Bridging intention and behavior of knowledge sharing

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Abstract

Purpose – This paper seeks to present an innovative scale that sheds light on the ways in which intentions to share explicit and tacit knowledge impact actual knowledge-sharing behavior.

Design/methodology/approach – Survey data were collected from a total of 278 hi-tech workers. Structural equation modeling (SEM) was used to assess the research model.

Findings – SEM shows that the intention to share explicit knowledge influences explicit knowledge-sharing behavior to an equal extent both directly and indirectly. By contrast tacit knowledge-sharing behavior is influenced directly to a greater extent by the intention to share tacit knowledge and less indirectly by the intention to share explicit knowledge.

Research limitations/implications – The study provides a potential tool that may be applied by managers for the purpose of measuring explicit and tacit knowledge-sharing intention and behavior. Its limitations are due to the limited socio-economic and geographic variability of the companies and people that were studied, which may need further studies to substantiate.

Originality/value – Whereas there is a consensus as to the need for and the benefits of sharing knowledge, there are no tools for measuring the roots of sharing behavior. The scale presented here captures the underlying intention, measures it, and assesses the resulting behavior.

Keywords Behaviour, Knowledge management

Paper type Research paper

Introduction

Organizations put much of their energies into maintaining a significant competitive market edge, and this has led to increased investment in an intangible asset – knowledge (Collins and Smith, 2006; Huber, 2004; Smith et al., 2005). Knowledge is one of the fundamental factors in an enterprise's momentum and goes part and parcel with the effectiveness and competitiveness of its operations and behavior (Wiig, 2004).

The ability to create new knowledge enables organizations to respond quickly and effectively to a changing environment. Recently there has been growing empirical interest in organizational ability to create new knowledge that derives from organizational knowledge-sharing (KS) processes (Argote et al., 2003).

Organizations tend to focus on the development and application of technological knowledge management (KM) tools to better coordinate different organizational resources.

Many companies tend to force the employees to enter their knowledge into an IT system (Loew et al., 2007) and set up a knowledge management system (KMS). This KMS consists of existing information databases such as ERP systems, document management systems, workflow management systems etc, and a system which is able to connect all these systems and provide a common access point for the user. However, these knowledge management tools do not necessarily motivate employees to engage in KS processes (Duffy, 2000; Masterson et al., 2000). This KM system disseminates explicit knowledge that exists within
the organization and creates frameworks that enable its accumulation and use. However, considerable knowledge in organizations resides in a semi-structured or unstructured form. This is what the authors term "tacit" knowledge. The concept of tacit knowledge was defined by Polanyi (1958, 1966). He posited that all knowledge is either tacit or explicit knowledge and stressed the importance of a “personal” way of communicating knowledge. While explicit knowledge is codified and transferred mostly by technology, tacit knowledge is more embedded in social relations and transferred primarily through direct contact and observation of behavior.

It is the authors’ assumption here that the solution to such complex problems as managing KM cannot be found in stored information, but rather it is an outcome of communication and collaboration between people. Similar to previous work, the authors of the present study “focus more on people and not on technology” (Sunasse and Sewry, 2003; Tiwana, 2000; Nonaka and Takeuchi, 1995).

This study explores a rarely investigated but crucial side of knowledge sharing: it compares employees’ intentions to share explicit and tacit knowledge and the actual sharing of this knowledge. By doing so it contributes to the literature on knowledge management by expanding it to the realm of explicit and tacit knowledge sharing.

Studies in this area have examined the relationship between intention and behavior of knowledge sharing as a whole, but have not examined the differences between explicit and tacit knowledge. Moreover as far as the authors know, the literature has not examined parallel intention and behaviors. Therefore this study is innovative in that it looks simultaneously at explicit and tacit intention and behavior of knowledge sharing.

In addition, explicit and tacit knowledge have different economic values: explicit knowledge is considered relatively less expensive because it is impersonal and easy to transfer to other employees by IT. By contrast, tacit knowledge is considered to be more expensive and valuable because it is concerned with shared activities, observation of behavior, and direct contact, which are associated with more complex ways to interact and acquire knowledge from co-workers; thus, employees are reluctant to transfer this precious commodity with no return. The intention to share explicit knowledge is likely to influence explicit knowledge sharing behavior. Higher intention to share tacit knowledge should also impact directly on tacit knowledge behavior, which in turn should affect explicit knowledge behavior. To explore these relationships, this paper is organized as follows: Section 2 discusses KS types and interrelationships; Section 3 describes the theoretical framework, and suggests a set of hypotheses; Sections 4 and 5 present the methodology and findings. Section 6 covers the discussion, the contributions and limitations of this study, and recommendations for future research.

What is knowledge sharing (KS)?

KS among employees represents attempts and contributions towards creating an organizational knowledge database – and is attracting growing interest on the part of both practitioners and researchers alike (Cabrera and Cabrera, 2002; Hansen, 2002). The means by which knowledge is shared within organizations is a core issue in KM and is considered a firm’s most valuable resource because it embodies intangible assets and creative processes that are difficult to imitate (Grant, 1996; Liebeskind, 1996). Knowledge sharing has been explained on the basis of exchange theory (Blau, 1963) and the notion that a successful exchange process creates an obligation to reciprocate anticipated future monetary and non-monetary benefits (Gouldner, 1960). In organizations, reciprocal exchange plays an important role in shaping employees’ impressions of one another and in increasing productivity (Blau, 1963; Flynn, 2003a). Reciprocal exchange provides a means for employees to obtain cooperation (Emerson, 1976). Through the giving and receiving of favors over time, employees can acquire valued resources such as knowledge that increases their productivity, not by way of hierarchical authority or contractual obligation but because the norm of reciprocity is so strongly upheld (Flynn, 2003b; Heath, 1976). KS plays an important role in assisting the organization to realize its best practices, and in
minimizing both the learning curve and the efforts invested on the part of employees to master new fields of expertise (Hansen, 2002; McDermott and O’Dell, 2001).

Managements believe that knowledge resources are more important than conventional assets (material, labor, capital) and thus must be managed explicitly using KM technologies which support collaboration and communication and cover an enormous diversity of heterogeneous technologies such as the computer, telephones, e-mail, databases, data-mining systems, search engines, the internet, and video-conferencing equipment (Hislop, 2005).

KM involves network computing, groupware, intranets, and other technologies that make large-scale knowledge management possible (Wu, 2003). Since knowledge is usually difficult to imitate, transfer and replicate, it is important to understand how knowledge sharing takes place.

Interrelationships between intention and behavior of KS

The authors center on the interrelationships between intentions and behaviors of explicit knowledge sharing (EKS) and tacit knowledge sharing (TKS) rather than attempting to explain the antecedents of knowledge sharing – which is an important issue in the creation of a pro-sharing environment in an organizational culture (Teo et al., 2006).

The interrelation between intention and behavior to share tacit and explicit knowledge is important for both organizational learning and a firm’s competitive advantage, as well as for the individual in the organization. In all types of organizations, from manufacturing to high tech, a competitive advantage derives from individuals who possess specific knowledge and the organization’s ability to leverage this knowledge to its advantage. Because knowledge is usually difficult to imitate, individual knowledge sharing has strategic importance. It is no surprise that organizations are beginning to recognize the importance of individual knowledge as an important resource that can in some circumstances outweigh conventional assets (material, labor, capital) and thus must be managed explicitly (Stewart, 1998).

Recently, IT has advanced in both capability and affordability, and it is recognized for its ability to capture, store, process, retrieve, and communicate knowledge. This mainly refers to the accumulation and management of individual explicit knowledge. Very little is known about how knowledge is shared, in particular tacit knowledge. Consolidating data from various sources into a consistent knowledge base is one of the greatest challenges of KM (Maule et al., 2002). Better decision making, faster turnaround times, improved organizational communications, and higher level of cooperation and interactions among personnel are implemented and maintained KM systems (Schwartz et al., 2000).

Theoretical framework

Two major theories have attempted to account for an individual’s knowledge sharing intentions (KSI) and actual knowledge sharing behavior (KSB) within an organization: the theory of reasoned action (TRA; Fishbein and Ajzen, 1975) and the theory of planned behavior (TPB; Ajzen, 1991).
**Intention and behavior**

TRA focuses on the intention to engage in a certain behavior and is influenced by two factors:

1. the individual's attitudes, based on the existence of prior tendencies directed at an object, or a group; and
2. a subjective norm that relates to the individual's perception of the way in which others, who are important to him or her, respond to a certain behavior.

TRA is prevalent in social-psychological models that explain human behavior and is actually an expansion of expectancy theory, which involves environmental factors in addition to the differences existing among individuals. Individual motivation is a function of attitudes that stem from individuals' hopes to realize their potential to achieve desired outcomes as a result of certain behaviors. TRA emphasizes the importance of how employees perceive the organization's social norms. Individuals' attitudes in the organization and the existing norms have been found to significantly explain differences in behavior among organization members (Blau, 1964).

**Intention and behavior in KS**

Studies that have attempted to predict employees' behavior through their beliefs and perceptions have found high predictive validity in various areas such as union commitment (Kuruvilla and Sverke, 1993) organizational commitment (Becker and Randall, 1995), and decision making related to senior organizational networks (Smith and Hindman, 1997). In the KM area, a positive relationship was found between employees' desire to share their knowledge and both successful organizational KM (Storey and Quintas, 2001) and actual KS behavior, indicating high predictive validity for employee behavior in organizations (Dawkins and Frass, 2005; Sheppard et al., 1988; Sutton, 2001).

The TRA model has been used to explore the relationships between intention and actual behavior of information sharing (Kolekofski and Heminger, 2002) and has served as a basis for empirical (Bock et al., 2005; Lin and Lee, 2004; Ryu et al., 2003) and theoretical (Reychav and Weisberg, 2004) studies that explain the effect on KS. An organization's knowledge resources have accurately been described as an iceberg (Haldin-Herrgard, 2000). The easiest form of knowledge to understand in an organization is structured knowledge, which is the visible top of the iceberg. Explicit knowledge resources are easy to find and recognize, and therefore easy to share within organizations using different technologies. This leads to the following hypothesis:

**H1.** Employees' intention to share explicit knowledge is positively related to their explicit knowledge sharing behavior.

Beneath the surface, an invisible and hard to express form exists and this is the greater part of the iceberg. This hidden part is a metaphor for tacit knowledge resources in organizations.

Employees' perceptions reflect their tacit knowledge which consists of their ideas, experience, competencies that enable them to use their knowledge effectively (Wu, 2003). This tacit knowledge influences their involvement in the process because it includes the ability to notice and interpret what is happening in interpersonal situations, to grasp certain multiple perspectives and integrate them, and to envision strategic futures beyond or alongside the knowledge that is circulating explicitly. These skills allow organizational members to read situations, understand and resolve problems. This leads to the following hypothesis:

**H2.** Employees' intention to share tacit knowledge is positively related to tacit knowledge sharing behavior.
Intention to EKS and TKS

The TPB extended TRA by adding a third dimension that describes an employee’s perceived abilities about behavior within the organization. TPB was applied in a study that examined the effect of an employee's intention to engage in organizational involvement on actual involvement in decision making. The feeling of increasing ability encourages intentions to engage, and actual engagement in organizational decision-making (Dawkins and Frass, 2005).

TPB has been used to predict employees’ intentions and behaviors to participate actively in a website; their intentions emerged as a function of attitude, subjective norm and perceived behavioral control (Riemenschneider et al., 2003). The subjective norm in this case was the degree of perceived social pressure an employee felt to adopt a web presence. Perceived ability control was defined as how easy or difficult the worker thought adoption would be, including the potential obstacles. Attitudes are assumed to be determined by the sum of the cross-product of behavioral beliefs and evaluations about expected positive or negative consequences. Subjective norms are thus determined by a sum of cross-products or normative beliefs about motivations to comply with specific social referents such as important persons and groups in one’s environment and the power to deal with obstacles.

TPB was also used to explain factors essential to acceptance of new technologies by individuals in the telemedicine field (Chau and Hu, 2002). Recent advances in telemedicine technology are an important form of IT-enabled delivery and decision support for healthcare professionals. However, physicians play the major role in the implementation process (Payton, 2000). Physicians are experts in their own profession and accustomed to practice in a particular way or style similar to that in which they were trained. Therefore, by increasing awareness of the similarity of other behaviors such as explicit knowledge to a familiar behavior, their perceived ability may increase and support other intentions which reflect TKS.

Over the past several years, research in the field of KS has employed TPB to analyze employees’ intentions to share knowledge and actual knowledge sharing (Lin and Lee, 2004; Ryu et al., 2003). Based on TPB, the authors propose that the connection between employees’ intentions to share their explicit knowledge may be more tangible to the employee when combined with KM technology. Therefore, the increased use of KM for sharing explicit knowledge may contribute to an increased sense of ability on the part of the employee to TKS as well, which may evolve from the collaboration among the participants involved in EKS. The intention to EKS is perceived as sharing a resource which is less expensive, which may influence the employee’s intention to TKS, a more expensive resource. This leads to the following hypothesis:

H3. Employees’ intention to share explicit knowledge is positively related to intentions to share tacit knowledge.

The market value of knowledge

TPB theory can account for the relationship between an employee’s decision to engage in actual TKS behaviors and the decision to EKS. Employee tacit knowledge is perceived by the organization as having high potential to contribute to achieving a competitive market edge. From the employee’s perspective, tacit knowledge gives him/her a position of power in the organization and a competitive advantage within the organization. Thus, KS behaviors are based on the existence of exchange relationships between the employee and the organization. These relationships create monetary and non-monetary reward expectations in
exchange for sharing the knowledge and achieving organizational goals. The authors suggest that an employee, who is willing to share ‘expensive’ (tacit) knowledge, is also likely to be willing to share his ‘cheap’ (explicit) knowledge, in order to be rewarded in the form of monetary and non-monetary benefits. This leads to the following hypothesis:

**H4.** Employees’ TKS behavior is positively related to EKS behavior.

**Direct and indirect effects of intention on behavior**

The authors theorize that intention to share explicit knowledge and tacit knowledge has a parallel and concurrent influence on the actual behavior of EKS: the first is the direct effect suggested in H1, and the second is an indirect effect. More specifically, the intention to EKS influences the intention to TKS, which in turn increases EKS behavior via the employee’s realization of the potential monetary and non-monetary benefits which may result from converting TKS into a more tangible resource in the organization (EKS), and hence contribute to organizational knowledge. This leads to the following hypothesis:

**H5.** Intention to explicit knowledge sharing has an indirect effect on increasing explicit knowledge sharing behavior, via the intention to share tacit knowledge and by extension tacit knowledge sharing behavior.

**Research model**

An employee’s intention to share knowledge is comprised of two distinct intentions to EKS and TKS. Similarly the behavior of sharing knowledge comprises of two distinct behaviors:

1. EKS; and
2. TKS (see Figure 1).

These two intentions were examined simultaneously (in a multi-dimensional model) testing the direct and indirect relationships; namely, how EKS and TKS are affected by the employee’s primary intention to first share explicit knowledge (see H1) and second tacit knowledge (see H2). Intention to share explicit knowledge is relatively less expensive, which affects the intention to TKS (see H3). The more an employee shares his more “expensive” tacit knowledge, the more he is willing to share his less expensive explicit knowledge (see H4).

Finally this model suggests an indirect influence of intention to EKS on EKS behavior (see H5).

**Method**

The sample was drawn from two hi-tech companies in Israel working in the telecommunications field that make cellular networks. This sector was chosen because in the current market, hi-tech companies must implement innovative business strategies and

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**Figure 1** A model of intention and behavior of sharing explicit and tacit knowledge

- Intention to Share Explicit Knowledge → Explicit Knowledge-Sharing Behavior (H1)
- Intention to Share Tacit Knowledge → Tacit Knowledge-Sharing Behavior (H2)
- Intention to Share Tacit Knowledge → Intention to Share Explicit Knowledge (H3)
- Explicit Knowledge-Sharing Behavior → Tacit Knowledge-Sharing Behavior (H4)
- Explicit Knowledge-Sharing Behavior → Intention to Share Tacit Knowledge (H5)
invest vast resources in research and development. These companies employ a high percentage of scientists and engineers and compete in markets where product life span is short-lived (Milkovich, 1987). This makes knowledge sharing of any type a crucial factor in company success.

Data collection was carried out in four stages. In the first stage, letters were sent to company managers, human resource managers, and information systems managers involved in knowledge management. In the second stage, interviews were conducted with company employees and managers. The research goals, the study’s importance and potential contribution to both the organization and academia were presented, accompanied by a letter from the management authorizing the research team to conduct the study. In the third stage, a pilot study was conducted on a sample of 58 individuals who were given the questionnaire during a face-to-face meeting and responded in the presence of a research team member. Then, the reliability of the major factors was tested, and yielded a high Cronbach’s $\alpha$ for the intention to share explicit knowledge (0.87), the intention to share tacit knowledge (0.89), actual explicit knowledge sharing behavior (0.93), and actual tacit knowledge sharing behavior (0.91). In the fourth stage, questionnaires were distributed to respondents and since the management fully supported the completion of questionnaires during working hours, questionnaires were returned at the site, yielding a response rate of 98 percent.

The final sample consisted of 278 completed questionnaires. $T$-test analyses of intentions and behaviors showed no differences between the companies for intention to share explicit knowledge ($t = -2.92, p > 0.05$), intention to share tacit knowledge ($t = -2.32, p > 0.05$), explicit knowledge sharing behavior ($t = -0.57, p > 0.05$) or for tacit knowledge sharing behavior ($t = -0.05, p > 0.05$). Respondents from business departments included finance, R&D, marketing, IT, engineering and manufacturing. Of the respondents, 75 percent were men and 25 percent were women. The average age was 33.7 years ($\bar{x} = 9.6$). The level of education was as follows: 36.16 percent had a technical or engineering degree; 18.75 percent had a BA degree; and 54.9 percent had an MA (or higher) degree. Average employee tenure in the labor market was 10.89 years ($\bar{x} = 9.86$), tenure within the organization was 7.47 years ($\bar{x} = 8.95$), and tenure in their current job position was 4.95 years ($\bar{x} = 6.15$).

Measures

The intention to share knowledge was based on a scale by (Bock et al., 2005), which originally included five items – three for tacit knowledge ($\alpha = 0.92$) and two for explicit knowledge ($\alpha = 0.93$). This scale was extended to include 20 items (see the Appendix) and achieved high reliabilities for intention to share explicit knowledge ($\alpha = 0.87$), intention to share tacit knowledge ($\alpha = 0.89$), explicit knowledge sharing behavior ($\alpha = 0.92$), tacit knowledge sharing behavior ($\alpha = 0.91$). It was phrased in both the first person and the third person, as proposed by Hooff and Weenen (2004) to make it easier for respondents to express their attitudes.

Items that relate to explicit knowledge stressed the intention to share knowledge using KM technologies related to instruction manuals, organizational work methods, and professional material prepared personally by the employee. A differentiation was made between the explicit knowledge created by the employee and by other organization members (for example, “I will be willing to share/I share work reports and official documents that I prepare by myself with members” as opposed to “I will be willing to share/I share material connected with instruction manuals and work methods with other employees”). As such, the measure of “explicit knowledge” included eight items, four of which focused on the employee’s willingness to share explicit knowledge (“I will be willing to share/I share knowledge . . .” or “In the organization, members will be willing to share knowledge . . .”) and the other four items related to the employee’s wishes to obtain explicit knowledge (“I will be willing to receive/I receive knowledge . . .” or “In the organization, members will be willing to receive knowledge . . .”).
Items that relate to tacit knowledge included a total of 12 items that describe tacit knowledge according to the following dimensions:

- **Employee experience.** For example, “I will be willing to share/I share knowledge based on my work experience” or “I will be willing to use/I use knowledge based on other organization members’ work experience”.

- **Know who and know where.** Knowledge connected to someone or some part of the organization. For example, “I will be willing to tell/I tell other organization members about knowledge that other employees possess” or “I will be willing to be informed about/I am informed about knowledge that other employees possess”.

- **Employee professionalism.** For example, “I will be willing to share/I share knowledge, based on the professional expertise I have acquired through study and training, with other employees’ or “I will be willing to use/I use other employees’ knowledge, which they have acquired through learning and training”.

Mean values for each of the dimensions were calculated (Bock and Kim, 2002; Bock et al., 2005). The four hypotheses and the multi-variable model were tested using SPSS Version 13. Since our claim is that actual knowledge sharing is affected not only by a direct relationship but also by an indirect one as well, we used AMOS 5.0 (Arbuckle, 2003) for the structural equation model (SEM). The overall model fit was assessed by three measures of absolute fit: Chi-Square statistics divided by the degrees of freedom, goodness-of-fit index (GFI), and root mean square error (RMR). Three measures were used to determine the comparative fit:

1. the normed fit index (NFI);
2. the adjusted goodness-of-fit index (AGFI); and
3. the comparative fit index (CFI).

**Results**

A confirmatory factor analysis (CFA) on the average value of the items related to explicit knowledge and on the items related to tacit knowledge showed a good fit between the model and the data (NFI = 0.986; CFI = 0.987) indicating that employee intention and behavior were made up of two distinct indicators.

For the intention to share knowledge two factors were distinctly obtained: intention to explicit knowledge sharing and tacit knowledge sharing, with high loadings for both (0.85 and 0.93, respectively). Similarly, two distinct factors were obtained for behavior of explicit knowledge sharing and tacit knowledge sharing with high loadings (0.80 and 0.89, respectively.)

To assess the relationship between intention and behavior, a CFA analysis tested simultaneously for the intention and behavior to share knowledge and yielded a high correlation between intention and behavior to share knowledge ($r = 0.87, p < 0.01$).

Table I presents the means, standard deviations and correlation results for the model variables. To obtain an initial indication of the relationship between the study variables, the four hypotheses were tested and significantly confirmed as detailed below.

There was a positive correlation between employee intention to EKS and his/her actual EKS behavior ($r = 0.63, p < 0.01$), and intention to TKS and actual TKS behavior ($r = 0.72,$

<table>
<thead>
<tr>
<th>Table I: Descriptive statistics: intention and behavior of sharing explicit and tacit knowledge</th>
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<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>1 Intention to share explicit knowledge</td>
</tr>
<tr>
<td>2 Intention to share tacit knowledge</td>
</tr>
<tr>
<td>3 Explicit knowledge-sharing behavior</td>
</tr>
<tr>
<td>4 Tacit knowledge-sharing behavior</td>
</tr>
</tbody>
</table>

**Notes:** Cronbach’s $\alpha$ is shown in parentheses. *Correlation is significant at the 0.01 level (two-tailed)
confirming H1 and H2. There was a positive correlation between employee intention to EKS and intention to TKS ($r = 0.79, p < 0.01$) and a positive correlation between employee actual TKS behavior and actual EKS behavior ($r = 0.70, p < 0.01$), confirming H3 and H4.

To further explore the direct and indirect effects among the variables, a confirmatory analysis was performed using the SEM method (see Figure 2).

The directions of the arrows in the model represent the relationship between the variables. Standardized path coefficients (SPC) on each arrow indicate the direct coefficients between the two variables. The findings showed a good fit between the data and the model. These results are consistent with other studies that focused on the effects of the intention to share knowledge on actual knowledge sharing behavior (Hooff and Weenen, 2004; Masterson et al., 2000): $\chi^2$/degree of freedom = 2.732 (≤ 3); GFI = 0.990 (≥ 0.90); RMR = 0.010 (≤ 0.05); NFI = 0.992 (≥ 0.90); AGFI = 0.951 (≥ 0.80); CFI = 0.995 (≥ 0.90) (figures parentheses indicate the minimum required level).

Squared multiple correlation (SMC) showed a strong impact on intentions to share tacit knowledge (64 percent), employees’ actual tacit knowledge sharing behavior (53 percent) and employees’ actual explicit knowledge sharing behavior (55 percent). The weight of the standardized variables, non-standardized variables and standard deviations are presented in Table II, and indicate that all relationships are significant.

Re-examination using SEM shows the concurrent direct and indirect effects of the variables, confirming H5 (see Table III).

![Figure 2](image-url)

### Figure 2
Intention and behavior of sharing explicit and tacit knowledge: a structural equation model

![Diagram](image-url)

**Note:** Standardized Path Coefficients (SPC) are presented above the arrows. Squared Multiple Correlation is presented on top of the variable.

### Table II
SEM analysis for explicit and tacit knowledge model

<table>
<thead>
<tr>
<th>Path</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to share explicit knowledge → intention to share tacit knowledge</td>
<td>0.74</td>
<td>0.03</td>
<td>0.79</td>
<td>*</td>
</tr>
<tr>
<td>Intention to share tacit knowledge → Tacit knowledge-sharing behavior</td>
<td>0.77</td>
<td>0.04</td>
<td>0.72</td>
<td>*</td>
</tr>
<tr>
<td>Tacit knowledge-sharing behavior → Explicit knowledge-sharing behavior</td>
<td>0.63</td>
<td>0.06</td>
<td>0.52</td>
<td>*</td>
</tr>
<tr>
<td>Intention to share explicit knowledge → Explicit knowledge-sharing behavior</td>
<td>0.36</td>
<td>0.06</td>
<td>0.30</td>
<td>*</td>
</tr>
</tbody>
</table>

**Notes:** Maximum likelihood estimate, based on AMOS SEM Analysis; *$p < 0.001$
Beyond the connection between an employee’s intention to share explicit knowledge and his/her actual explicit knowledge sharing, the intention to share explicit knowledge also had direct and indirect effects on actual explicit and tacit knowledge sharing behavior, supporting H5. The percentage of direct effect as regards an employee’s intention to share explicit knowledge on actual explicit knowledge sharing behavior is close (50.03 percent) to the additional indirect effect (49.83 percent), showing that impact is almost equally divided between a direct and an indirect relationship.

**Discussion**

Several studies have used TRA and TPB to investigate knowledge sharing. These works focused on the relationship between an employee’s intention to share knowledge and actual knowledge sharing behavior. In this study, the TRA was expanded by a concurrent examination of two intentions from the same conceptual field to two parallel behaviors: explicit knowledge sharing and tacit knowledge sharing.

The intention to share knowledge was found to be correlated in both EKS and TKS. These direct effects are consistent with TRA theory, which captures the predictive ability of individual intentions and behaviors.

The findings here suggest that to manage knowledge effectively, companies need to implement methods to encourage KS behaviors in two main ways. The first involves explicit knowledge, and is related to the capability to help create, store, and use explicitly documented knowledge mainly by using IT. The second step relates to tacit knowledge sharing through exchanges that can help turn intention to KS into actual behavior of KS as suggested by Choi and Lee (2003) through interpersonal interactions that occur when implementing KM systems.

The strong positive relationship reported here between the intention to EKS and actual behavior of TKS and EKS highlights the importance of investing company efforts in encouraging both explicit and tacit KS as previously suggested by Jordan and Jones (1997).

The present study shows that the total effect of intention to share explicit knowledge on explicit knowledge sharing behavior is equally divided between a direct and an indirect relationship, emphasizing the contribution that exists for both TRA and TPB theories in explaining knowledge sharing process which are based on two intentions and two parallel behaviors from the same conceptual field.

This finding is important, since recently studies that have attempted to predict intention-behavior relationships have implemented the theory of planned behavior, which represents an elaboration of reasoned action and has been applied successfully to a diverse range of behavioral domains.

This study reveals that the relationships between employee intentions to EKS may be more tangible to the employee when combined with KM technology. The increased use of KM for

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**Table III** Direct and indirect effects of intentions to share knowledge on knowledge-sharing behavior

<table>
<thead>
<tr>
<th>Path</th>
<th>Total effect</th>
<th>Direct effect</th>
<th>Indirect effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to share explicit knowledge → Explicit knowledge-sharing behavior</td>
<td>0.60</td>
<td>0.30</td>
<td>0.30</td>
</tr>
<tr>
<td>Intention to share tacit knowledge → Tacit knowledge-sharing behavior</td>
<td>0.72</td>
<td>0.72</td>
<td>NE</td>
</tr>
<tr>
<td>Intention to share explicit knowledge → Intention to share tacit knowledge</td>
<td>0.79</td>
<td>0.79</td>
<td>NE</td>
</tr>
<tr>
<td>Tacit knowledge-sharing behavior → Explicit knowledge-sharing behavior</td>
<td>0.52</td>
<td>0.52</td>
<td>NE</td>
</tr>
</tbody>
</table>

**Note:** NE, no effect
sharing explicit knowledge may contribute to an increased sense of ability on the part of the employee to TKS as well. Moreover, in this study the authors differentiate between the high and low value of the knowledge possessed by the individual. From the employee perspective, tacit knowledge gives a position of power in the organization and a competitive advantage within the organization. However, sharing explicit knowledge creates a monetary reward for sharing more tangible knowledge. The study establishes a validation of a model suggesting that an employee who is willing to share “expensive” (tacit) knowledge, is also likely to be willing to share “cheap” (explicit) knowledge in order to be able to obtain potential benefits from the organization.

Conclusions

To sum up, the KS measure presented here can also serve to encourage organizations to obtain comprehensive information about ongoing KS intentions and behaviors. Although this study was conducted in the hi-tech sector, where KS is almost a prerequisite and knowledge itself is changing rapidly, the results shed light on the importance of KS in other types of companies and organizations, which may be interesting for future study.

This study makes two main contributions. First, it presents a scale of explicit and tacit knowledge sharing which demonstrates high reliability. Second, it extends TRA and TPB models by presenting direct and indirect relationships between intentions and behaviors categorized as explicit and tacit knowledge sharing.

Research limitations

The potential deficiencies of the current research stem from its structure: since questionnaires were built on responder’s own views, there may be self-reporting bias. Another potential deficiency may be related to the type of industry that was studied in the present research that of the high-tech telecommunication; different industries, and different cultures as well, may behave differently towards the same basic questions.

Practical implications

Clearly, there is significant practical potential in a proper and in-depth understanding of real ongoing knowledge sharing processes taking place within an organization at any given time. The differentiation between intention and behavior to share explicit and tacit knowledge can be used to assist IT and HR managers to build strategies that encourage knowledge sharing. The knowledge sharing measure elaborated here may serve to encourage organizations to obtain comprehensive information about current knowledge sharing intentions and behaviors. Finally, this study was conducted on hi-tech employees, working in a dynamic environment, where knowledge sharing is almost a prerequisite. It would be worthwhile to explore these same variables in other sectors.

Future research

Further research could also focus on capturing the mediation variables that can explain employee bias to overestimate the likelihood that they will engage in knowledge sharing rather than the actual behavior. This study presents a starting point for further research on the best ways to convert the intention to share knowledge into a compatible behavior in order to reduce the discrepancy between intention and behavior to share knowledge. An interesting direction is to examine is offering frictionless communication mechanisms that are favorable for knowledge sharing among employees. Thus, when an employee can be well aware of the problems and difficulties encountered by other colleagues and the communication channels among employees are unhindered, he will easily put his knowledge sharing intention into action. For example, group meeting can be held frequently to offer opportunities for tacit knowledge sharing among employees. A more theoretical research can be directed at the question of reasons lying behind the discrepancies between
intention and behavior of knowledge sharing, as a basic step towards a better understanding of how to execute more efficient mechanisms of knowledge sharing.

Another potential research could be conceived on the gap between the intention and behavior, through the eyes of the surrounding environment of the employee, and see if, perhaps, the gap is a result of pressures that are applied on the employees to share knowledge, while the atmosphere in those high tech companies is that of encouraging knowledge sharing.

References


Arbuckle, J.L. (2003), *Amos 5.0*, Smallwaters Corporation, Chicago, IL.


Further reading


Appendix

Willingness to share explicit and tacit knowledge (WSETK) questionnaire

All items were measured on five-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree).

1. I will be willing to share work reports and official documents with members of my organization more frequently in the future.
2. People in my organization will be willing to share reports and official documents with members of my organization more frequently in the future.
3. I will be willing to share work reports and official documents that I prepare by myself with members of my organization more frequently in the future.
4. People in my organization will be willing to share reports and official documents that they prepare by themselves with members of my organization more frequently in the future.

5. I will be willing to collect work reports and official documents with members of my organization more frequently in the future.

6. People in my organization will be willing to collect reports and official documents with members of my organization more frequently in the future.

7. I will be willing to collect work reports and official documents that I prepare by myself with members of my organization more frequently in the future.

8. People in my organization will be willing to collect reports and official documents that they prepare by themselves with members of my organization more frequently in the future.

9. I will be willing to share knowledge based on my experience with other organizational members more frequently in the future.

10. People in my organization will be willing to share knowledge based on their experience more frequently in the future.

11. I will be willing to collect knowledge from other organizational members based on their experience more frequently in the future.

12. People in my organization will be willing to collect knowledge from other organizational members based on their experience more frequently in the future.

13. I will be willing to share knowledge of know-where or know-whom with other organizational members more frequently in the future.

14. People in my organization will be willing to share knowledge of know-where or know-whom with other organizational members more frequently in the future.

15. I will be willing to collect knowledge of know-where or know-whom with other organizational members more frequently in the future.

16. People in my organization will be willing to collect knowledge of know-where or know-whom with other organizational members more frequently in the future.

17. I will be willing to share knowledge based on my expertise with other organizational members more frequently in the future.

18. People in my organization will be willing to share knowledge based on their expertise more frequently in the future.

19. I will be willing to collect knowledge from other organizational members based on their expertise more frequently in the future.

20. People in my organization will be willing to collect knowledge from other organizational members based on their expertise more frequently in the future.

Explicit and tacit knowledge sharing (ETKS) questionnaire

All items were measured on five-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree).

1. I frequently share work reports and official documents with members of my organization.

2. People in my organization frequently share reports and official documents with members of my organization.

3. I frequently share work reports and official documents that I prepare by myself with members of my organization.

4. People in my organization frequently share reports and official documents that they prepare by themselves with members of my organization.

5. I frequently collect work reports and official documents from members of my organization.
6. People in my organization frequently collect reports and official documents from members of my organization.

7. I frequently take work reports and official documents from others that they prepare by themselves.

8. People in my organization frequently take reports and official documents from others that they prepare by themselves.

9. I frequently share knowledge based on my experience with other organizational members.

10. People in my organization frequently share knowledge based on their experience.

11. I frequently collect knowledge from other organizational members based on their experience.

12. People in my organization frequently collect knowledge from other organizational members based on their experience.

13. I frequently share knowledge of know-where or know-whom with other organizational members.

14. People in my organization frequently share knowledge of know-where or know-whom with other organizational members.

15. I frequently collect knowledge of know-where or know-whom with other organizational members.

16. People in my organization frequently collect knowledge of know-where or know-whom with other organizational members.

17. I frequently share knowledge based on my expertise with other organizational members.

18. People in my organization frequently share knowledge based on their expertise.

19. I frequently collect knowledge from other organizational members based on their expertise.

20. People in my organization frequently collect knowledge from other organizational members based on their expertise.

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