Q bet/ P value*
KSI-KSB (IT) (H6a)	5	1351	0.416***	12.718	0.358	0.470	0.004	0.001	2.062/ 0.151
KSI-KSB (Non-IT)	4	1171	0.413***	3.425	0.186	0.598	0.056	0.003	
Attitude-KSI (IT) (H6b)	6	1826	0.436***	4.707	0.361	0.438	0.039	0.001	25.269 ***/ 0.000
Attitude-KSI (Non-IT)	8	2147	0.565*	3.997	0.488	0.550	0.121	0.015	
SN-Intention (IT) (H6c)	3	577	0.564**	2.258	0.416	0.527	0.246	0.061	17.816 ***/ 0.000
SN-Intention (NON-IT)	5	1761	0.296*	15.169	0.249	0.357	0.052	0.003	
SE-KSB (IT) (H6d)	5	1387	0.302*	2.588	0.304	0.397	0.053	0.003	10.814 ***/ 0.001
SE-KSB (Non-IT)	2	384	0.174***	3.427	0.075	0.270	0.009	0.000	

Notes: *k* = number of samples in which relationship was estimated; Total *N* = cumulative *N* for all *k* studies; Sample-weighted mean *r* = mean of uncorrected correlations weighted by sample size (*N*); Corrected mean *r* = mean of correlations individually corrected for unreliability; 95% CI = confidence interval around the mean correlation; *z* value difference = the *z* value associated with the difference in means between the groups;; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

As illustrated in Table 3.5, the effect sizes differed between cases with IT facilitation and non-IT facilitation. The effect size of the relationships for KSI and KSB was slightly larger with IT facilitation ($r = 0.416$; $p < 0.001$) compared to non-IT ($r = 0.413$; $p < 0.001$), but the Q-between was insignificant. Thus, there was no statistical difference between IT and non-IT facilitation for the relationships. So hypothesis 6a is rejected. On the contrary, the effect size for attitude-KSI was lower with IT facilitation ($r = 0.436$; $p < 0.05$) than with non-IT facilitation ($r = 0.565$; $p < 0.001$). The significant Q-between result indicates that the attitude influence the intention more in the absence of IT facilitation. This supports hypothesis 6b.

Whereas, the effect size for SN and KSI was significant and larger with IT facilitation ($r = 0.564$; $p < 0.024$) and with non-IT facilitations ($r = 0.296$; $p < 0.012$). And the significant Q-between suggest that the relationship is stronger when IT facilitation exist. Similarly, the effect size for KSSE and KSB was significant and stronger with IT ($r = 0.302$; $p < 0.01$) than with non-IT facilitation ($r = 0.174$; $p < 0.001$). This also approves the hypothesis 6d.

So, the above results (which are similar to those of the organisational type moderation analysis) support H6b, H6c, and H6d but do not support H6a.

3.5 Discussion

The present meta-analysis provides evidence supporting the use of TPB for predicting KSI and KSB. In particular, the results of the moderation analysis provide additional insights.

According to the moderation analysis, organisational type and IT facilitation has no effect on the relationships between KSI and KSB. This insignificant moderation suggests that the different conditions between the two types do not matter once the KSI levels are set. However, according to the ranges of the 95% confidence interval, public organisations cover far wider areas due to a larger standard error, especially for lower effect size. This means that employees in public organisations may be more vulnerable to different conditions or these conditions are more diverse for this organisational type; however, we cannot identify these conditions clearly in the present study. On the other hand, the relationships between attitude and KSI as well as between KSSE and KSB are found to be stronger in private organisations than in public organisations. The former could indicate that private organisations provide better environments (such as organisational and/or social support) for employees to change their KSI more positively, which is possible when they have a positive attitude. The latter suggests that greater

confidence does lead more directly to KSB in private organisations, since an enabling organisational environment is more readily available in private organisations than in public ones. The relative lack of an enabling environment in public organisations could be attributed to the fact that government organisations are typically hierarchical and bureaucratic; these characteristics make sharing more difficult. Lastly, the relationship between SN and KSI is significantly weaker in private organisations compared to public organisations. This result indicates that employees in public organisations are more caring towards their surroundings; in other words, employees in public organisations are more affected by social pressure compared to those in private organisations.

Using IT facilitation as another moderator, the effect of KSI on KSB was found to be not very different in the cases with and without it. Thus, once employees have a certain level of KSI, IT facilitation does not matter much. For instance, if the employees have high KSI and IT facilitation is not available, they would make more efforts to overcome the difficulties caused by the lack of IT facilitation and solve the problems in some manner. As a result, their KSB is not very different from those of employees with high KSI who are supported by IT facilitation. In the case of employees having low KSI, if IT facilitation is not available, they may not be motivated enough to change their behaviour more positively compared to those who have low KSI but are supported by

IT. The remaining moderation analyses showed that IT facilitation provides employees with advantages. With IT facilitation, attitude and SN are reflected more into KSI, and KSSE is more effective in predicting KSB, because IT may reduce difficulties in the KS process (excluding those in the relationship between KSI and KSB).

3.6 Conclusion

In this paper, we reported the findings from a meta-analysis of 56 published studies that examined the relationship between KSB and its antecedents. We found that the relationships within the TPB model are all effective, although we could not test the KSSE and KSI relationship due to data constraints. The result shows that Attitude and SN affected KSB indirectly through KSI, while self-efficacy affected KSB directly. The results of the moderator analysis suggest that KS was relatively easier in private organisations than in public organisations when attitude or self-efficacy is at the same level. However, SN influences KSI in public organisations more than it does in private ones showed that public sector employees are influenced by the expectations of others more than private employees are.

Another interesting observation is the moderating role of IT facilitation. IT facilitation as a moderator showed significant results with all the relationships, except in the

relationship between KSI and KSB. However, the attitude-KSI relationship was found to be stronger in the absence of IT facilitation.

3.6.1 Limitation and Future Research

This meta-analysis was subject to a number of limitations, which also indicate opportunities for future research. First, this study examined factors only from TPB related to KS. Given the nature of meta-research and the limitations of existing data, a comprehensive study that includes all potential factors is not feasible at this point. Future research could examine the effects of the factors that were not included in this study such as KSSE-KSI, PBC-KSI, PBC-KSB relationships.

Second, we also need to investigate the existence of other moderators such as knowledge type, organisational context, and so on, as suggested by the results of the sub-sample analyses in future.

Finally, the findings of this study depend on the findings reported in prior literature. The limited coding procedure resulted in a certain amount of confusion. Since different studies could define constructs differently, the relationship establishment could be biased, which could lead to a potentially wrong conclusion. Although we have taken all possible precautions to ensure proper coding, the inherent limitations of the meta-

analysis method remain.

Chapter 4

Employees' Knowledge Sharing in a Government Organization in India

4.1 Introduction

In the 21st century, knowledge management, in particular, knowledge creation and sharing, has become important for organizations' procedures and processes. A new complex and rapidly changing economic order emerged in India after 1997, when global competition began to revolutionize the economy. The complex government transformation process that ensued required government organizations in India to become more knowledge-based to improve their performance and competence. This is how knowledge management, including knowledge sharing (KS), became essential to governmental organizations at the national, regional, and local levels. The emergence of knowledge management, particularly KS, enabled individuals in an organization to find solutions, insights, and mechanisms, which enhanced these individuals' performances. The survival and sustainability of an organization primarily depend on its ability to continuously redefine and adopt goals, purposes, and approaches (Malhotra, 2001). These trends in global competition and knowledge management suggest that public organizations need to adopt KS processes in order to ensure their sustainability and achieve strategic competitive advantage.

Because KS is an intentional behavior, it can be analyzed using the theory of planned behavior (TPB), in which intentions 'are assumed to capture the motivational factors that influence the behavior' (Ajzen, 1991). In this study, incorporating the perspectives of Social Cognitive Theory (SCoT) and social dilemma, an integrated model was developed to examine the effects of contextual factors such as organizational knowledge sharing practices (OKSP), knowledge sharing-oriented training (KST), and individual factors including knowledge sharing self-efficacy (KSSE) and greed on knowledge sharing behavior (KSB) through knowledge sharing intention (KSI) and directly in part.

The empirical data were obtained from the Office of the Principal Accountant General (Audit) in Bihar, Patna, which is a part of the Indian Audit & Accounts Department under the Comptroller & Auditor General of India (CAG), because this office has undertaken several initiatives in order to improve its transformation and the accompanying KS processes.

The rest of this paper is organized as follows. Section 2 provides the theoretical background; Section 3 describes the methodology; Section 4 discusses the analyses and results; and Section 5 presents the implications of the findings and the limitations.

4.2 Theoretical Background

4.2.1 Social Cognitive Theory (SCoT)

SCoT argues that an individual performs an action that has been partly shaped by personal cognition and the social environment (Bandura, 1986; 1997).

For KS to occur, people need to come together, either face-to-face or through information and communication technologies (ICT). Davenport and Prusak (1998) argued that because people think their knowledge is valuable and important, they tend to hoard knowledge and be suspicious upon knowledge from others. Clearly, the biggest challenge in fostering KS is the willingness to share knowledge. In this respect two issues are involved: personal cognition and social influence. With regard to personal cognition, the recent literature has identified two major cognitive forces that guide people's behavior: self-efficacy and outcome expectations (Bartol and Shrivastava, 2002; Bock and Kim, 2002; Bock et al., 2005; Kankhalli et al., 2005). Particularly in terms of self-efficacy expectations, according to Bandura (1986), if individuals are not confident in their ability to share knowledge, they are unlikely to perform the behavior, especially when KS is voluntary. In addition, the extant literature highlights the great potential of the social environment such as the organizational practices in supporting KS in government sectors (Becker, 1964; 1976; Calantone et al. 2002; Delaney and

Huselid, 1996; Gupta and Govindarajan, 2000). This structure involves the organizational platform for interaction among sources of knowledge that encourages the sharing of knowledge and development of collective interpretation (Nonaka, 1994).

Person's cognition: Knowledge sharing self-efficacy

Self-efficacy, the judgment of one's capability to organize and execute a course of action for the attainment of a particular goal (Bandura, 1997), may be a major determinant of KSI and KSB. Self-efficacy is a form of self-evaluation that influences decisions about what behaviors to undertake, the amount of effort and persistence to put forth when faced with obstacles, and finally, the mastery of the behavior. In general, perceived self-efficacy plays an important role in influencing individuals' intention and behavior (Bandura, 1982; 1986; Igbaria and Iivari, 1995). People who have high self-efficacy are more likely to perform a related behavior than those with low self-efficacy. Recently, the concept of self-efficacy has been applied to knowledge management to validate the effect of personal belief in one's efficacy in KS, or KSSE. The SCoT highlights self-efficacy, noting that our expectations of positive outcomes of a behavior will be fruitless if we doubt our capability to successfully execute the behavior. Self-efficacy is an important issue in KS because complexity and knowledge barriers to the

exchange of existing knowledge among members of organizations may be construed as self-efficacy deficits.

Several researchers have examined KSSE's effect on KS. For instance, Bock and Kim (2002) proposed that self-efficacy could be treated as a major factor of self-motivation for KS. They found that an individual's judgment of his/her contribution to organizational performance has a positive influence on KS. Kankanhalli et al. (2005) treated KSSE as a factor of intrinsic benefits and combined it with other variables to examine their effect on KSI and KSB. The results show that self-efficacy is positively related to KSI and KSB. Therefore, this present study introduces the concept of KSSE to examine the situations in which people face the challenge of combining and exchanging knowledge among themselves. Perceived KSSE can directly predict KSB because KS is a social activity for which the actualization of intention into actions may be interrupted due to barriers (Bandura, 1986). Based on this discussion, we form the following hypotheses:

Hypothesis 1: Employees' knowledge sharing self-efficacy has a positive effect on their knowledge sharing intention.

Hypothesis 2: Employees' knowledge sharing self-efficacy has a positive effect on their knowledge sharing behavior.

Organizational influence: Organizational context

Another issue from the SCoT is that social influence is based on the enabling effect of organizational context. The predictor for KSB is measured here in terms of two important dimensions: OKSP and KST. The first dimension is opportunity enhancing practices and supported by the argument that supportive attitudes and actions on the part of organizations are keys to successful knowledge management (Davenport et al., 1998). The second dimension is to enhance employee development and also widely regarded as vital in implementing knowledge management (e.g. Brand, 1998; Davenport et al., 1998) as it equips people with the vital skills and positive attitudes required for KS.

Organizational knowledge sharing practices

The existing literature has demonstrated that people are willing to share their experiential knowledge but are often unable to do so owing to the unavailability of suitable procedures and mechanisms such as mentoring, work team, failure knowledge database and incentives for KS. KS requires a process that encourages knowledge workers to provide relevant data, ideas, insights, and contextual information, so that their codified know-how becomes useful to others (Andrews and Delahaye, 2000;

Cabrera and Cabrera, 2002; Kaser and Miles, 2002). According to McNamara's (2010) model, human behaviors are influenced by a person's intentions, which in turn are affected by social, emotional, cognitive, and facilitating conditions. McNamara's (2010) model also argues that individual factors and social factors affect a user's behavior through intentions, while facilitating conditions affect the same behavior directly. Such an approach requires systematic, standardized design and configuration of KS processes, which are codified in the organizations' KS strategy. OKSP facilitate KS because they are initiated and implemented to diffuse knowledge and individual learning within organizations (Calantone et al., 2002). To maximize gains in KS, social environments can be created within an organization so that individuals can interact with one another for the sake of KS and learning (Currie and Kerrin, 2003; Liebowitz, 1999; Scarbrough and Carter, 2000). Also, an organization can provide incentives to encourage employee KS (Beer and Nohria, 2000; Gupta and Govindarajan, 2000; Hsu, 2006; Liebowitz, 1999). Research on KS suggests that an organization that develops routines or structures for KS facilitates effective and systematic exchanging or sharing of knowledge (Argote and Ingram, 2000; De Long and Fahey, 2000; Hansen, 2002). Based on this discussion, we form the following hypotheses:

Hypothesis 3: Organizational knowledge sharing practices have a positive effect on employees' knowledge sharing intention.

Hypothesis 4: Organizational knowledge sharing practices have a positive effect on employees' knowledge sharing behavior.

Knowledge sharing-oriented training (KST)

The second dimension of the organizational context factor, KST, is widely regarded as vital in implementing knowledge management (e.g. Brand, 1998; Davenport et al., 1998) as it equips people with the vital skills and positive attitudes required for KS. Training is the transferring of information to an organization's members to improve the effectiveness and productivity of the organization (Leard, 2010) and is considered as another dimension of organizational influence, as mentioned above. KST enables organizations to act more effectively by having valued employees and provides many benefits to both organizations and individuals. KST makes employees feel that they are a valuable part of the organization. In addition, it improves the efficiency of KS processes and the organization's ability to obtain new technologies (McNamara, 2010). According to Noe (2002), KST helps employees achieve organizational goals and makes them more productive so that they can meet the challenges of organizational

change while learning and can work on new programs through better KS processes. Based on this discussion, we propose the following hypothesis:

Hypothesis 5: Knowledge sharing-oriented training has a positive effect on employees' knowledge sharing intention.

KST also enhances employees' skills and facilitates their professional development. It makes employees knowledgeable so that they commit fewer mistakes (Noe, 2002), which in turn, improves the employees' self-efficacy in KS processes (Leard, 2010). Thus, we form the following hypothesis.

Hypothesis 6: Knowledge sharing-oriented training has a positive effect on employees' knowledge sharing self-efficacy.

4.2.2 Greed: A Social Dilemma or a Public Good Dilemma

Social dilemmas describe paradoxical situations in which individual rationality, which simply tries to maximize the individual's payoff, leads to collective irrationality (Kollock, 1998). According to several researchers in knowledge management (Connolly and Thorn, 1990; Connolly et al., 1992; Kalman, 1999; Monge et al., 1998; Wasko and Faraj, 2000), organizational knowledge can be considered as a public good. We can improve our work performance by employing methods and ideas from co-workers and

our use of those ideas do not diminish their potential value to others. Since access to a public good is not restricted to contributors, individuals may be tempted to free ride, that is, to enjoy the resource without contributing to its provision (Sweeney, 1973). For this reason, the public good dilemma of free riding is technically considered as a dominant strategy, that is, a strategy that yields immediate positive returns to any participant at any time during the interaction regardless of the action of the other participants (Dawes, 1980).

The problem is that most people in a public good situation would be happier enjoying the good at the cost of their individual contribution than not enjoying the good and saving that cost. If there were an assurance that everybody else was going to pay his or her share, most people will very gladly contribute as well. This is where the dilemma resides: if everyone acted rationally, no one would cooperate and everyone would end up suffering the consequences.

Greed

Greed refers to the excessive desire to obtain the best possible outcome for oneself (Kollock, 1998) or the desire to enjoy other people's contributions without cost. It is a major reason for non-cooperative behaviors in KS (Rapoport and Eshed-Levy, 1989; Yamagishi and Sato, 1986). In the context of KS, greed involves the desire to tap into

others' valuable knowledge without reciprocation. Social dilemma research has also shown that manipulations that reduce greed result in more cooperative behaviors (Komorita and Parks, 1994). Correspondingly, we expect that greed will reduce KS:

Hypothesis 7: Greed is negatively associated with employees' knowledge sharing intention.

4.2.3 Knowledge Sharing Behavior of Individuals: Application of the Theory of Planned Behavior

Meta-analytic reviews support the efficacy of the TPB as a predictor of the relationship between intention and behavior (Armitage and Conner, 2001; Sheppard et al., 1988). According to the TPB, (behavioral) intentions are the main determinants of behavior. This theory has been useful in predicting a wide range of behaviors. In applying the TPB to understand KSB, we defined the behavioral components as follows. We defined behavior as the actual KSB of an individual, which is manifested in the extent to which the individual receives and utilizes knowledge from colleagues. According to the TPB, intentions are assumed to capture the motivational factors that influence behavior: 'they are indications of how hard people are willing to try or how much of an effort they are planning to exert, in order to perform the behavior' (Ajzen, 1991). The TPB argues that under well-controlled conditions, intentions can predict overt behavior (Ajzen 1971;

Ajzen and Fishbein, 1970; 1973). The recent literature on KS also argues that behavioral intentions could be considered as prerequisites for the KSB of individuals (Bock et al., 2005; Lin and Lee, 2004). Indeed, since much human behavior in general and KSB in particular are under volitional control, the best predictor of an individual's behavior will be his/her intention to perform that behavior. Thus, we expect the following:

Hypothesis 8: A strong intention to engage in knowledge sharing behavior positively influences the extent of employees' knowledge sharing behavior.

4.2.4 Education

A higher level of education is supposed to increase the rationality of an individual and help him/her maximize his/her payoff without decreasing the collective benefit of the organization. It is supposed to reduce the negativity of an individual and help him/her understand that he/she can enjoy a good at the cost of his/her contribution. In this way, a higher level of education may reduce the individual's greed and encourage him/her to share what he/she knows. Thus, we included education as a control variable into the research framework.

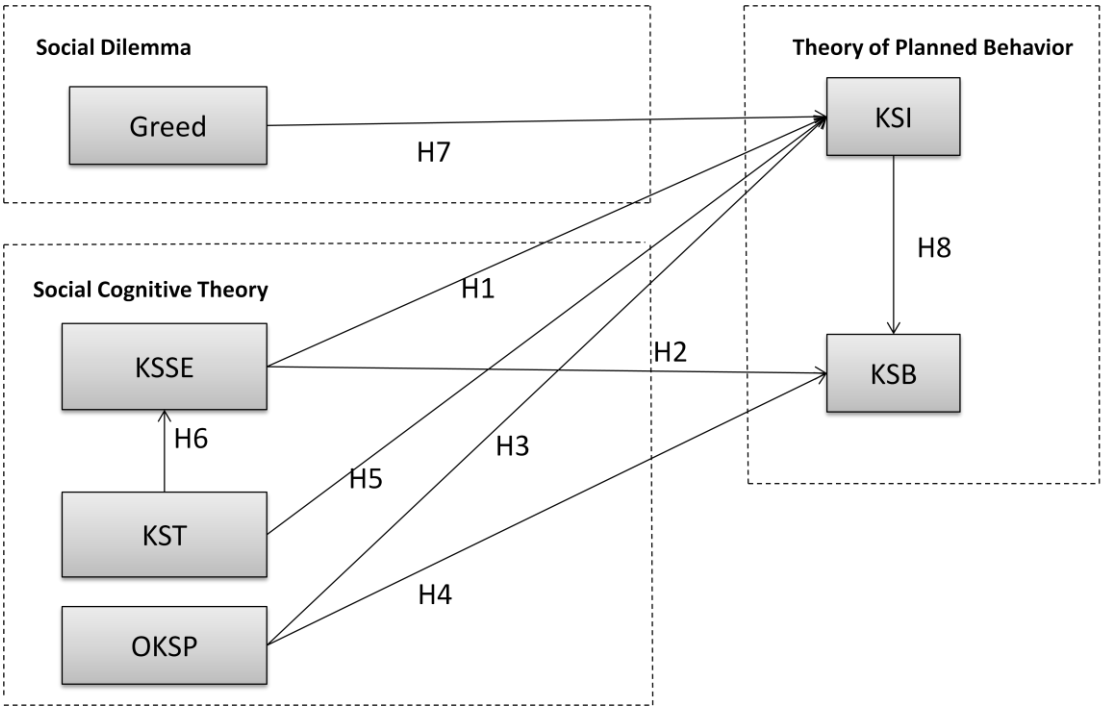

Figure 4.1 Research Model

4.3 Methods

4.3.1 Sample and Data Collection Procedure

The data used to test the hypotheses were drawn from a 2011 survey of senior executives at the Office of the Principal Accountant General (Audit) in Bihar, Patna in India. This government organization consists of 600 employees, of which approximately 300 work as senior executives, that is, an auditor, senior auditor, assistant audit officer (AAO), audit officer (AO), and accountant general or a higher position. Questionnaires were distributed to all 300 of these senior executives at the various functional groups and units. After follow-up telephone calls to these

respondents, 210 usable questionnaires were collected, representing a response rate of 70%.

4.3.2 Questionnaire Development

The measures of the focal constructs in this study were developed from the existing literature. Two rounds of questionnaire pretesting were conducted. In the first round, five audit officers with more than 20 years of work experience were provided with the survey questionnaire. Ambiguities and sources of confusion in the questionnaire were removed based on the comments and suggestions of these audit officers. In the second round of pretesting, a revised questionnaire was given to the deputy audit general, which has similar work tenure. Seven-point Likert-type scales ranging from ‘‘1’’ (strongly disagree) to ‘‘7’’ (strongly agree) were used throughout the questionnaire.

We used six items to measure self-efficacy for KS. Three were adapted from Bock and Kim (2002), and three were newly developed for the scale. The five-item scale for the effects of greed was developed based on the KS dilemmas literature (Brewer and Kramer, 1986; Komorita and Parks, 1994).

The OKSP constructs were adapted from a range of studies including those on KS practices (e.g. Alavi and Leidner, 2001; Becker, 1964; 1976; Calantone et al. 2002;

Delaney and Huselid, 1996; Gupta and Govindarajan, 2000; Lepak and Snell, 1999; Liebowitz, 1999). To measure KST, seven items were adapted from [61]. A total of 12 items were adapted from Bock and Kim (2002) and Davenport and Prusak (1998) to measure KSB, and three items were adapted from Ajzen (1980; 1998) to measure KSI.

4.4 Analysis and Results

4.4.1Analysis Procedure

A three-stage approach was followed to test the model. First, the measurement scales of the latent variables were examined using exploratory factor analysis in SPSS 20. Some items were eventually eliminated in the process. Then, all remaining items were examined through confirmatory factor analysis (CFA) in AMOS 20 using maximum likelihood (ML) estimation. Finally, the hypotheses were tested through path analysis.

Additionally, the convergent validity of the scales was verified by using three criteria suggested by Fornell and Larcker (1981): (1) all the indicator loadings should be significant and exceed 0.70, (2) the construct reliabilities should exceed 0.80, and (3) the average variance extracted (AVE) by each construct should exceed the variance due to the measurement error for that construct (i.e. the AVE should exceed 0.50). In the current CFA model, all the loadings were above the 0.70 threshold and the composite

reliabilities of the constructs ranged between 0.82 and 0.93. In addition, each item was restricted to load on its pre-specified factor. CFA was performed on the original model with the six distinct constructs. This analysis produced X^2 = 513.99 and df = 330. (Chi-square difference = 77.20, df = 6, p < .01), which suggested that the measures were distinct. The results of all these tests supported discriminant validity. The phi values ranged from .02 to .54, and none of the confidence intervals had a value of one (P < .01), which further confirmed discriminant validity. The dimensionality was also supported by examining several measures of fit. Although the P value was quite small, the ratio of the chi-square to the degrees of freedom was 1.56, the goodness-of-fit index (GFI) was .89, and the comparative fit index (CFI) was .99, all of which suggested that the model represented a good fit to the data. Tables 4.1 and 4.2 present the descriptive statistics and correlation matrix, respectively.

Table 4.1 Descriptive Statistics

Variables	Mean	Std. Deviation	Cronbach's Alpha
KSB	**5.1636**	**0.8415**	**.822**
KSI	**5.4167**	**0.9813**	**.823**
KSSE	**5.4460**	**0.9757**	**.870**
KST	**5.0510**	**1.5116**	**.788**
OKSP	**4.9068**	**1.4343**	**.811**
Greed	**5.0714**	**1.6572**	**.799**

Table 4.2 Correlation Matrix

	KSB	KSI	PSE	Greed	OKSP	KST
KSB	1					
KSI	.726**	1				
PSE	.475**	.281**	1			
Greed	-.051	-.219**	.074	1		
OKSP	.658**	.619**	.060	-.106	1	
KST	.511**	.603**	.241**	-.054	.661**	1

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

4.4.2 Results of Path Analysis

The conceptual model of the study was subsequently estimated in a path analysis model using ML estimation in AMOS 20. The model contained 10 constructs and seven observed variables. The results are presented in Table 4.3 and indicate a good fit of the model (ratio of the chi-square to the degrees of freedom = 1.952, GFI = .975, AGFI = .930, NFI = .970). The results for the other fit indices (TLI = .969, IFI = .985, CFI = .985, RMSEA = .06) provided sufficient evidence for model fit. All the hypothesized paths were significant. The path coefficient from KSSE to KSI was (t = 4.775, P < .001),

which indicated a positive relationship and thus, supported Hypothesis 1. The path coefficient from KSSE to KSB was ($t = 8.655$, $P < .001$), which also indicated a positive relationship and supported Hypothesis 2. The path coefficients from OKSP to KSI ($t = 6.145$, $P < .001$) and OKSP to KSB ($t = 10.063$, $P < .001$) indicated positive relationships, which supported Hypotheses 3 and 4, respectively. The path coefficients from KST to KSI ($t = 3.062$, $P < .001$) and KST to KSSE ($t = 4.775$, $P < .001$) indicated positive relationships, confirming Hypotheses 5 and 6, respectively. As expected, the path coefficient from greed to KSI showed a negative and significant relationship, which supported Hypotheses 7. Finally, the path coefficient from KSI to KSB ($t = 6.473$, $P < .001$) indicated a positive and significant relationship, which supported Hypothesis 8.

Table 4.3 Model Fit

GFI	AGFI	NFI	RMSEA	P for CMIN	CMIN /DF
.975	.930	.970	.067	.034	1.952

Table 4.4 Result of Path Analysis

Relationship			Estimate	S.E.	C.R.	P	Assessment
KSI	<---	KSSE	.170	.050	3.389	***	H1 Supported
KSB	<---	KSSE	.283	.033	8.655	***	H2 Supported
KSI	<---	OKSP	.352	.057	6.145	***	H3 Supported
KSB	<---	OKSP	.321	.032	10.063	***	H4 Supported
KSI	<---	KST	.177	.058	3.062	**	H5 Supported
KSSE	<---	KST	.241	.051	4.775	***	H6 Supported
KSI	<---	Greed	-.106	.028	-3.749	***	H7 Supported
KSB	<---	KSI	.273	.042	6.473	***	H10 Supported

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

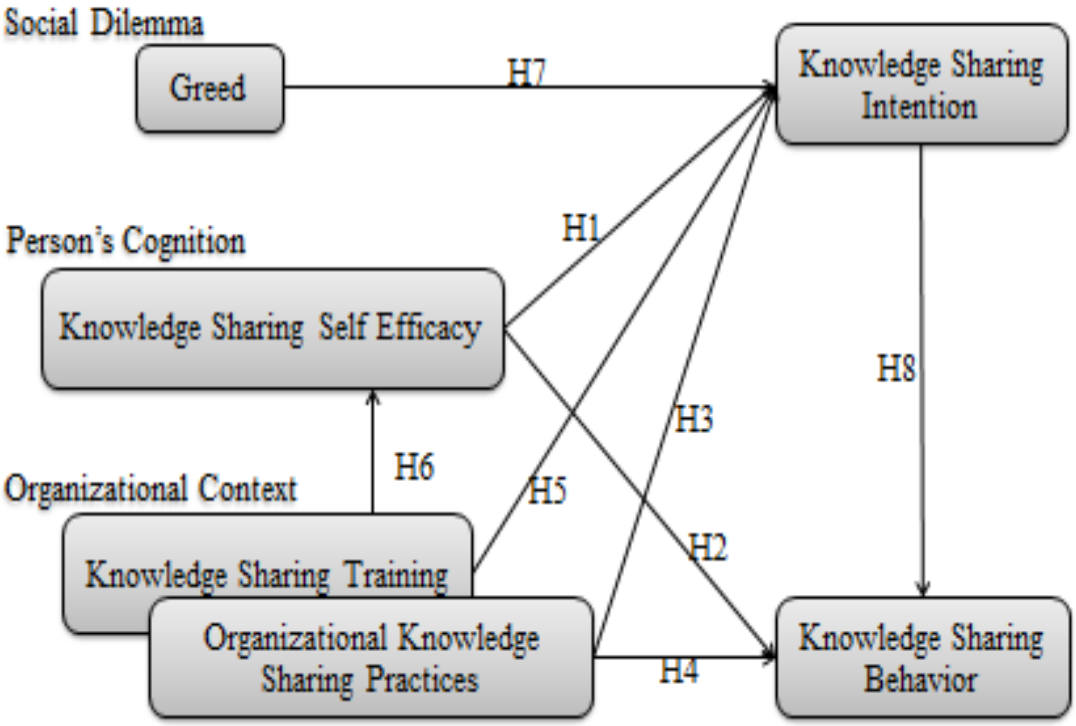

Figure4.2 Empirically Tested Path Model of Knowledge Sharing Behavior

4.5 Conclusion

4.5.1 Findings and Implications

This study, by applying the TPB, SCoT, and social dilemma theory, provides evidences as follows. OKSP and KST affect organizational KSB either directly or through KSI. This result suggests that an organization needs to develop an activity-based measurement to improve organizational KSB (e.g. an IT system, work group, or human resource management system). The findings also support the results of previous studies that organizational arrangement for employees lead to more KSB when guided by KSSE. Finally, the findings also show that KST programs increase the level of KSSE, which in turn, increases employees' belief that they are capable of sharing their knowledge. The evidence also indicates that individuals fail to have their intention because of a public good dilemma. The negative effect of greed on KSI reveals employees' short-sighted perspectives tend to cause their decisions in prioritizing their own short-term benefit over organizational benefit.

4.5.2 Limitations

Even though the study offers valuable insights into the process toward KSB, it has some limitations. First of all, potential common method variance may result from the use of

self-reported data. Second, the senior manager database used for the survey may be biased. For example, only senior managers with good company performance are confident enough to be included in the database. Finally, the use of only a single government organization survey restricts us to a limited pool of respondents. Although this study was based on a sample of 210 respondents of a single organization and reveal several significant results, a larger sample would have brought more statistical power, which would have allowed more sophisticated statistical analysis. In addition, with a larger sample, future studies can test a more rigorous model that includes other theories and factors, using structural equation modeling techniques to account for the remaining unexplained variance in KMS usage.

Chapter 5

Employees' Knowledge Sharing in Private Sectors in India

5.1 Introduction

Knowledge Sharing in Private Organizations in India

Post 1991, after opening up of the economy in India, the contribution of private organizations to Indian economy has seen an increasing trend. The liberalization policies proved to be a boon for Indian economy. The economy witnessed huge amount of foreign funds and along with it came in cutting edge of technology and new ideas which started changing the functioning of Indian organization. Slowly and steadily, more and more private companies started coming up and establishing themselves in the part of the globe.

The private sector run for private profit and is not controlled by the state. Unlike public sectors where driving impetus is public policies, the objectives of private sectors are the business performances and results (McNabb, 2006). Other differences include organizing principles, structures, performance metrics, sources of knowledge, ownership, performance expectations etc. However, the common thing between the two

sectors of organizations is that they both need strong and advance level of KM system for the competitive advantages.

To create and share knowledge, people must have access to each other and be able to exchange their ideas. Organizations need to ensure that employees make use of the system by which organizations play a vital role in bringing people together in person. Organizations do not organically develop KS; there are usually factors promoting the change in the behavior of employees. Successful KS takes place when the employees in the organization are capable of adapting a faster KS behavior. Such rapid adaptation requires the efficient and effective use of knowledge. By practicing KS in an organization, a new social behavior can be created which not only generate new ideas but also resulted into better individual level performance.

As we stated in the previous chapter the theory of planned behavior (TPB) is designed to predict human behavior which is based on expectancy-value model of intention–behavior relationship (Ajzen, 1985; Ajzen & Madden, 1985) and has predicted a variety of behaviors with significant degree of success. To achieve effective KS for better performance, it is important to encourage workers to share their knowledge for the best interest of the organization. Moreover, in order to understand whether the process of KS in private sector organizations are similar or different to public organizations, the

integrated model of social cognitive theory (SCT) and TPB in chapter four was taken to examine the effect of KSB through KSI in the private organization too.

This chapter is organized as follows. Here in this chapter, the literature review part is similar to the previous chapter. Therefore we skip that part. The model is tested to examine how social cognitive factors and social dilemma factors foster individual level of KSI and KSB in 308 private organizations in India. Finally, we discuss how our empirical findings contribute to theory development and improve our understanding of KS process in the private organizations in India.

5.2 Research Model and Hypotheses

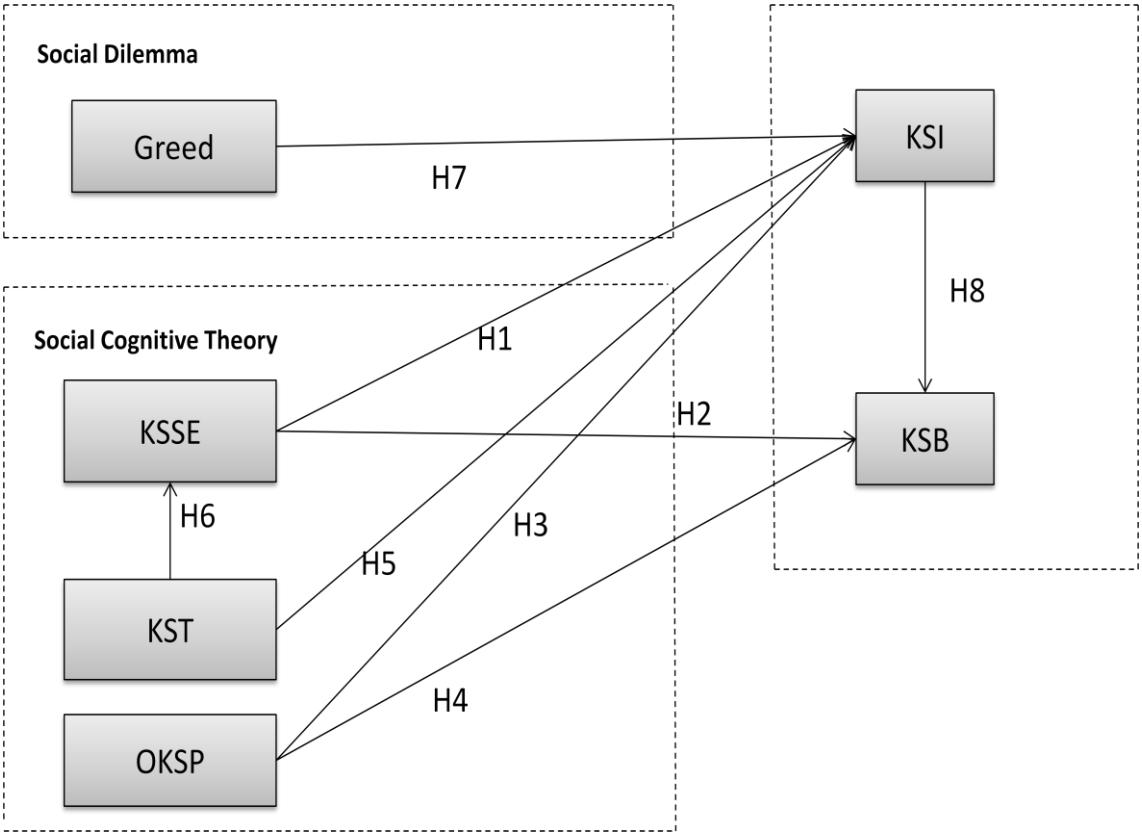

Figure 5.1 Research Model

Hypothesis 1: Individual's KSSE has a positive effect on his/her KSI

Hypothesis 2: Individual's KSSE has a positive effect on his/her KSB.

Hypothesis 3: OKSP have a positive effect on Individual's KSI.

Hypothesis 4: OKSP have a positive effect on Individual's KSB.

Hypothesis 5: KST has a positive effect on Individual's KSI.

Hypothesis 6: KST has a positive effect on Individual's KSSE.

Hypothesis 7: Greed has a negative effect on Individual's KSI.

Hypothesis 8: Individual's KSI has a positive effect on employees' KSB.

5.3 Methods

5.3.1. Sample and Data Collection Procedure

The data used to test the hypotheses are drawn from a survey of 308 private sectors organizations which are registered in Delhi and National Capital Region (NCR) in India. The survey was conducted over two months in February and March 2014. The samples of 500 questionnaires were distributed among the HR and the senior managers of the organizations. After follow-up telephone calls to these respondents, 407 usable questionnaires were collected, representing a response rate of 70%.

5.3.2. Questionnaire Development

The same question pattern for public sector is used for private sectors survey too, after some minor changes relevant for the private sector.

5.4 Analysis and Result

Again the three stage approach is followed to test the model: first the measurement scales of latent variables were examined using exploratory factor analysis in SPSS 20. Some items were eventually eliminated in the process. Then all remaining items were entered into confirmatory factor analysis in AMOS 20 using maximum likelihood (ML) estimation. Finally to test the proposed hypotheses, path analyses was done.

CFA indicated that the final measurement model exhibited strong levels of fit: *X2*/df = 1.555 (*x2*= 325.09; df = 209), GFI = 0.93, AGFI = 0.90, NFI = 0.96, NNFI = 0.98, CFI = 0.99, and RMSEA = 0.040. All the model-fit indices exceed the respective common acceptance levels demonstrating that the measurement model exhibited a fairly good fit with the data collected. Additionally, construct reliability do not exceed 0.7 but tolerable.

In Table 5.1, descriptive statistics and reliability is presented. Correlation matrix is presented in Table 5.2.

Table 5.1 Descriptive Statistics

	Mean	Std. Deviation	Reliability
KSB	5.1394	.84065	.653
KSI	5.0160	1.15343	.644
Greed	3.5558	1.41909	.700
Self-efficacy	5.4245	.97758	.754
KST	5.0183	1.30009	.671
OKSP	4.8680	1.28389	.701

Table 5.2 Correlation Matrix

	KSB	KSI	PSE	Greed	OKSP	KST
KSB	1					
KSI	.726**	1				
PSE	.486	.156	1			
Greed	.058	-.110*	.147*	1		
OKSP	.658**	.619**	.053	.053	1	
KST	.511**	.603**	.241**	.000	.661**	1

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

5.4.1 The Result of Path Analyses

The conceptual model of the study was subsequently estimated in a path analyses model using ML estimation in AMOS 20. The results are presented in Table 5.3 and 5.4 and indicate a good fit of the model: the ratio of chi-square to degrees of freedom is 3.113, GFI=.984 AGFI=.945, NFI=.977. Other fit indices (TLI= .97, IFI= .984, CFI= .984, RMSEA= .072) provide sufficient proofs for model fit.

Table 5.3 Model Fit

GFI	AGFI	NFI	RMSEA	P for CMIN	CMIN/DF
.984	.945	.977	.072	.002	3.113

The results of hypotheses tests along with the path coefficients and their significance values are shown in Table 5.4. All proposed paths are significant except education on greed and KSI as well as KST on KSI. The path coefficients from KSSE to KSI ($t = 2.429$, $P < .001$) and from KSSE to KSB ($t = 13.534$, $P < .001$) are positive and significant. These positive relationships suggest that hypotheses 1 and 2 are supported.

As expected the result support both Hypothesis 3 ($t = 7.141$, $P < .001$) and Hypothesis 4 ($t = 19.648$, $P < .001$) respectively, which means OKSP positively affect KSI and KSB. Thus hypotheses 3 and 4 are also supported. The path coefficient from KST to KSI is insignificant so hypothesis 5 is not supported, which means KST has no direct effect on KSI. On the other hand, the path coefficient from KST to KSSE ($t = 6.349$, $P < .001$) is positive and significant. Thus hypothesis 6 is supported. As expected, hypothesis 7 which expects the negative effect of greed on KSI is proved. The path coefficient is negative but significant ($t = -3.515$, $P < .001$). The relationship between KSI and KSB ($t = 5.716$, $P < .001$) is proved positive and significant as supported by the past literature (Hypothesis 8).

Table 5.4 Results of Path Analyses

Relationship			Estimate	S.E.	C.R.	P	Hypotheses Assessments
KSI	<---	KSSE	.128	.053	2.429	.015	H1 Supported
KSB	<---	KSSE	.318	.024	13.534	***	H2 Supported
KSI	<---	OKSP	.428	.060	7.141	***	H3 Supported
KSB	<---	OKSP	.395	.020	19.648	***	H4 Supported
KSI	<---	KST	-.005	.060	-.085	.933	H5 Not supported
KSSE	<---	KST	.226	.036	6.349	***	H6 Supported
KSI	<---	Greed	-.122	.035	-3.515	***	H7 Supported
KSB	<---	KSI	.126	.022	5.716	***	H10 Supported

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

5.5 Discussion

Comparing with the analytical results of chapter 4, almost same result has been found in private sector context except KST and KSI relationship. KSSE and OKSP have a positive influence on individual's KSI and KSB like public sector. Still some differences are found between the two sectors which need to have special attention. In private sector organization KST does not affect the KSI directly but can influence it indirectly through KSSE, although in public sector KST affect KSI both ways (direct

and indirectly through KSSE).

Regarding the last point, although KST was not found to affect KSI directly, still we may argue the finding is consistent with not only the SCoT but also the TPB which suggested that PBC has influence on individual's intention to perform the specific behavior (Ajzen 1988). These theories set focus on motivational rather than developmental effects of KST while in the present analysis the motivational aspect is well captured by the indirect path through KSSE. The direct path can be justified by the developmental effect, that is, the effect that knowledge and skills acquired from KST help employees to intend sharing knowledge more. Therefore the result may seem to rule out this developmental effect. But it is possible to reserve the possibility that motivational and developmental aspects are highly correlated and the latter was also captured by the indirect path, although it cannot be proved due to data limitation in this study.

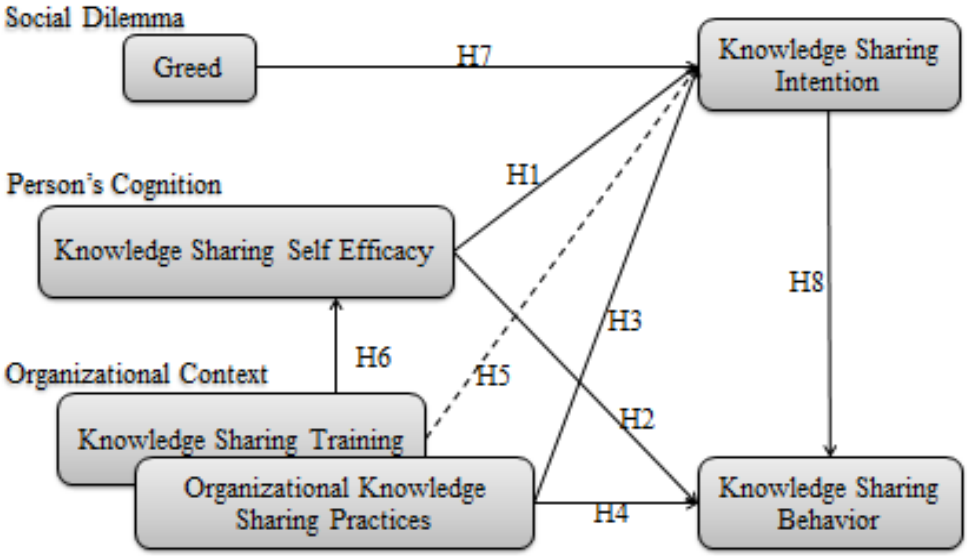

Fig 5.2 Empirically Tested Path Model of Knowledge Sharing Behavior

5.6 Conclusion

5.6.1 Finding and Implications

This study identifies the key determinants of knowledge sharing in 308 private sectors in India. The following four key determinants (similar to public organization) of KSI and KSB were identified: OKSP, KST, KSSE and Greed.

More importantly, a number of managerial implications can be derived from these findings. First of all, it is highly recommended that top management take an active leadership role in OKSP, communicating their benefits and articulating how they fit into

the organization's knowledge management strategy and, ultimately, how they could help achieve organizational objectives. It is equally important to provide the necessary KS training in place. Further, as this study has shown, KST help employee to gain confidence for encouraging knowledge sharing, companies involved in implementing KST consider introducing further practices to encourage employee participation.

5.6.2 Limitations

Although this study provides insights into the factors affecting employees' KSB in private organizations in India, the results must be interpreted with caution. First, although our sample size is more than adequate for testing the theoretical model, the survey respondents all were well-educated senior manager level, which may introduce a selection bias to the findings and that limit the generalizability of the research findings to other populations. Additional investigations with other types of department- wise employees are necessary to generate findings that are more robust and generalizable. Secondly, although the model results generally support most of the hypotheses, the use of self-reported scales raises the possibility that common method variance may account for some of the results obtained. On the one hand, self-report measures represent the most appropriate method in this study because all the model variables referred to subjective states. However, as with any self-reported behavior, this runs the risk of a

response bias. In future, we can employ two methods to measure KSB – a questionnaire and a check of employees' performance history – and then computed the correlation coefficient to ensure that the relationship between knowledge sharing behavior and their performance did not change due to attrition. While the results of the validity and reliability tests provided sufficient confidence in the statistical findings, similar studies that employ multi-method, multi-trait measurements should yield more powerful results.

Chapter 6

Employees' Knowledge Sharing in IT Industries in India: A Social Capital Perspective

6.1 Introduction

6.1.1 T Industry in India

Information technology (IT) industry in India has played a key role in putting India on the global map. This industry has been one of the most significant growth contributors for the Indian economy. The industry has played a significant role in transforming India's image from a slow moving bureaucratic economy to a land of innovative entrepreneurs and a global player in providing world class technology solutions and business services. The industry has helped India transform from a rural and agriculture-based economy to a knowledge based economy. IT sector in India, with the main focus on increasing technology adoption, and developing new delivery platforms, has aggregated revenues of USD 88.1 billion in FY2011, while generating direct employment for over 2.5 million people. Out of 88.1 billion, export revenues (including hardware) has reached USD 59.4 billion in FY2011 while domestic revenues (including hardware) of about USD 28.8 billion. India is now one of the biggest IT capitals in the

modern world and has presence of all the major players in the world IT sector. HCL, Wipro, Infosys and TCS are few of the household names of IT companies in India.

6.1.2 Nature of Knowledge Sharing under IT -Facilitation

According to the meta-analysis results in chapter 3, KS process with IT facilitation enhances the many parts of the process toward KS more than that without IT facilitation does. In addition, we should also note that IT facilitation is not the only major contributor to improve KS, because we found TPB related KS antecedents are all positive and significant to predict KSI or KSB for IT facilitated cases. The results as a whole motivate us to explore more upstream factors from another theoretical perspective, namely social capital theory (SCaT), about the KS process in organizations under IT facilitation in the case country, India. The factors from this perspective are relevant because it is worth investigating whether they affect KS even under the conditions that social capital may be less important thanks to the technology.

IT industry is selected as a case, because it is an active user of IT for their KS process. Firms in the industry can facilitate an organizational structure of inter-personal relationship supported by social networks through IT. Recently, IT sectors have advanced in both capability and affordability, and it is recognized for its ability to

capture, store, process, retrieve, and share knowledge. This mainly refers to the accumulation and management of individual knowledge.

IT is generally assumed to play an increasingly prominent role against the background of today's dynamic environment. For example intranets, distributed libraries, document management systems, or groupware applications, are introduced to support KS. IT has both direct and indirect influences on KS (Hendriks, 1999; Lee, 2002) by increasing the speed of sharing and by decreasing costs due to time and distance (Albino et al., 2004). Organizations are turning to KM initiatives supported by computer networks to leverage their knowledge resources. They are considered to be able to help the individual to share skills or core competencies and resources in order to better respond to business opportunities. Better decision making, faster turnaround times, improved organizational communications, as well as higher level of cooperation and interactions among personnel are implemented and maintained by KMS (Schwartz et al., 2000).

Yet, some research findings have shown that IT alone is not enough to achieve the effectiveness of KMS. For example, McDermott (1999) concludes that IT can inspire but cannot itself deliver KM. Pfeffer & Sutton (1999) point out that the exercise of KM by many organizations involves ‘‘an unfortunate emphasis on technology, particularly IT.” Dixon (2000) also points out that ‘‘technology can replace face-to-face interaction”

is myths of KS practice. Tuomi (1999) suggests that KMS are essentially social systems, where technology complements and supports KS.

Successfully implementing KMS depends on KSI and KSB among employees (Park et al., 2004). Various factors have been identified as impediments for KS, including inadequate organizational structures, sharing unfriendly organizational cultures, and denominational segregation (Davenport & Prusak, 1998; Tissen et al., 1998). Of critical concern is the issue whether or not knowledge workers are motivated to share their knowledge with others. Some studies have shown, by applying the theory of planned behavior (TPB), that success depends on a combination of volition and leadership. However this combination cannot appear automatically among employees. There must be their relationships as an enabling environment in advance. Wong et al. (2001) suggested that building a long-term positive relationship with employees helped generate organizational knowledge. Ramasamy et al. (2006) showed statistically that relationship building played a significant role in KS.

Hence, individuals in organizations that provide an environment to support a positive perception are more likely to contribute their knowledge. Although advanced IT applications and network systems facilitate employee KS, employees are the main driver of knowledge and information sharing in organizations (Bartol & Srivastava

2002; Nonaka 1994). Therefore, an important challenge for IT sector organizations is to establish a friendly culture, or "social capital" that enhances employees' KS. Provided with a sufficient social capital, an individual can simply share the knowledge acquired by the members of a network. (Seyed et al., 2010). Social capital is also known as the close relationship between individuals (Elizabeth & Angel, 2005). We analyze interpersonal relationship such as shared goal, trust, teamwork, social network and on top of that top management support (TMS) to influence knowledge sharing in 243 IT sector organizations in India. We discuss the results of a survey of 364 employees that explored their perception of shared goal, trust social networks, teamwork, TMS and KS.

KS between individuals is valued and sustained over time because sharing of knowledge is an important aspect of IT industry as the knowledge intensive industry. Thus the goal of this study is to investigate whether the factors being adopted here can explain an individual's KSI and KSB.

6.2 Literature Review

This study on KS among individual are mainly based on the interpersonal relationship under social capital theory (SCaT) and theory of planned behavior (TPB).

6.2.1 Applicability of TPB and SCaT in IT Industry

The TPB (Ajzen, 1985, 1988, 1991) is an extension of the theory of reasoned action (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1973) as explained before in the previous chapters. To develop an integrative view of the forces influencing individuals' intention to share knowledge, we adopted an integrated theoretical frame of TPB and SCaT. This model is designed to provide explanations of informational and motivational influences on behavior within IT industries.

Tuomi (1999, 2000) suggests that knowledge management systems are essentially social systems, where technology complements and supports knowledge processing. A similar view is voiced by Fischer and Ostwald (2001), who conceive KMS as the environments that support social interactions among members of communities of practice and communities of interest in collaborative problem solving. Tuomi's (1999–2000) argument that KS acts are fundamentally social and successful knowledge management requires not only technical but also broad understanding of social and psychological aspects of human organizations. Realizing that social factors may enhance or inhibit KSBs, researchers began to conduct research to understand the underlying forces of these factors. Social capital exists in the relationships between people (Okali & Oh, 2007). Scholars conceptualize social capital as a public good (e.g., Bourdieu, 1986;

Coleman, 1988; Putnam, 1993) and regard it as an attribute of a social unit, rather than an individual. As a public good, social capital is available to and benefits not only those who create it but also group members at large (Kostova & Roth, 2003). It is commonly used for investigating individual's pro-social behavior like collective action. According to this theory, individuals regulate their interactions with other individuals based on three different dimensions: structural, relational and cognitive. The structural dimension involves social and network relations. In a *social network* we could find such relations where we could easily identify who can be reached and how. The relational dimension describes the level of *trust* while working as a group and that *teamwork* raise awareness of actors towards their collective goal. The cognitive dimension refers to resource increasing understanding between people. Wasko & Faraj (2005) claimed that KS required shared understanding: for e.g., *shared goal*. In order to maximize the resources gained, individuals may build social relationships with others and share their knowledge.

6. 3 Research Model and Hypotheses Development

6.3.1 Social Network

Social network provides increased opportunities for interpersonal KS relationship thus this became one of the major factors of SCaT under structural dimension (Cohen &

Prusak, 2001; Kankanhalli et al., 2005; Nahapiet & Ghoshal, 1998; Wasko & Faraj, 2005). Social network ties are channels for information and resource flows (Tsai & Ghoshal, 1998). They can be considered as a bond between two people based on one or more relations they maintain without any immediate benefit in a social network. Some studies explain organizational interaction from the viewpoint of network especially in IT sector. In an IT organization, people establish many direct contacts with others based on the organizational structure. Krackhardt (1992) groups the internal relationship network into advise network (the advised have resources and power for their tasks), friendship network (it facilitates a good and healthy interpersonal relationship), and information network (it delivers resources required by both parties in the process of interaction). This theory argues that distance and reachability of the network structure reflect the quality of interaction. A network with higher density indicates a denser organizational interaction and higher willingness among units for KS. Academicians have addressed the importance of social interaction ties in the creation or exchange of knowledge and mobile learning. For example, Chen et al. (2008) proposed the architecture of a mobile learning management system which can better support mobile learning for a small group of learners with effective social interaction. Tsai and Ghoshal (1998) found that social interaction ties had direct positive impacts on the extent of

inter-unit resource exchange. Chen (2007) found that social interaction ties can enhance individuals' intentions to perform online knowledge sharing. Finally, Yang et al. (2007) suggested that posting and responding to messages can help to create social-interaction ties among the members of a virtual learning community, these ties are helpful for encouraging online KS. A positive relationship between social network ties and the intentions of KS including favorable action is hence expected.

H1. The social network among organizational members has positive impact on individual's KSI

H2. The social network among organizational members has positive impact on individual's KSB

6.3.2 Trust

Many studies have suggested that mutual trust among members is one of many factors critical to the success of KS. Trust in an organization improves interactions between colleagues; people want not only to learn from each other and share their knowledge. Generally, trust is the essential component of a social capital factor under relational dimension (Blau, 1964; Wasko & Faraj, 2005). If employees are perceived as very trustworthy by their coworkers, those coworkers will be more willing to share their

knowledge without worrying that they are being taken advantage of. (Wu et al., 2012). Interpersonal trust is regarded as one factor behind peoples' decision to share knowledge. As defined by Mayer et al. (1995), trust is the "willingness of a party to be vulnerable" and, as such, increases an individual's intention to share knowledge. This lead to our next hypothesis:

H3. The greater the trust among organizational members, the more favorable will be KSI.

6.3.3 Teamwork

The next social capital factor is teamwork which also falls under the relational dimension of SCT. Emerson (1962) finds that teamwork reflects the exchange of and dependence on valuable resources. It also represents the asymmetric power structure and each individual wants to maximize its power on the scale during the process of KS to make the other dependent to the utmost extent. Thus:

H4: The more extensive the teamwork among organizational members, the more favorable will be the KSI

H5: The more extensive the teamwork among organizational members, the more favorable will be the KSI

6.3.4 Top Management Support (TMS)

Former research has pointed out that the organizational context is crucial for work group success (e.g., Gladstein, 1984; Govindarajan & Gupta, 2001). In the context of KS, TMS has been proven to be of major importance (e.g., Hansen et al., 1999). As interpersonal interactions depend on resources provided, TMS is an important contextual element for everyone. Further, management's general attitude towards KS enables and motivates members ''to reach beyond the knowledge they carry in their heads as they go about solving technical problems'' (Mohrman et al., 2003, p. 10). Establishing a KS friendly atmosphere will increase peoples' awareness of the necessity to share knowledge in an organization and will encourage interpersonal interactions (von Krogh, 1998). Thus, a positive relationship between TMS and KS processes in the organization is postulated. Numerous studies have found TMS essential to creating a supportive climate and providing sufficient resources (Lin, 2006; MacNeil, 2004). Moreover, Lin and Lee (2004) proposed that the perception of top management encouragement of KSI is necessary for creating and maintaining a positive KS culture in an organization. Consequently, this study expects that TMS positively influences employee intention and behavior to share knowledge with colleagues. The following hypothesis is therefore formulated:

H6. TMS positively influences employee's KSI

H7. TMS positively influences employee's KSB

6.3.5 Shared Goal

Shared goal is the factor under the cognitive dimension of SCT. Its presence in a group or team promotes mutual understanding and exchange of ideas. Shared goals have the capacity to hold the people together and let them share what they know. With collective goals, organizational members tend to believe that other employee's self-interest will not affect them adversely and they are expected to contribute their knowledge more to help achieve their mutual goals. Within an organization, shared goals can result into KSB (Wagner, 1995). This lead to our hypotheses below:

H8. The shared goals among organizational members, has positive relationship with KSI.

H9. The shared goals among organizational members, has positive relationship with KSB.

6.3.6 KSI and KSB

In the KM area, a positive relationship was found between employees' desire to share their knowledge and actual KSB, indicating high predictive validity for employee behavior in organizations (Dawkins & Frass, 2005; Sheppard et al., 1988; Sutton, 2001). The TRA/ TPB model has been used to explore the relationships between intention and actual behavior of KS (Kolekofski & Heminger, 2002) and has served as a basis for empirical (Bock et al., 2005; Lin & Lee, 2004; Ryu et al., 2003) and theoretical (Reychav & Weisberg, 2004) studies that explain the effect on KS. Here, an individual's decision to engage in KSB is determined by their intention to perform the behavior.

H10: Strong intention to engage in KS positively influences the extent of KSB

Fig 1 shows the research model, which integrated social capital factors with TPB.

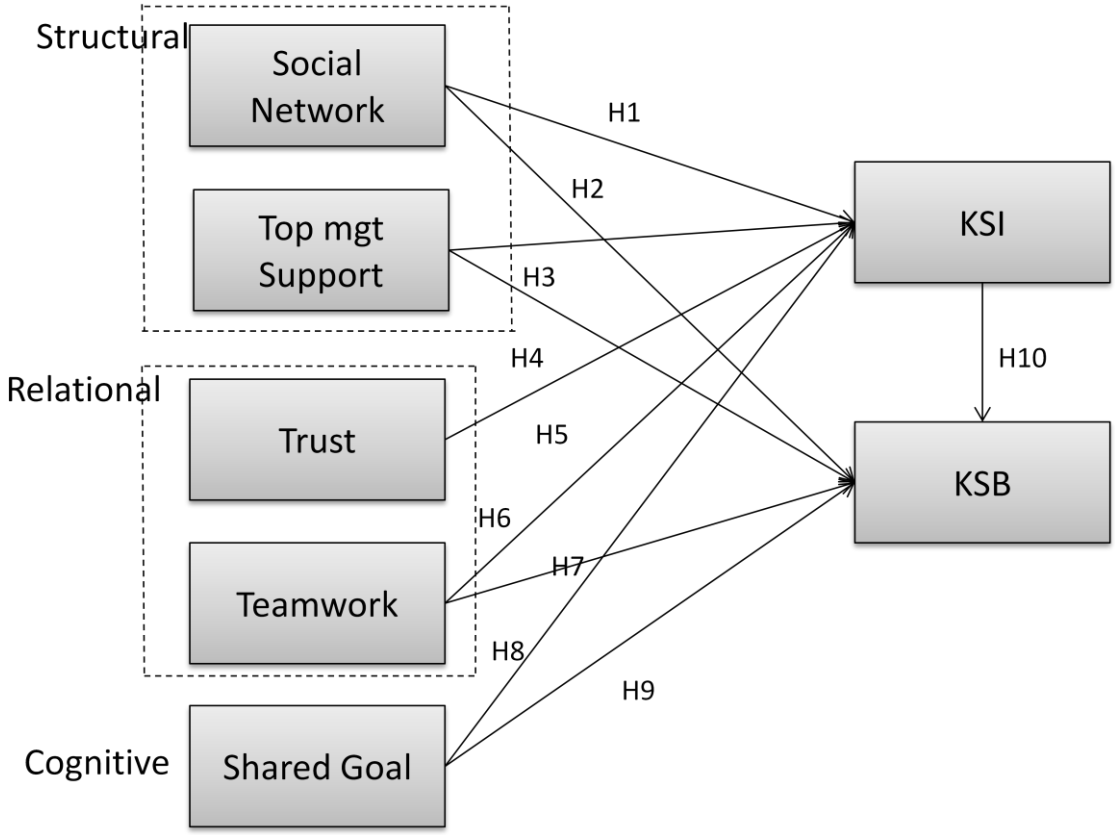

Fig 6.1 Research Model Based on SCaT and TPB

6.4 Research Methodology

6.4.1 Data Collection and Sample Description

The sample was designed to include people from different positions; departments of those IT industries in India which have IT supporting KMS. Respondents included

executive rank managers and middle level managers of various IT organizations. The questionnaires' data are arranged in terms of the various variables, and seven-point Likert scales are used. Respondents are asked to indicate the extent to which they disagree or agree with the given statement by selecting a point on the scale for each question (where 1 = strongly disagree and 7 = strongly agree).

A two-stage pilot test was conducted before sending out the final questionnaire version. First, we invited 10 top level managers from 10 different organizations to examine the syntax of the questionnaires' items. Secondly, 10 company employees were asked to check the semantic content of the questionnaires.

The survey was conducted on a convenience sample of 243 IT companies in India over a period of two months; January and February 2014. We received 397 questionnaires from 470 questionnaires sent. However, 30 of these responses were not usable, yielding 364 effective questionnaires and a usable response rate of 77.44%.

For the research project, we sought organizations that met two criteria: First, to see the impact of IT on employee KS capabilities, the organization must have established KMS, as well as IT infrastructure. Second, the size of the organizations was considered in

order to select similar organizational contexts. Specifically, firms with less than 100(?) employees were excluded from the sample.

6.4.2 Measures

This research uses a survey questionnaire to test the hypotheses. The proposed model measures social network using six items are derived from Chua (2002), Requena (2003) and Vaux & Harrison (1985). Three measurement items for shared goal are derived from Ko et al. (2005). For the construct of teamwork four measurement items were based on Mcnight et al. (2002) and items of trust were adapted from Lee and Choi (2003) and Ridings et al. (2002). Six items for TMS measurement were based on Govindrajan & Gupta (2001). As for the constructs for 'intention to share knowledge', we adopted two items developed by Ajzen, that is, "I intend to" and "I will try to" to capture the individual's intention that she or he "will do" a behavior (Ajzen 1985, 1988, 1991, 2001, 2002a, 2002b; Ajzen & Fishbein, 1980). We measured the dependent variable, KSB by eleven items by asking the respondents how frequently they had engaged in KSB in the past year. These behaviors were adapted from Bock and Kim (2002).

6.5 Data Analyses

6.5.1 Data Analyses

Data analysis in this study was performed using path analysis supported by AMOS 20 to validate the research model. This approach was chosen because of its ability to test casual relationships between constructs with multiple measurement items (Joreskog & Sorbom, 1996). A three stage approach is followed to test the model: first the measurement scales of latent variables were examined using exploratory factor analysis in SPSS 20. Some items were eventually eliminated in the process. Then all remaining items were entered into confirmatory factor analysis in AMOS 20 using maximum likelihood (ML) estimation. Finally to test the proposed hypotheses, path analyses was done.

6.5.2 Factor analysis

To reduce dimensions, the factor analysis is used to analyze the structural dimension, social network; relational dimension, trust, teamwork and TMS; cognitive dimension, shared goal and KSI and KSB. The exploratory factor analysis is adopted and some items were eventually eliminated in the process.

In the CFA model, each item is restricted to load on its pre-specified factor. CFA was performed on the original model with seven constructs being distinct. This test produced x2 = 33.45 and df = 22. (Chi-square difference / df = 1.52), which suggests that these measures are distinct. And the CFI and NFI did not exceed 0.9. All these tests supported adequate model fit. The measurement model was first examined for instrument validation, followed by an analysis of the structural model for testing associations hypothesized in the research model. These results are described next.

6.6 Result

6.6.1 Descriptive Statistics

Among the 364 respondents, only 68 (16.7 percent) were female. Respondent ages ranged from early 20s to over 50, with 38.6 percent over the age of 40. The distribution of work experience was as follows: fewer than 5 years, 29.5 percent; 5 – 10 years, 34.2 percent; 11 – 15 years, 19.6 percent; 16 – 20 years, 9.3 percent; 21 years or more, 7.4 percent.

Table 6.1 Respondent Profile

Measure	Category	Frequency	Percentage
Gender	Male	296	81.3
	Female	68	16.7
Age	21-30	78	21.4
	31-40	190	52.1
	41-50	69	18.9
	51 and above	27	7.4
Work experience	0-5	124	34.0
	5-10	147	40.3
	More than 10	93	25.5

6.6.2 Reliability and validity analysis

The result is considerably reliable when the reliability is higher than 0.7 (Nunnally, 1978). The reliability of each dimension of this study is at least high as 0.8, so high reliability is expected.

Correlation coefficients and reliability figures for the study variables are presented in table 6.2 and 6.3 respectively. The majority of zero-order correlations were statistically significant at $p < .01$.

Table 6.2 Descriptive Analysis and Reliability

	N	Mean	Std. Deviation	Reliability
KSB	364	5.1449	0.86032	.809
KSI	364	5.0027	1.17539	.840
SN	364	5.2320	1.52333	.805
Trust	364	4.9827	1.3158	.824
TW	364	4.9364	0.82873	.844
SG	364	5.5870	1.2012	.837
TMS	364	5.0829	1.35533	.823

Table 6.3 Correlation Matrix

	TMS	SG	TW	Trust	Social norm	KSI	KSB
KSB	.597**	.644**	.706**	.625**	.670**	.536**	1
KSI	.391**	.394**	.443**	.450**	.513**	1	
Social norm	.428**	.664**	.560**	.833**	1		
Trust	.347**	.636**	.575**	1			
TW	.513**	.709**	1				
SG	.391**	1					
TMS	1						

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

6.6.3 The Result of Path Analyses

The conceptual model of the study was subsequently estimated in a path analyses model using ML estimation in AMOS 20. The model contains 8 constructs, 7 observed variables. The overall model fitness results are presented in Table 6.4 and indicate a good fit of the model: the ratio of chi-square to degrees of freedom is 1.952, GFI=.993, AGFI=.899, NFI=.993. Other fit indices (TLI= .955, IFI= .996, CFI= .995,

RMSEA= .068) provide sufficient proofs for model fit.

Table 6.4 Model Fitness

GFI	AGFI	NFI	RMSEA	CMIN/df
.993	**.899**	**.993**	**.068**	**1.952**

All proposed paths are significant except trust, social goal and teamwork on KSI (Table 6.5). The positive and significant path coefficient from KSI to KSB ($t = 7.375$, $P < .001$) suggests that Hypothesis 1 is supported. The positive and significant path coefficient from social network to KSI ($t = 4.208$, $P < .001$) and social network to KSB ($t = 3.0153$, $P < .01$) also suggests that Hypothesis 2 and 3 are supported. The result does not support Hypothesis 4 and 5 which shows insignificant path coefficient from trust to KSI ($t = .660$, $P = .509$) and teamwork to KSI ($t = -.140$, $P = .888$), whereas, relationship between teamwork and KSB (H8) was found significant ($t = -.8156$, $P < .001$). The relationship between shared goal and KSI is not significant ($t = -1.050$, $P = .294$) whereas the relationship between social goal and KSB is significant ($t = -3.875$, $P < .001$). So Hypothesis 7 is not supported and hypothesis 8 is supported. Both path coefficients from TMS to KSI and from TMS to KSB are significant ($t = 2.209$, $P < .001$ for the

former and t = 11.118, P < .001 for the latter). Therefore hypothesis 9 and 10 is supported.

Table 6.5 Path Analyses Results

Path relationship			Estimate	SE	CR	P	Assessment
KSI	→	KSB	.339	.035	7.375	***	H1 supported
SN	→	KSI	.286	.068	4.208	***	H2 supported
SN	→	KSB	.076	.025	3.015	**	H3 supported
Trust	→	KSI	.059	.089	.660	.509	H4 not supported
TW	→	KSI	.010	.073	-.140	.888	H5 not supported
TW	→	KSB	.234	.029	8.156	***	H6 supported
SG	→	KSI	.066	.063	1.050	.294	H7 not supported
SG	→	KSB	.116	.030	3.875	***	H8 supported
TMS	→	KSI	.098	.044	2.209	***	H9 supported
TMS	→	KSB	.234	.021	11.118	***	H10 supported

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

6.7 Discussion

This study developed an integrated model designed to investigate and explain the relationships between cognitive, relational and structural dimension of social capital and KS in IT sectors in India. Our results provide support for the theoretical model and most of our hypotheses, and add some new fact findings to the existing research on the validation of KSB. This study produces important findings that deserve considerable attention from executives of organizations seeking to build favorable environment and social network to facilitate KS.

Trust shows insignificant influence on KSI. This finding directly contradicts prior research on mutual trust, where it is consistently found that trust is critical for sustaining supportive relationships and collective action (Blau, 1964; Wasko & Faraj, 2005). One possible explanation is that in IT industry online-based interactions may be generalized, so there is less influence of mutual trust between the two opponents. Though it is very necessary for sustaining collective action, but there is other ways to trust the information rather than trusting people. The result showed that teamwork does not have a significant relationship with KSI but a significant and positive relationship with KSB. Sometime even employees are not willing to contribute, however working in a team

they have to act because the action is anticipated. In such cases one has to perform more without improving intention. Similarly social goal has an insignificant relationship with KSI but a significant and positive relation with KSB. The above mentioned reason can be referred to understand why social goal can directly influence KSB.

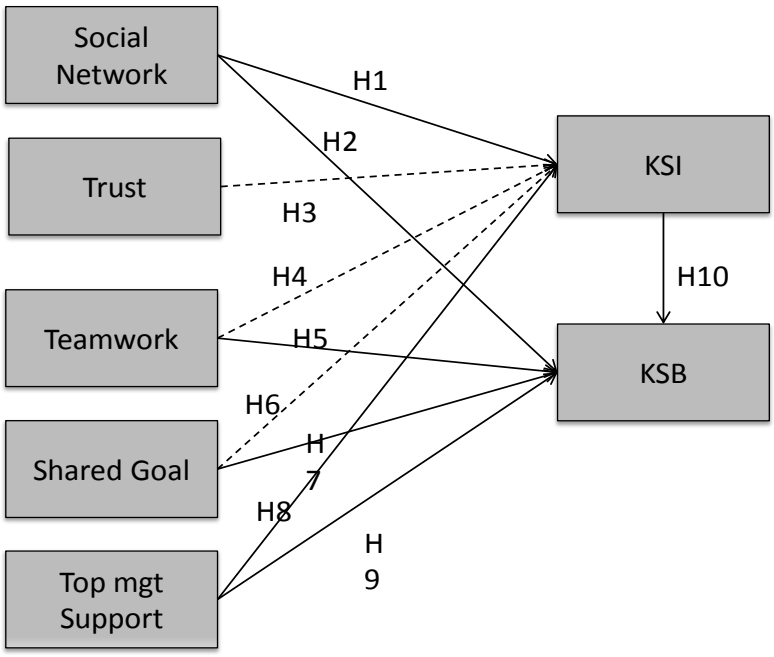

Figure 6.2 Empirically Tested Model

6.8 Conclusion

This chapter provides empirical evidence about the influence of various social capital dimensions on employees' intention to share knowledge. It offers insights to practitioners on the value of social network, trust, teamwork, shared goal and TMS on KSI and KSB. We also found that teamwork and shared goals directly influenced the KSB. Social network and TMS support KSI and KSB directly and indirectly. Trust did not play a direct role in sharing knowledge in IT industry in India.

Implication and limitation

This study proposes the following suggestions to help practitioners manage or design better structure for member's KSB. First of all, the results indicate that the teamwork and shared goal has a direct effect on KSB because that action is expected by others in the same group or network. From the practitioners' standpoint, the management should foster a positive social interaction culture before introducing KS initiatives. Specifically, creating a sharing climate characterized by management support, members' involvement, a proper identification of the shared goal in KS is likely to facilitate both management and members to socialize and interact frequently with one another. Managers can support teamwork by using incentives such as reputable rewards for

sharing knowledge. For instance, a unique identity or symbol can be provided to each member who is active in KS in order to motivate them to contribute. Acquiring value-added points through contributing knowledge is a visible reputation symbol that motivates KS and minimizes free-riders. It also positively encourages a team member to share their knowledge because of the benefits that he or she received from other members.

Chapter 7

Conclusion and Discussion

7.1 Introduction

The objective of this dissertation was to examine employee's KS related process in public and private sector organizations in India with some attention to the role of IT. In order to achieve these objectives the following research question was formulated: what factors determine employees' KSI and KSB in private and public sector organization in India with a focus on IT facilitation. To find the factors determining intention and behavior for KS, the TPB model was set to be the basis since this model is one of the most influencing models for intention behavior relationship. Next the research is decomposed into four specific sub questions: 1) to analyze the quantitative findings of prior empirical studies from the perspective of TPB and more specifically the moderating effects of the organizational contexts such as public or private sectors and with or without IT facilitation, 2) developing a model by integrating the theories like TPB, social cognition theory and social dilemma, to identify the factors which influence KS in a government organization and then 3) in private sectors in India, 4) after getting the relational factors from different theories for KS, to examine social capital factors' influence on KS in IT sector in India since it is one of the fastest growing industries with the advance level of IT facilitated KMS.

Based on both theories used in this research and data drawn from the survey conducted in a government organization and private organizations in India, the main findings of this research are presented in this chapter. First, the main line of reasoning is briefly recapitulated and it is indicated how the findings provide answers to the research questions (section 7.2). Second, in what way the refined theoretical and methodological frameworks have contributed to the existing literature about KS is described based on these findings. Also the implications of the findings for the business practice are explained (section 7.3). Third, restraints of the present study are addressed (section 7.4). Finally, several directions for further research are suggested (section 7.5).

7.2 Main Findings

The main findings of this research are presented as follows. First, the main argument of this research is summarized. Second, this argument is examined with respect to the research questions of the research.

7.2.1 Line of Reasoning in This Research

In chapters one and two, it was argued that a variety of factors based on different theories used in this research exist, which determine the KSI and KSB processes in different organizational settings. These factors include individual characteristics such

as; attitude to share knowledge, subjective norm, KSSE, organizational context like KST, OKSP, TMS, interpersonal relationship like trust, teamwork, social network, shared goal etc. Although all these factors are important for understanding KS, especially people's motivation for sharing knowledge remained not fully understood. Since social behavior is inherently relational in nature and KS is considered to be fundamentally social, this research focused on the motivational dimension of relationships within which knowledge is being shared. Even though the interest in studying behavior in a different organizational context is gaining ground, many researchers implicitly or explicitly adopt only one type of organization in their studies either private or public sector and IT or Non-IT etc. These operationalization of analyses in a single type of organization are not capable of fully explaining the exact reasons behind the lack or presence of KS in the particular type of organization.

In order to address this gap, one model in two different organizational setting is adopted in this research. Before that, in chapter 3, the general sample results indicate that KSI has the largest influence on KSB, and that attitude towards KS has the largest influence on KSI. Moreover the results demonstrate the presence of moderating variables as well such that private organizations provide better environments for employees to positively change their KSI, as compared to public organizations. Enhancing face-to-face

communication might be more effective for KS since the impact of IT facilitation was not significant.

Chapter 4, 5 and 6 are empirical studies based on primary data obtained from organizations in India. On the basis of TPB, other relevant theories are also taken into consideration. The results after integrating both the SCoT and TPB in one model confirm that OKSP, KST, and KSSE can facilitate KSI and KSB, while greed can hinder KSI and KSB in the public sector organization. The evidence indicates that individuals fail to have their KSI when a public good dilemma causes higher greed. Furthermore, it was specified, how different models are interrelated. Whereas knowledge is frequently considered as a public good, many unethical behaviors (greed) can hinder employees' KSB through KSI.

In Chapter 6, SCaT factors were found positively influencing KSB either directly or indirectly within IT sector. The formal work groups like social network or networks of social relations as well as appropriate amount of teamwork and a shared goal are necessary to motivate employees to share the knowledge.

7.3 Discussion

7.3.1 How Can Different Type of Organizations (Public or Private) Moderate the KSI and KSB?

The meta-analysis result shows the moderators exist in the case of KS and the original empirical result confirm the type of organization (public and private sector organization) influence all the path of TPB except KSI and KSB. This shows that the relationship between employees' KSB and KSI does not differ between public and private organisations. However, private sectors employees' attitude and KSSE have stronger impact on KSI and KSB respectively than the public one, whereas, the relationship between SN and KSI was significantly weaker in private organisations. In other words, private sectors' employees are more confident about their ability to perform and on the other hand public sectors employees under more social pressure to stand on the expectations of their colleagues and seniors.

Different organizational setting or the activity system within these organizations could be the possible moderator in this case. Meta analyses enabled the analysis of the efficacy of TPB model in different organizational settings and enabled an interpretative approach by addressing relevant factors for KS.

7.3.2 IT Do (or Do Not) Impact KS?

The meta-analyses showed that the impact of IT facilitation was also significant on the process toward KS. IT moderation also found significant with relationship except KSI and KSB. IT does not have significant impact on KSI and KSB relationship. This shows that IT has no impact on employees' behavior once they are intended to perform. However IT moderation found to be significant on the KSSE and KSB relationship. IT support in various ways can to enhance self-efficacy which could influence one's action to perform. Further research should be needed in this area to provide an understanding of the relationship between IT and KS process.

7.3.3 Influence of SCoT and SCaT Factors on KSI and KSB

According to SCoT, person's intention and behavior are influenced by the self-produced factors (such as self-efficacy) as well as external stimuli (Bock & Kim, 2002). One's expectations of personal efficacy (such as how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences) determine their KSB. Besides, the external stimuli such as organizational contexts also found to be very effective on KSI and KSB.

As a public good, social capital exists in the human relationships. According to this theory, individuals regulate their interactions with other individuals based on three

different dimensions: structural (social network), relational (trust and teamwork) and cognitive (shared goal). In this research the factors like TMS and social network were proved significant to affect KSI and KSB. However trust was not significant. Therefore the theory was partially supported.

For effective and efficient knowledge sharing to occur, organizations may have to manage and build social capital proactively. The conditions identified can be viewed as predictive conditions and provide guidance for firms seeking to exploit knowledge network.

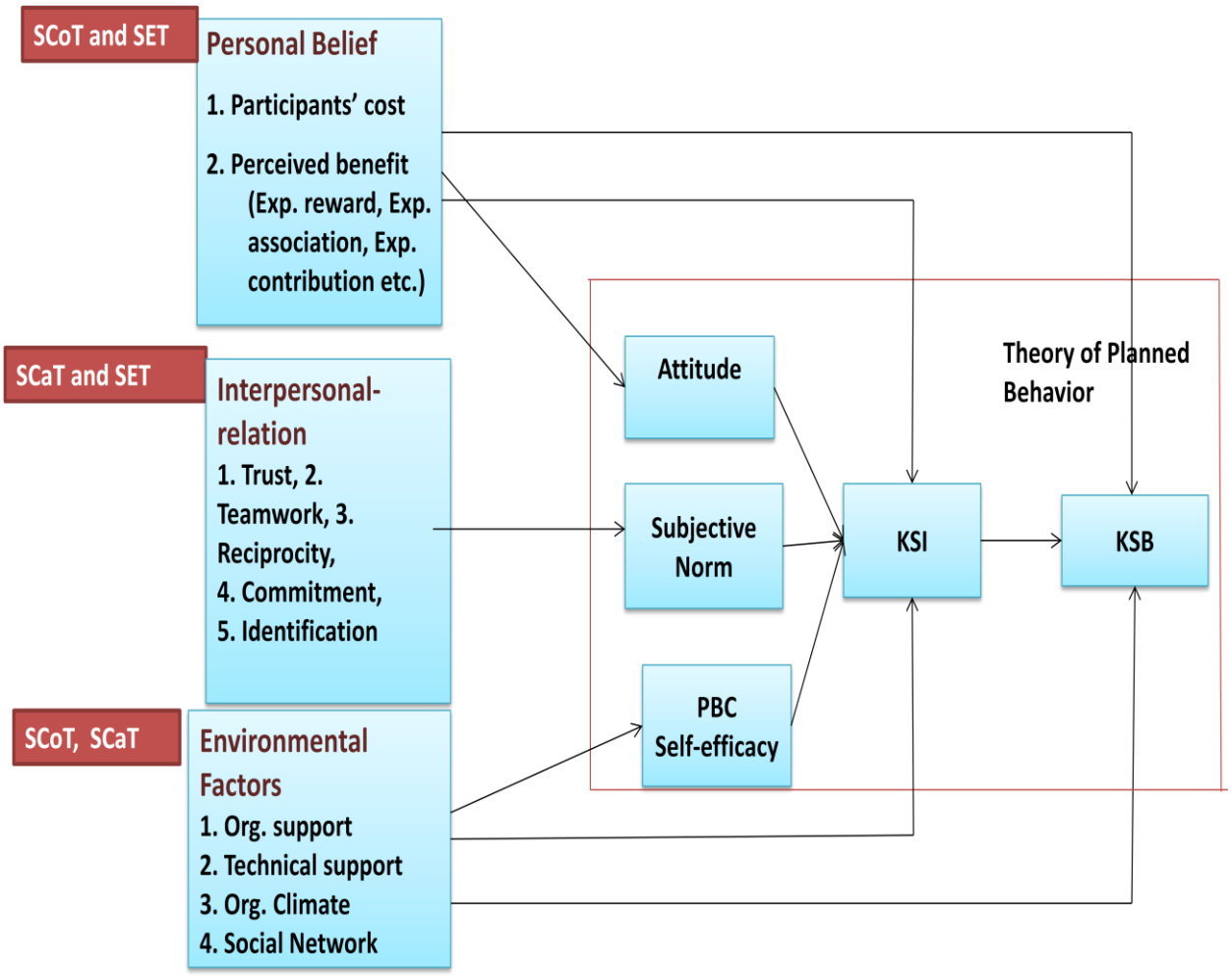

Fig 7.1 Model Based on the Results.

7.4 Conclusion

7.4.1 Theoretical Contribution

The overall contribution of this research is the development of a theoretical framework for studying mechanism of KS (see fig 7.1), by integrating three theoretical domains: social, personal and technological aspects. More specific, the theoretical framework embodies four major theoretical contributions.

First, since the theoretical framework is based on considering KS as a social process, taking place within particular relationships of individuals and within particular organizational settings, it provides support to theories that stress the importance of the context dependent nature of knowledge sharing such as TPB, SCoT, Scat, and Social Dilemma.

The second theoretical contribution is the findings regarding the moderating effect of public vs. private sectors organizations and IT vs. Non-IT on the relationships of TPB components. The TPB model has not been elaborated like this with respect to KS.

Third, while the SCoT and SCaT models have been already applied in KS research before, it has never been integrated to KSI -KSB relationship. This research has enriched activity theory by indicating how the models can be used for studying one of the components of KSB. Although each of the components here can be chosen for improving KS, the relational factor is highly underexposed.

Fourth, knowledge management literature is still dominated by theories that assume just one kind of model underlying KS, whether this is based on a economic perspective (Davenport and Prusak, 1998), or communities (Brown and Duguid, 1991; Wenger, 1998), or social relations as opposed to market relations and hierarchical relations (Adler and Kwon, 2002) or based on social exchange (Ekeh, 1974). This research

introduced integrated model of all the major theories into the discourse of KM, and consequently got out of the fragmentary understanding of KS, by addressing four different theories in one model.

7.4.2 Practical Implication

Besides theoretical contributions, this research also has several implications for business practices. With the development of both the theoretical framework and the accompanying methodology, this research has established a better understanding of in what situation or context people share their knowledge and which might result in better organizational performance eventually. Since KS is considered to be a crucial process in organizational settings, especially when it concerns its core transformation, it is assumed that improving these KS processes also contributes to the performance of an organization (see Figure 5.2). Based on the theoretical framework with its postulations, several specific recommendations can be made to practitioners. Practitioners have to take the relational dimension of KS into account explicitly when they want to improve KSB within their organizations. In practice, organizations commonly start with solving those barriers that are the easiest to put aside, like technical infrastructure or organizational structure. Here the important point is that positive change in factors

under the relational dimension can lead to better KSB without the mediation of KSI. Based on our findings, we propose the following suggestions to those leading knowledge-management initiatives or otherwise desiring to encourage knowledge sharing within their organizations. First, emphasize efforts to nurture the social relationships and interpersonal interactions of employees that are apparently important in driving knowledge-sharing intentions before launching knowledge-sharing initiatives. Second, actively support the formation and maturation of social network within the workplace and in particular, be sure to provide appropriate feedback to employees engaged in (or not engaged in) knowledge sharing. This research has explicitly illustrated how the factors like shared goal and teamwork determined whether knowledge is or is not being shared directly even without any intention to do so.

7.5 Limitation and Directions for Further Research

There may be several directions for further research. In terms of differences in KS processes between public and private sector, the present study obtained the result derived from very much “unbalanced samples”, that is, employees in one governmental agency and many different private sector firms. In the case of IT facilitations, the analysis was implemented only on IT industry firms KS of which are prospectively

facilitated by IT. Comparison of KS process under the different organizational settings will be able to be explored in a more strict way. Secondly characteristics of knowledge were not investigated in the present study because of the intentional focus on individual and organizational characteristics. So as to make more comprehensive research, this aspect should not be ignored. For example, we can reflect the discussion on complicatedness, tacitness and/or quality of knowledge into the model. Thirdly, relations among KS antecedents from different theoretical perspectives can be organized in a more systematic way. In the present analyses, although more than one perspective was organized in one model, the relations among KS antecedents were discussed partly as the interpretation of the result. More distinct argument on mediation and/or moderation is required for more substantial integration of the theories. Furthermore, from a managerial perspective, we should pay more attention to the link between knowledge sharing and organizational performance. Research has by now advanced in terms of both quality and quantity to reach the point of starting to provide detailed answers about the link between knowledge sharing and performance benefits. For example, the increased organization-level problem-solving capacity (Nickerson and Zenger, 2004), absorptive capacity (Cohen and Levinthal, 1990), or product innovation performance (Tsai, 2001) that may result from knowledge sharing happens because of

the individual-level effects (e.g. higher individual problem-solving capacity) that knowledge sharing may foster in conjunction with the right governance mechanisms (Gottschalg and Zollo, 2007).

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Annex 1: List of abbreviations

KM	**Knowledge Management**
KMS	**Knowledge Management System**
KS	**Knowledge Sharing**
KSB	**Knowledge Sharing Behavior**
KSI	**Knowledge Sharing Intention**
KSSE	**Knowledge Sharing Self-efficacy**
KST	**Knowledge Sharing Training**
OKSP	**Organizational Knowledge Sharing Practices**
SCoT	**Social Cognition Theory**
SCaT	**Social Capital Theory**
SET	**Social Economic Theory**
SN	**Subjective Norm**
TAM	**Technology Acceptance Model**
TPB	**Theory of Planned Behavior**
TRA	**Theory of Reasoned Action**

Annex 2: GLOSSARY

Attitude: Attitude toward the behavior is defined as 'a person's general feeling of favorableness or unfavoraleness for the behavior.

Belief: An idea with emotional or spiritual appeal that has not been tested and /or considered accepted knowledge

Knowledge: Subjective and valuable information that has been validated and that has been organized into a model (mental model); used to make sense of our world; typically originates from accumulated experience; incorporates perceptions belief and values.

Knowledge Management: Knowledge Management is the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation. This is achieved through the promotion of creating, sharing and applying knowledge as well as through the feeding of valuable lesson learned and best practices into corporate memory in order to foster continues organizational learning.

Knowledge Management System: A systematic analysis of an organization's current knowledge management capabilities. It assesses current performance against world class practices and identifies critical areas for applying knowledge management

Knowledge Sharing: Knowledge Sharing is an activity through which knowledge (i.e., information, skills, or expertise) is exchanged among people, friends, families, communities or organizations.

Meta-analysis: Meta-analysis is used as a statistical approach to combine the results from multiple studies in an effort to increase power (over individual studies), improve estimates of the size of the effect and/or to resolve uncertainty when reports disagree.

Social Capital: The value created when a community or society collaborates and cooperates (through such mechanism as networks) to achieve mutual benefit. The values of social networks that people can draw on to solve common problems. The benefit of social capital flow from the trust, reciprocity, information and cooperation associated with social network.

Social Cognitive Theory: The social cognitive theory states that we learn behaviors through observation, modeling, and motivation such as positive reinforcement. In other words a behavior will take place because of person's cognition in an appropriate environment.

Social Dilemma: social dilemmas involve a conflict between immediate self-interest and longer-term collective interests. These are challenging situations because acting in one's immediate self-interest is tempting to everyone involved, even though everybody benefits from acting in the longer-term collective interest.

Social Exchange Theory: Social exchange theory proposes that social behavior is the result of an exchange process. The purpose of this exchange is to maximize benefits and minimize costs.

Social Network: a network of social interactions and personal relationships which enables users to share their knowledge.

Subjective Norm: Subjective norm is defined as an individual's perception of whether people important to the individual think the behavior should be performed.

Theory of Planned Behavior: The theory of planned behavior is a theory which links beliefs and behavior through intention, attitude, subjective norm and perceived behavioral control. The concept was proposed by Icek Ajzen to improve on the predictive power of the theory of reasoned action by including perceived behavioral control

Theory of Reason Action: Theory of Reasoned Action suggests that a person's behavior is determined by his/her intention to perform the behavior and that this intention is, in turn, a function of his/her attitude toward the behavior and his/her subjective norm.

Annex 2. Questionnaire

Name of the organization: _____

Contact number: _____

Email id: _____

Address: _____

Q1. Demographic Information:

(1) What is your gender?	**① Male ② Female**
(2) What is your age?	① Under 24 years ②Between 25-29 ③Between 30-34 ④ Between 35-39) ⑤Between 40-44 ⑥ Between 45-49) ⑦Between 50-54 ⑧55 or older
(3) What is your highest level of education?	①High school or lower ②Junior college or vocational school ③Bachelor's ④Master's) ⑤Doctorate
(4) How long have you worked in this organization?	①Less than 1 year ②Between 1 and 5 years ③Between 5 and 10 year ④10 More than 10 year)
(5) What is your present position?	①Auditor ②Senior Auditor ③AAO ④AO ⑤Senior AO ⑥DAG ⑦Accountant general or above
(6) What is the type of your current work?	①Civil Audit ②State Revenue Audit ③General administrative or clerical work
(7) How long have you been in your present position in your organization?	①Less than 1 year ②Between 1 and 5 year ③Between 5 and 10 years ④More than 10 years

Q2. Do you have IT facilitated knowledge management program in your organization?

a) Yes

b) No

Q3. How long has your organization employed IT facilitated knowledge management practices?

a) Less than a year

b) 1 – 3 years

c) 3 – 5 years

d) More than 5 years

Q4. What is the main objective of integrating IT facilitated knowledge management practices in the organization?

a) Improving knowledge sharing

b) Improving employee participation

c) Minimizing knowledge development cost

d) All above_____

e) Other_____

Q5. Name some of the knowledge management practices being employed in your organization.

1. _____
2. _____
3. _____

Q6. How have your knowledge management practices helped your organization in the recent years?

a) Increase work capacity

b) Increase work efficiency

c) Increase in employee knowledge sharing and participation

d) All above

_____

e) Other _____

Q7. Please mark the number that best indicates the degree to which statement describe the knowledge sharing practices employed within your organizations:

A. Performance (Khandwalla, 1977)

1. The organization has higher work capacity.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. The organizations has higher growth prospect.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. The organization's employees have higher job satisfaction.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. The organization's employees have higher work efficiency.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. The organization has better goodwill.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. The organization has better quality work.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

B. Knowledge Sharing Performance

Job Satisfaction

How satisfied or dissatisfied do you feel with each of these features of your present job?

1. The physical work conditions

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

2. The freedom to choose your own method of working

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

3. Your fellow workers

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

4. The recognition you get for good work

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

5. Your immediate supervisor

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

6. The amount of responsibility you are given

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

7. Your rate of pay

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

8. Your opportunity to use your abilities

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

9. Relations between supervisors and subordinates in your organization

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

10. Your chance of promotion

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

11. The way your organization is managed
12. Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

13. The attention paid to suggestions you make

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

14. Your hours of work

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

15. The amount of variety in your job

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

16. Your job security

Extremely dissatisfied: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Extremely satisfied

C. Knowledge Sharing Intention

1. Increased value for my department is enough to motivate knowledge sharing.

Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. Increased value for me is enough to motivate knowledge sharing.

Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

D. Knowledge Sharing Behavior

1. For me voluntarily share my know how, information, and knowledge with other employees is extremely difficult: __1__:__2__:__3__:__4__:__5__:__6__:__7__: extremely easy

2. For me to cooperate or communicate with other employees in teams or groups for sharing information and knowledge is
Extremely difficult: __1__:__2__:__3__:__4__:__5__:__6__:__7__: extremely easy

3. For me freely access documents, information and knowledge held by other division within the organization are extremely difficult:
__1__:__2__:__3__:__4__:__5__:__6__:__7__: extremely easy

4. In daily work, I take the initiative to share my work-related knowledge to my colleagues.

Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. I keep my work experience and never share it out with others easily. (R)
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. I share with others useful work experience and know-how.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

7. After learning new knowledge useful to work, I promote it to let more people learn it.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

8. I never tell others my work expertise unless it is required in the organization. (R)
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

9. In workplace I take out my knowledge to share with more people.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

10. I actively use IT sources available in the organization to share my knowledge.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

11. So long as the other colleagues need it, I always tell whatever I know without any hoarding.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

E. Perceived Organizational Context

Organizational Structure

Organizational Knowledge Sharing Practices

1. The organization use senior personnel to mentor junior employees is
Definitely false: __1__:__2__:__3__:__4__:__5__:__6__:__7__: definitely true

2. The organization groups employees in work teams is
Definitely false: __1__:__2__:__3__:__4__:__5__:__6__:__7__: definitely true

3. The organization analyzes its past failure and disseminates the lesson learned among its employees
Definitely false: __1__:__2__:__3__:__4__:__5__:__6__:__7__: definitely true

4. The organization invest in IT systems that facilitate knowledge sharing is
Definitely false: __1__:__2__:__3__:__4__:__5__:__6__:__7__: definitely true

5. The organization develops knowledge sharing mechanism is
Definitely false: __1__:__2__:__3__:__4__:__5__:__6__:__7__: definitely true

6. The organization offers incentives to encourage knowledge sharing is
Definitely false: __1__:__2__:__3__:__4__:__5__:__6__:__7__: definitely true

7. The organization offers a variety of training and development program is
Definitely false: __1__:__2__:__3__:__4__:__5__:__6__:__7__: definitely true

Formalization

1. The working procedure of your organization is highly standardized
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. The task of your department is highly structured
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. The employee of your department has less decision making power
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. The employee of your department does not need much explanation or assistance of other people during the execution of tasks.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. The employees are constantly being checked on for rule violations.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. I always carry out my tasks according to rules and formal organization documents.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

7. I feel as though I am constantly being watched to see that I obey all the rules.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Centralization

1. The decision making power of your organization is shared by most of employees
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. Your organization is geographically scattered so the division of power is a necessity.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. The political environment of your organization is highly uncertain so the division of power is a necessity.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. Organizational strategies are executed effectively due to flexible decision of the management.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. Decision making is relatively not the most important element.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Bureaucratic

1. Internal operation procedures are clearly and systematically arranged.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. Employees are requested to observe internal rules and regulation.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. Responsibility and authority of internal department is balanced.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. Organizational ethics is emphasized internally.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Top Management Support

1. Top management emphasizes knowledge sharing within the organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. Top management believes that its support is a key to employee knowledge sharing.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. Top management sees through the establishment of knowledge sharing mechanisms in the organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. Top management regards knowledge sharing policies and practices as contributing to organization performance.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. Top management regards knowledge sharing policies and practices as helpful for the organization to improve quality.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. Top management regards firm-specific knowledge as a source of competitive advantage.

Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Innovation Strategy

1. The organization sees innovation as the key to perpetual survival.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. The organization keeps launching new policies and strategies.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. The organization is quick in introducing its services to the government.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. If the organization is quick in introducing its services to the government, usually these services bring good quality work.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. The organization pursues its own successful strategies.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Sanctions/ Reward

1. Those employees who do not share their knowledge with others are usually left out in the cold by their co-workers.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. The organization will consider the performance of employees' participating in knowledge sharing when making decisions on promotions and salary rises.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. The organization will give praise and promotion for the employees' initiative, knowledge exchange and learning activities.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. The organization has penalty measures for those employees who hoard their knowledge and do not share with others.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. In the organization my efforts on knowledge sharing cannot guarantee my present job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. In return, the organization rewards knowledge-sharing behaviors.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Knowledge Sharing-oriented Training
1. It is encouraged in the organization that veteran employees should direct the new employees and transfer expertise.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. The organization developed special educational projects to train employees in how to share knowledge better.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. Through training, the employees learn how to turn personal expertise into expressive and transferable patterns.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. Through training I got to know how to find information and personnel support needed at work.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. We learned from organization training where to find answers when encountering certain problems at work.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. Through training the organization let us realize that sharing knowledge benefits our career development.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

7. When working on some projects, the organization gives enough time and support for employees to learn how to share knowledge at work.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

F. Individual Characteristics

Self-efficacy

1. The knowledge I share with my colleagues would be very useful to them.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. My personal expertise will display its value if shared within the organizations.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. My limited knowledge, even if shared, will generate little effect within the organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. I am confident that my knowledge sharing would help the organization to achieve its performance objectives.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. I am confident that my knowledge sharing would improve work processes in the organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. I am confident that my knowledge sharing would increase the productivity in the organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

7. I am confident in my ability to provide knowledge that others in the organization consider valuable.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

8. I have the expertise required to provide valuable knowledge for our organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

9. It makes a difference whether I share my knowledge with my colleague.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Greed

1. Knowledge is power, so exclusive ownership of knowledge will make me outstanding.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. Sharing my own knowledge in the organization will lead to my loss of competitive advantage.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. No matter whether I share my knowledge with my colleagues, they are all willing to share with me their expertise, so I do not need to offer my knowledge for sharing.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. If in knowledge sharing, I teach more than I learn from others, I do not take part in it.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. It will be wise to learn new knowledge from my co-workers without making my own knowledge public.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

G. Interpersonal Relation and Team Characteristics

Trust

1. I believe the help I give to my colleagues will be returned in the future.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. Many of my personal friends are my colleagues.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. In a long-term view, getting on well with most colleagues is very important to my career development.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. Generally speaking, I can trust my colleagues to do as they say they will.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. My colleagues can be relied upon if I meet with critical incidents.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. My colleagues and I trust each other.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

7. Most conflicts among colleagues in the company are over work issues rather than personal conflicts.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Teamwork

1. People I work with are cooperative and coordinative.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. People I work with are direct and honest with each other.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. People I work with accept criticism without becoming defensive.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. People I work with are good listeners when I encounter any problem.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

5. People I work with care for each other.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. People I work with resolve disagreements cooperatively.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

7. People I work with function as a team.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Social Network
1. In general I have a very good relationship with my organization members and I actively participate in communities of practice.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. In general I am very close to my organization members and I communicate with them through informal meetings within the organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. I always held a constructive discussion with my organization members.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

4. I always trust my organization members to lend me a hand if I need it.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree
5. I know my organization members will always try and help me out if I get into trouble.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

6. I can always rely on my organization members to make my job easier.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

Shared Goals
1. My team members and I always agree on what is important at work.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

2. My team members and I always share the same ambition and vision at work.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

3. My team members and I are always enthusiastic about pursuing the collective goals and mission of the whole organization.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

H. Intrinsic motivation and extrinsic motivation

1. Why do you do this job?

(1) For the pleasure it gives me to know more about my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(2) For the pleasure of doing new things in my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(3) For the pleasure I feel while learning new things in my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(4) For the pleasure of developing new skills in my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(5) Because I feel a lot of personal satisfaction while mastering certain difficult job skills.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(6) For the pleasure I feel while improving some of my weak points on the job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(7) For the satisfaction I experience while I am perfecting my job skills.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(8) For the satisfaction I feel while overcoming certain difficulties in my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(9) Because I feel pleasant in my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(10) For the excitement I feel when I am really involved in my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(11) For the intense pleasure I feel while I am doing the tasks that I like.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree

(12) Because I like the feeling of being totally immersed in my job.
Strongly disagree: __1__:__2__:__3__:__4__:__5__:__6__:__7__: Strongly agree