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5-2-2012

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### Recommended Citation

Lin, Sheng-Wei; Lo Louis, Yi-Shih; and Liu, Wen-Miao, "MOTIVATING KNOWLEDGE SHARING BEHAVIOR FROM THE PERSPECTIVE OF THE CONVERTIBILITY OF ECONOMIC BENEFITS" (2012). *ECIS 2012 Proceedings*. 13.  
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# MOTIVATING KNOWLEDGE SHARING BEHAVIOR FROM THE PERSPECTIVE OF THE CONVERTIBILITY OF ECONOMIC BENEFITS

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## Abstract

*Past research has extensively studied individuals' knowledge-sharing behavior. Identifying the effective mechanisms that motivate individuals to share their valuable knowledge has become an important issue and a major challenge for researchers and practitioners. Past studies fail to consider the readiness of conversion of motivational mechanism to economic benefits of knowledge sharing on knowledge sharing behavior. This study develops a theoretical model of the convertibility of economic benefits that integrates the calculative-based mechanism (CBM) modified from organizational reward systems and the relational-based mechanism (RBM) founded on social interaction to explain knowledge sharing behavior. The research will be conducted by a field study in collaboration with a district hospital to secure the survey data.*

*The objective of this study is to help answer the following research questions.*

- 1. How does the CBM, which incorporates the construct of organizational reward systems, facilitate knowledge sharing behavior?*
- 2. How does the RBM, which incorporates the construct of deposits, withdrawals, and relationship account balance, facilitate knowledge sharing behavior?*
- 3. Against the benchmark of the CBM, does the addition of the RBM give a better explanation of individual knowledge sharing behavior?*

*Keywords: Knowledge sharing behavior, Calculative-based mechanism, Relational-based mechanism, Convertibility of economic benefits.*

## 1. Introduction

Knowledge is regarded as the most important strategic resource for organizations, as it contributes to a sustainable competitive advantage (Conner and Prahalad, 1996). Knowledge sharing is a catalyst that speeds up the use of knowledge. Thus, organizations should encourage their employees to engage in knowledge sharing to increase their knowledge stock, which will lead to competitive advantages. Previous studies have examined the motivational determinants of individual knowledge sharing behavior based on several theories, social exchange theory and social capital theory are widely used as theoretical bases to explain knowledge sharing behavior (Nahapiet and Ghoshal, 1998). According to social exchange theory, individuals are willing to share their knowledge because such behavior brings them the benefits that they desire. These benefits may take the form of reward systems or economic incentives provided by the organization (He and Wei, 2009). Individuals tend to share their knowledge only when the expected benefits outweigh the costs of sharing (Brock et al., 2005). The biggest barrier is insufficient benefits to compensate for the costs of knowledge sharing (Huber, 2001). Liang, Liu, and Wu (2008) investigated the influence of certain factors identified in past research on knowledge sharing behavior based on social exchange theory. Their results showed that the effect size between reward systems and knowledge sharing behavior was the most significant ( $r = 0.41$ ). Thus, this study employs reward systems, here termed the calculative-based mechanism (CBM), related to an individual's assessment of the costs and benefits of knowledge sharing as an independent variable. Such assessment is usually based on self-interest or personal gain that is readily converted into an economic benefits (Wasko and Faraj, 2000). This study posits that the CBM affects individual knowledge sharing behavior.

Traditionally, studies that examine the factors that affect whether individuals will share their knowledge deal with economic incentives. However, knowledge exchange is a social process (Levin and Cross, 2004), and this study holds that knowledge sharing behavior cannot be explained solely by economic incentives, but that social motivational factors that emerge through interpersonal relationships are also key (e.g., Hackman, 1990). Interpersonal relationships create social capital, or the total resources embedded in the relationship networks that belong to a specific individual, which corresponds to counterpart dimension of intellectual capital-based view (ICV). The focus of ICV is on understanding of the stocks and flows of knowledge capital and their effect on the firm's performance (Reed, Lubatkin, & Srinivasan, 2006). Extending the social capital dimension of ICV, we introduce the idea of relationship account balance to explain why certain individuals have an edge in their relationship with their peers. The relationship account balance varies with the extent of deposits (sharing knowledge with peers) and withdrawals (obtaining knowledge from peers) made. Individuals, regardless of whether they are knowledge contributors or recipients, have a tendency to share their knowledge to balance their relationships. This perspective on knowledge sharing is termed the relational-based mechanism (RBM).

The notable difference between the CBM and the RBM is that the RBM is not converted to economic benefits as readily as the CBM. Bourdieu (1986) argued that the benefits that accrue from the relationship network are only slowly realized because the direct benefits are access to information, influence over peers, and the solidarity of membership, none of which can be converted to economic benefits instantaneously. In addition, Bourdieu further indicated that social capital is so sticky, less liquid, and not readily convertible into economic capital. Thus, the time lag in the conversion of knowledge sharing to economic benefits is the salient feature of the RBM.

At the conceptual level, CBM is similar to utility-based factors that have been widely used in prior IS adoption research, and corresponds to liquid economic return of investment in knowledge sharing behavior. However, the construct of RBM is different from the normative factors in prior IS adoption research. The focus of normative factors is on ethically enforced reciprocity of knowledge sharing behavior, but fails to explain the various reputational endorsements for the actors involved in knowledge sharing behavior. The construct of RBM employs the concept of relationship account balance to express the degree of reputational endorsement for actors involved in knowledge sharing behavior. Accordingly, RBM is conceptually different from normative factors.

Previous research has widely investigated the effect of extrinsic and intrinsic motivational factors on knowledge sharing (e.g., Hung et al., 2011), but limited attention has been paid to investigating how the extent to which motivation mechanisms are readily converted to economic benefits affects an individual's knowledge sharing behavior. To bridge this gap, this study examines the effect of the CBM and RBM on individual knowledge sharing behavior. Past research predominately views structural capital as comprising social interaction, but has failed to investigate the accumulated effects of social interaction on knowledge sharing. This study extends this concept and introduces the notion of the relationship account balance, which is accumulated through knowledge sharing behavior, to explain why some individuals have the edge in their relationships with their peers.

The objectives of this study are (1) to develop a relational-based mechanism (RBM) conducive to knowledge sharing behavior that incorporates social network concepts, and (2) to empirically validate the proposed model through a field study and benchmark the model against the CBM of individual-level knowledge sharing behavior. These objectives are proposed to help answer the following research questions.

1. How does the CBM, which incorporates the construct of organizational reward systems, facilitate knowledge sharing behavior?
2. How does the RBM, which incorporates the constructs of deposits, withdrawals, and relationship account balance, facilitate knowledge sharing behavior?
3. Against the benchmark of the CBM, does the addition of the RBM give a better explanation of individual knowledge sharing behavior?

## 2. Research Model and Hypotheses

The research model for explaining knowledge sharing incorporates constructs from social exchange theory and social capital dimension in intellectual capital-based view (see Figure 1). Knowledge sharing behavior is the dependent variable, and includes both explicit and implicit knowledge sharing. From the perspective of social exchange theory, the organizational reward systems in the CBM serve as a benchmark antecedent that is assumed to have a positive effect on individual knowledge sharing behavior. The three constructs in the RBM (i.e., deposits, withdrawals, and relationship account balance) are also expected to have a positive effect on the dependent variable. The following sections introduce the two mechanisms from the perspective of the conversion of knowledge sharing to economic benefits to investigate its effect on individual knowledge sharing behavior.

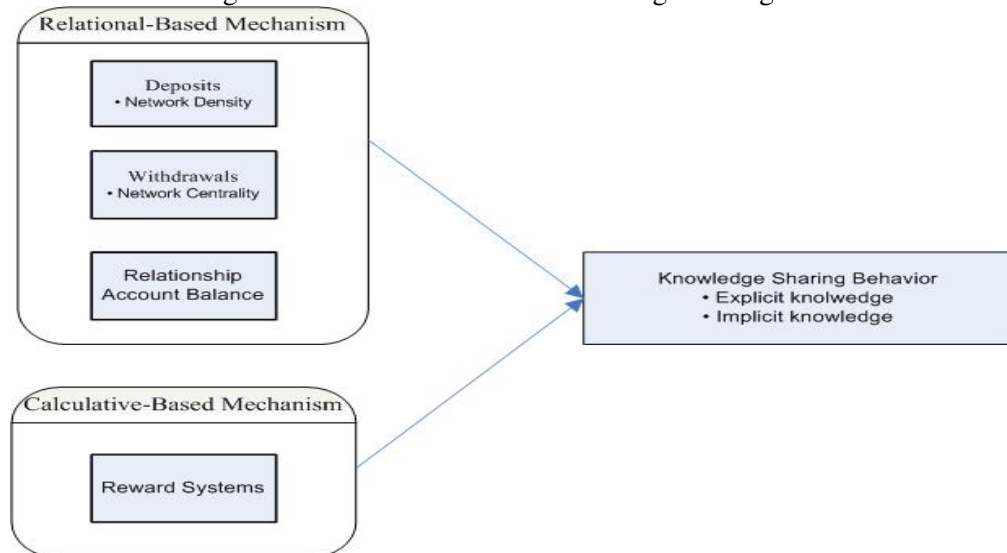


Figure 1. Research model

### 2.1 Calculative-based mechanism

The CBM involves a calculative process. According to this mechanism, knowledge sharing is molded by a rational assessment of the costs and benefits of one's knowledge sharing behavior. Based on this assumption, if the sharing costs outweigh an individual's self-interest, then he or she may not have the

intention to contribute knowledge. The CBM emphasizes the high convertibility of knowledge sharing to economic benefits.

The CBM in this study is derived from social exchange theory. Social exchange theory posits that behavior is influenced by an individual's rational self-interest, which is based on an analysis of costs and benefits and involves benefit maximization and cost minimization. When an individual helps others he or she has a general expectation of future returns. Knowledge can be viewed as an intangible resource that can be shared through social exchange. In the context of knowledge sharing, knowledge taken away through social exchange is viewed as a cost because of the loss of resources that results. Knowledge received through social exchange, in contrast, is viewed as a benefit (Kankanhalli et al., 2005). If the benefits obtained outweigh the costs, then individuals will be willing to contribute their knowledge.

### **2.1.1 Reward systems and knowledge sharing behavior**

As the time, energy, and knowledge of individuals are limited, they will evaluate whether efforts made to share knowledge are valued or rewarded by their organization (Davenport and Prusak, 1998). The share of resources (e.g., information or knowledge) that an individual acquires also depends on the motivation of their contacts, often in the form of organization rewards (Adler and Kwon, 2002). Reward systems in organization are incentives ranging from monetary (i.e., salary) to nonmonetary (i.e., promotions, advancement) provided to employees to mold their behavior or to improve their performance (Cabrera and Bonache, 1999). Therefore, reward systems in organization act as an important motivator of employee knowledge sharing behavior. In this study, reward systems focus on extrinsic rewards include monetary and nonmonetary incentives, (i.e., extrinsic rewards), but exclude intrinsic rewards.

The results of previous empirical studies show that reward systems are positively related to individual knowledge sharing behavior (e.g., Kankanhalli et al., 2005; Kim and Lee, 2006). Liang et al. (2008) further indicated that reward systems are the most widely used and most influential factor in knowledge sharing. This study posits that organizational reward systems positively influence individual knowledge sharing behavior, and the following hypotheses are proposed.

*Hypothesis 1a:* Reward systems are positively related to an individual's explicit knowledge sharing behavior.

*Hypothesis 1b:* Reward systems are positively related to an individual's implicit knowledge sharing behavior.

## **2.2 Relational-based mechanism**

Distinct from the CBM, the RBM is an extension of the structural dimension of social capital theory, which looks at the degree to which an actor interacts with alters within an organization<sup>1</sup>, and thus focuses on social interaction (Tsai and Ghoshal, 1998). Social interaction, which involves giving and taking, changes the dynamic in relationships, and those who benefit from the change will repeat such interaction to sustain their advantage, which is a phenomenon of particular interest here. The RBM explains an individual's tendency to give others help (to make deposits) rather than accept help (to make withdrawals) in terms of the edge that such behavior gives in interpersonal relationships and the better balance in the individual's relationship account. Another salient feature of the RBM is the low rate of convertibility of knowledge sharing into economic benefits compared with the CBM. Adler and Kwon (2002) indicated that the advantages of an interpersonal relationship cannot be readily converted to economic or other advantages, as it takes time to cash in an investment in an interpersonal relationship. The relational and cognitive dimensions of social capital theory, although not the focus of this study, are included as the control variables trust and shared vision, respectively.

Social interaction is a bi-directional behavior. The action from an actor toward another is outward, and the reverse action is inward (Hanneman and Riddle, 2005). The accumulation of social interactions determines an actor's role within an organization. When an actor's accumulated social interaction is of the inflowing kind, he or she is the recipient; when it is of the outflowing kind, he or she is the donor. The role of donor can give the edge in an interpersonal relationship, whereas the role of recipient biases the interpersonal relationship and gives others an opportunity of asking favors in return.

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<sup>1</sup> Social network research labels individual and other members within a social unit as actors and alters, respectively.

### **2.2.1 Relationship account**

The relationship account is a metaphor for the value of the focal actor's relationships with others. An individual makes his or her deposits by offering favors (valuable services and information) to others, and makes withdrawals by asking others for services and information. The RBM encourages individuals to provide help rather than seek help from others because this increases the relationship account balance. The edge in interpersonal relationships can be converted into better information access, influence, and solidarity (Adler and Kwon, 2002). Knowledge is a valuable resource in organizations, and thus sharing knowledge increases the donor's relationship account balance and gives him or her the edge in interpersonal relationships. The relationship account has two important features: historical transactions and the account balance. The former is associated with the ties that link an actor with alters in the organization, and the latter is associated with the actor's net value of historical transactions. In this study, social network refers to the interpersonal network configuration, such as location and interaction patterns. This social network is supported by the formal organizational structure and informal interpersonal relationships, and in this sense is a typical network that combines formal and informal networks.

### **2.2.2 Withdrawals from and deposits in the relationship account**

Social ties indicate the extent to which actors are connected with alters within a social unit, and typically involve resource exchanges (Sykes, Venkatesh, and Gosain, 2009). The resources for exchange that have typically been investigated in past research include knowledge, information, and other resources (Sykes et al., 2009). Social ties are directional, running both inward and outward. An inward tie refers to an actor accepting a resource from an alter in the organization. An outward tie indicates that an actor provides a resource to an alter in the organization. Inward ties in this study describe the situation where individuals seek help to obtain knowledge on tasks from coworkers (i.e., making a "withdrawal" from the relationship account). Outward ties describe the situation where individuals help coworkers to obtain knowledge tasks (i.e., making a "deposit" in the relationship account). We use ego-centric density and *network centrality* to model withdrawals from and deposits in the relationship account.

### **2.2.3 Ego-centric density**

Ego-centric density describes the connectedness of an actor in the network, and is defined as the ratio of the actual number of ties for an actor in the network to the maximum possible number of ties (Sykes et al., 2009). Ego-centric density is a good predictor of the level of assistance received from others, and has long been used to study information transfer in social units (Hansen, Nohria, and Tierney, 1999; Kane and Alavi, 2008). The more ties that individuals accumulate, the higher their chance of receiving others' assistance (Lee, Cotte, and Noseworthy, 2010). This argument leads to the following hypotheses.

*Hypothesis 2a:* Ego-centric density is positively related to an individual's explicit knowledge sharing behavior.

*Hypothesis 2b:* Ego-centric density is positively related to an individual's implicit knowledge sharing behavior.

### **2.2.4 Network centrality**

Network centrality refers to the relative numbers of direct and indirect links that an individual has with the others in his or her social network (Mossholder, Settoon, and Henagan, 2005). Individuals with a high level of network centrality engage in more assistance exchanges with coworkers (Lee et al., 2010). We further argue that individuals with a high level of network centrality give help more than get help, so have the edge in interpersonal relationships. This edge is converted into power and influence over others' decision making (Kleinnijenhuis, van den Hooff, Utz, Vermeulen, and Huysman, 2011; Sykes et al., 2009), and corresponds to an increase in the relationship account balance. To sustain influence and importance in an organization, an individual will replicate behavior that serves to increase the relationship account balance. Knowledge sharing is a type of behavior through which an individual conveys his or her utilitarian values to others in the organization, and is one of the roots of social influence (Kleinnijenhuis et al., 2011). The more knowledge a member shares with others, the more cognitively central the member is to the group (Kameda, Ohtsubo, and Takezawa, 1997). Thus, an individual with a high level of network centrality is more likely to share his or her knowledge to sustain the edge in interpersonal relationships. The following hypotheses are thus proposed.

*Hypothesis 3a:* Network centrality is positively related to an individual's explicit knowledge sharing behavior.

*Hypothesis 3b:* Network centrality is positively related to an individual's implicit knowledge sharing behavior.

### 2.2.5 Relationship account balance

The relationship account balance is the net value of historical transactions. Relationship accounts need periodical transactions or else they become inactive (Adler and Kwon, 2002). To activate an inactive relationship account requires a large investment of time and effort in terms of interpersonal interaction. The relationship account balance conceptually represents the degree to which individuals express long-term goodwill toward others, which helps those individuals to access information and knowledge from others (Adler and Kwon, 2002). Having an edge in accessing knowledge helps to improve the quality, relevance, and timeliness of shared knowledge (Adler and Kwon, 2002). This leads to the following hypotheses.

*Hypothesis 4a:* The relationship account balance is positively related to an individual's explicit knowledge sharing behavior.

*Hypothesis 4b:* The relationship account balance is positively related to an individual's implicit knowledge sharing behavior.

## 3. Research Method

### 3.1 Participants and data collection procedure

The unit of analysis in this study is the individual. The sampling frame is composed of nurses in a district hospital. Nurses are knowledge workers, and their job duties are associated with patient care, including catheterization, chest tapping, and advanced cardiac life support. Hence, nurses frequently share healthcare knowledge and skills with their peers to ensure patient safety. Such intensive knowledge sharing behavior justifies the employment of this sampling frame.

### 3.2 Measurement of the constructs

All of the scales used will be measured on a five-point Likert scale, except for the scales used in for social network constructs, which will be measured on a six-point Likert scale.

#### Calculative-Based Mechanism

*Reward systems.* Four items adopted from Bock et al. (2005) and Kankanhalli et al. (2005) will be used to measure this construct.

#### Relational-Based Mechanism

We will collect social network data using a roster-based sociometric approach. The social network data will include frequency of interaction. The data will be used to compute the three independent variables discussed earlier, that is, (1) network density, (2) network centrality, and (3) relationship account balance. A help network matrix will be created based on individuals' assessment of the frequency with which they seek or give help to their peers in the organization (with values ranging from 0 to 5, where 0 indicates not connected and 1 through 5 indicate the degree of getting help or giving help). We will use the help network to build the network density and network centrality measures, which are all ego-centric network construct. The former reflects the extent to which a nurse seeks help from peers in the organization, and the latter reflects the extent to which a nurse provides help to the peers with which he or she interacts.

*Relationship account balance.* The relationship account balance for nurse  $i$  is the difference between deposits and withdrawals. Nurse  $i$ 's relationship account balance can be operationalized as the difference between the network centrality and network density.

*Knowledge sharing behavior.* The knowledge sharing behavior construct in this study includes measures of both explicit and implicit knowledge.

*Control variables.* Trust, shared vision, gender, age, and work experience are included as control variables.

### Acknowledgement

This research is partially funded by National Science Council, Taiwan, under contract number NSC 100-2410-H-031-066 and NSC 100-2410-H-166-002-MY2.

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