

# **Transformational Leadership and Willingness to Knowledge-Share: A Multi-Level Study of Organizational Trust and Cultures**

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## **Abstract**

In the current global knowledge-based economy, knowledge is one of the best and most sustainable competitive advantages. Leaders, especially those involved in the management process, are key people. Research on knowledge management has shown that transformational leadership contributes to the communication in an organization, and also plays an important role regarding knowledge management. What is needed now is to know more about how transformational leadership impacts on the willingness of employees to share their knowledge. Studies on organizational behavior have also found that trust and organizational culture are key aspects of an organization's leadership and its influence on employees.

This study discusses the relationship between transformational leadership, trust, and organizational culture, and their impact on the willingness to share knowledge. Trust and organizational culture are taken as the mediating and moderating variables, with a multi-level theoretical framework, to see how they interact between transformational leadership and the willingness to knowledge-share. With a final total of 220 valid employee responses from 32 work-units, the results show that a supportive culture may mediate the relationship between work-unit-level, transformational leadership and trust; the willingness to take part in knowledge sharing is influenced by an individual's perception of transformational leadership. Additionally, the relationship is reinforced by a supportive culture and trust.

*Keywords: Willingness to share knowledge, transformational leadership, organizational trust, organizational culture, multi-level study*

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## **1. Introduction**

Politis (2001) explored the relationship between various leadership styles and knowledge management, and found that transformational leadership has a positive effect on the communication and coordination mechanisms of knowledge management, contributing to the practice of knowledge sharing. With regards to leadership affecting followers, several implicit organizational mechanisms, such as trust and organizational culture, are often mentioned and researched (Holste and Fields, 2010; Yukl, 2001; Pillai, Schriesheim, and

Williams, 1999). To make knowledge sharing happen, a culture that encourages sharing should be established (Koulopoulos and Frappaolo, 1999). Many studies have found that, in any organizational activity involving human interaction (including teamwork or knowledge sharing), the level of trust is a significant determinant for the interaction (Nonaka, Toyama, and Konno, 2000; Senge, 1997; Davenport and Prusak, 2000). Additionally, organizational culture is formed by the values, attitudes, and interaction of the organization's members. Studies by Bass and Avolio (1993) on the

influence that leaders have on followers' behavior suggested that organizational culture should be treated as an important factor. While researching organizational performance, Vashisth, Kumar and Chandra (2010) found that, in order to enhance their competitiveness, enterprises must not only rely on their leadership to achieve a positive effect, but also take into account the establishment of a learning organizational culture. However, even though there are many prior literatures on knowledge management, there is still a lack of research that contains empirical analysis with regard to the relationship between transformational leadership and knowledge sharing. In particular, there is a lack of studies that focus on leaders' transformation processes that influence both individual perception and the mechanism of the work-unit's interactive climate perspectives.

This study aims to extend transformational leadership and knowledge sharing research in several ways. First, the integration of leadership with relationship knowledge management is important as it extends the study boundaries of these two research paradigms. It offers a critical empirical test of the impact of transformational leadership on knowledge sharing, and provides a new perspective on knowledge management regarding what organizations can do from within the organization to enhance employees' willingness to knowledge-share. Second, this study examines how transformational leadership influences employees' willingness to take part in knowledge sharing by delineating the transformation effects that leaders may have, both on the individual employees' attitudes (at the micro level) and (at the macro level) on the work-unit's interactive climate (organizational trust and culture). Third, this study also proposes that positive organizational trust and culture will act as a situational moderator and further enhance the influence of transformational leadership on employees' willingness to undertake knowledge sharing.

## 2. Literature Review and Hypotheses

### 2.1 Willingness to Knowledge-share

Weiss (1999) argued that just because knowledge can be articulated it does not necessarily mean that it is available for use by other employees. Based on the possibility for sharing, Weiss further divided explicit knowledge into the categories of rationalized and embedded. Rational knowledge refers to general, context-independent, standardized, and public knowledge; embedded knowledge refers to knowledge that is context-dependent, has limited applicability, and is personal, and is perhaps only meaningful for certain individuals or professionals. Hence, embedded knowledge, such as advertising design copy, despite being explicit, is not easily shared or used within organizations.

Individual knowledge resides in one's inner mind, so the precondition of knowledge sharing is that knowledge owners are willing to articulate and share their inner knowledge through a communication process, thereby affecting the behavior of others (Dixon, 2002). As Puccinelli (1998) stated, in organizational knowledge management, the most important strategy that can be implemented is to foster employees' willingness to share and contribute to the knowledge base. In this sense, the level of an individual's willingness toward knowledge sharing is the key for organizational knowledge sharing to occur.

Past research with regard to the willingness to take part in knowledge sharing can be identified as three idea sequences: (1) Maslow's (1954) *Hierarchy of Needs Theory*, reported that the motivation for knowledge sharing mainly comes from higher level needs (Stott and Walker, 1995; Tampoe, 1993; Jones, 2002). (2) The *Two-factor Theory* by Herzberg (1966). Hendricks' study (1999) suggested that people tend to share knowledge due to motivational factors. When there is a motivational factor, if its incentive effect is increased, employees' knowledge sharing behavior will be influenced. However, re-

search by Tampoe (1993) on knowledge workers indicated that wealth is also an important motivation for knowledge sharing. Jones (2002) pointed out that in an organization with low levels of participation, salary and safety needs are the critical factors for employee knowledge sharing. Similarly, Bartol and Srivastava (2002) noted that an organizational reward system also plays an important role in encouraging knowledge sharing. However, these two theories only show that the willingness towards knowledge sharing comes from lower level needs and hygiene factors, such as salary and healthcare, neither of which is adequate for effectively interpreting the willingness to knowledge-share. (3) Unlike the application of the two theories above, Davenport and Prusak (2000) put forward the concept of a "knowledge market" based on the market economic principle of supply and demand; they describe the knowledge demander as "the buyer," the knowledge owner as "the seller," and the subject of the transaction as "knowledge". After researching the organizational knowledge market, the authors deduced that it may be impossible for individuals to share knowledge unless they are rewarded. The rewards are grouped into three types: (a) *reciprocal*: organization members believe that, in the future, they might ask for help from the receiver, so they are willing to share knowledge for the mutual benefit of all participants; (b) *reputation*: those possessing individual knowledge are willing to share that knowledge with others to create the image and prestige as "knowledgeable," hoping for a good reputation in the organization; (c) *altruism*: some knowledge providers' altruistic characters enables them to share knowledge with others without reservation, hoping for no reciprocity due to their inherent benevolence, overall consciousness, and love of sharing.

To summarise the above literature and research on knowledge and knowledge sharing, this study perceived that knowledge in an organizational environment is nebulous and closely linked to

those who hold it (Davenport, DeLong, and Beers, 1998). Furthermore, through knowledge owners and knowledge reconstructors, an organization's implicit knowledge is socialized, externalized, combined, and internalized in a never-ending cycle. Consequently, knowledge is shared and created continuously. The concept of the willingness to take part in knowledge sharing should include need, motivation, and reward. Therefore, the view of Davenport and Prusak (2000) was adopted here as the main frame of the study on the willingness to knowledge-share, defined as the goodwill of an individual who perceives the expected rewards of reciprocity, reputation, and altruism when sharing when sharing his own knowledge.

## **2.2 Transformational Leadership**

Bass (1985) made a comparison between transactional leadership and transformational leadership, and drew the conclusion that transactional leadership focuses on exchanges, attaching much importance to contingency rewards and management-by-exception. Transformational leaders, on the other hand, attach more importance to charisma, encouragement, inspiration, and consideration, and try to transfer their personal beliefs and confidence to followers. They excel in enhancing followers' demand levels and encouraging willingness in their work in order to achieve organizational goals. Transformational leaders are characterized by four primary factors: (a) charisma, i.e., the leader maintains an image of self-efficacy and confidence to win over followers; (b) inspirational motivation, i.e., the leader provides followers with spiritual guidance and inspiration to promote their motivation for the pursuit of success; (c) intellectual stimulation, i.e., the leader uses their own knowledge to stimulate the followers' questioning awareness, and encourage their solving ability, imagination, or belief and values in order to arouse their innovation and breakthrough; and (d) individual consideration, i.e., the leader empowers their followers and provides them with learning

opportunities to help them to develop, while showing concern for them.

The original transformational leadership theories emphasized the leader's direct influence on individual followers, assuming that the same leader may display different behavior toward each follower, and that transformational leadership is an individualized perception (e.g., Bass, 1985; Burns, 1978). However, several previous transformational leadership theories have been accused of overemphasizing the dyadic process and ignoring the group process (Yukl, 2001). Consequently, some researchers have attempted to conceptualize transformational leadership as a group-level construct. They have discussed how transformational leadership behavior is directed at the whole group and results in a shared perception among followers. Therefore, transformational leadership, as a group-level construct, has been linked to group process variables and group performance (Bass, Avolio, Jung, and Berson, 2003; Schaubroeck, Lam, and Cha, 2007).

For example, Liao and Chuang's (2007) study proposed that transformational leadership may function both at the individual level and at the work-unit level. Individual-level transformational leadership refers to the leadership behavior experienced and perceived by an individual employee; it can be viewed as a type of "discretionary stimulus" that transmits to individual employees differentially. Work-unit level transformational leadership refers to the overall pattern of leadership behavior displayed to the entire work unit; it can be viewed as a type of "ambient stimulus" that pervades the work unit and is shared among unit members (Hackman, 1992). In this study, theoretical rationales regarding the effects on transformational leadership at different levels differ. Individual-level transformational leadership enhances employees' willingness to take part in knowledge sharing, although not entirely, through transformation of the attitudes of individual employees. Meanwhile, work-unit-level transformational leadership

enhances knowledge sharing partially by transforming the climate of the overall working environment.

### **2.3 Individual Level: Transformational Leadership and Willingness to Knowledge-share**

Leadership can influence employees' knowledge sharing, and approval and engagement from high-level management will effectively enhance the willingness to share (Lord and Shondrick, 2011). According to Politis' (2001) study on the relationship of various leadership styles to knowledge management, the behavior of transformational leaders has a positive effect on the communication and coordination mechanisms of knowledge management that contributes to knowledge sharing. Additionally, Bryant (2003) has also reported that transformational leadership can improve employee creativity and innovation at an individual level.

El-Gonte (2005) has marked the structure of work as a crucial factor that stands in the way of knowledge transfer, especially when it is characteristically mechanistic, to the extent that it limits knowledge repositories within certain organizational domains. Furthermore, Ellerman, Denning, and Hanna (2001) espoused that attention should be drawn to how knowledge sharing can be better facilitated. However, the many thoughts drawn on knowledge sharing had not appeared to have considered what Teece (2000) referred to as "strategic management roles in terms of procedure or structures". Managerial roles, as implied in the knowledge management spectrum, must be viewed with high concern as they initiate the organizational climate that best encourages the willingness to share knowledge.

According to Yukl (2001), in an organizational climate of transformational leadership, organizational members can sense the trust and praise from the leader. In return, they respect the leader and perform beyond expectations. Transformational leaders have idealized and influenced admiration, respect, pride, and faith, and

tend to emphasize the importance of having a collective sense of the organization's mission (Bass and Riggio, 2012). When members feel that their leaders have confidence in them, trust in their capabilities, care about their work and appreciate their efforts to create knowledge, they will be more willing to offer their opinions and share knowledge (Lee, Gillespie, Mann, and Wearing, 2010). When they exhibit intellectual stimulation, transformational leaders generate different ways of thinking, challenge their followers' assumptions, and seek new solutions to problems from multiple perspectives. Transformational leaders who promote discussion, reviews, and the open sharing of ideas are more likely to encourage knowledge sharing activities (von Krogh, Nonaka, and Rechsteiner, 2012). Transformational leaders who also use individualized consideration are aware of their followers' needs and concerns as individuals, and will develop their strengths through coaching and consulting (Bass and Riggio, 2012). Shih, Chiang, and Chen (2012) have also found that transformational leaders who are aware of the unique knowledge of their members and who listen to their views are more likely to motivate them to share their knowledge with others. Therefore, this study proposes:

*H1: Individual perceived transformational leadership has a positive effect on the willingness to knowledge-share.*

## **2.4 Work-Unit-Level: Transforming the Work-Unit Climate**

Harris (1984) identified organizational culture as: (a) a bureaucratic culture, which is usually a hierarchical organization, stressing control and rights, clear responsibilities and empowerment, and systematic and immobilized work; (b) a supportive culture, which is an open, harmonious and impersonal-relationship-oriented working environment with a safe and cooperative spirit; and (c) an innovative culture, which encourages creation and vitality so as to promote development in an intense and changing environment. From these three cultures, Creed and Miles (1996) have

found that an organization exhibiting high control, centralization, and formalization attaches too much importance to efficiency, thereby limiting or reducing the development of trustworthy behavior. However, without such trustworthy conditions, a bureaucratic culture is not necessarily a good organizational environment to improve knowledge sharing, as the employee providing the knowledge resides in his inner mind to others. Therefore, in this study, there is more focus on a supportive and innovative culture.

Leaders have the power to affect the intentions of employees to collect knowledge by developing a knowledge culture within their organization. Shih et al. (2012) showed that transformational leadership can increase research and development (R&D) workers' knowledge exchange behavior by creating a trusting climate. Furthermore, Bass and Avolio (1993) showed in their study that we are likely to see transformational leaders who build on assumptions, such as those who are trustworthy and purposeful, ensuring that everyone has a unique contribution to make, and so on, and that these are articulated to followers.

This is typically done to exhibit a sense of vision and purpose, and to foster a culture of high innovation and mutual help. With inspirational motivation and individualized considerations, transformational leaders can provide an open, harmonious and people-oriented working environment with a safe and cooperative spirit, thereby promoting a supportive culture in their work-unit. With their charisma and intellectual stimulation, transformational leaders may encourage creation and vitality so as to promote development, conducting an innovative culture in his work-unit.

On the other hand, trust can be defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer, Da-

vis, and Schoorman, 1995). Bhattacharya, Devinnery, and Pillutla (1998) define trust as the “expectancy of positive (or nonnegative) outcomes that one can receive based on the expected action of another party in an interaction characterized by uncertainty”. Building upon these definitions of trust, Shockley-Zalabak, Ellis, and Winograd (2000) establish *organizational trust* as the “expectations individuals have about networks of organizational relationships and behaviors”. Researchers have found that organizational trust, as an essential factor in promoting cooperation within organizations, leads to improved behavioral and performance outcomes (Dirks and Ferrin, 2001; Kramer, 1999).

A variety of different organizational cultures as managerial mechanisms may influence individuals’ interactional behavior, and further, their perceived organizational trust as a whole. An organization with low control, higher decentralization, and lower formalization, (a supportive culture) is likely to increase open communication and empowerment, and thus contribute to higher organizational trust (Creed and Miles, 1996). Additionally, certain management mechanisms, such as project-based organization and efficiency orientation (an innovative culture), encourage employee participation, empowerment and effective communication, thereby promoting the employees’ sense of belonging and encouraging them to learn and express opinions. This will increase their self-efficacy and trust towards the organization (Nyhan, 2000; Carnevale, 1998).

Thus, we expect organizational cultures (supportive and innovative cultures) to act as a mediator through which work-unit-level transformational leadership influences employees’ organizational trust. Therefore, this study proposes:

*H2-1: A supportive culture is the mediator between transformational leadership and organizational trust.*

*H2-2: An innovative culture is the mediator between transformational leadership and organizational trust.*

## 2.5 Work-Unit-Level Moderator: Organizational Culture

Academics have stated that, at an individual level, the individual perception of organizational culture plays a role in the collective mechanism regarding the relationship between perceived leadership and followers’ behavior, as a situational enhancer (Howell, Dorfman, and Kerr, 1986). Accordingly, culture is a set of values and beliefs expressed by the leader in order to guide the organization, which can be converted into appropriate behavior once interpreted by organizational members, and can be strengthened by reward and punishment (Holste and Fields, 2010). Ott (1989) conducted a survey of past research and concluded the consensus of organizational culture: organizational culture is a social construct and an “objective” reality; it is unique, and provides a view on the understanding of literature and symbols, and is a powerful guide for organizational members.

Lok and Crawford (2004) have found empirically that various organizational cultures have a different effect on organizational commitment. In their results, supportive and innovative cultures provide an impersonal-relationship-oriented working environment, which reinforces an employee’s commitment. With better commitment, employees tend to pay more attention to what leaders say and do when addressing specific goals, such as knowledge management performance, and are thus more willing to share their own knowledge. Therefore, this study proposes:

*H3-1: A supportive culture reinforces the influence of an individual’s perceived transformational leadership regarding the willingness to knowledge-share.*

*H3-2: An innovative culture reinforces the influence of an individual’s perceived transformational leadership regarding the willingness to knowledge-share.*

## 2.6 Work-Unit-Level Moderator: Organizational Trust

It has been found that, in the case of transformational leadership, organizational

members are able to feel the leader's trust and praise in the organizational atmosphere. In return, they show their respect for the leader, are more efficient, and work beyond expectations (Yukl, 2001). A number of studies have supported the same idea (Ben-nis and Nanus, 1985; Podsakoff, MacKen-zie, Moorman, and Fetter, 1990).

Knowledge can be shared on the condition that people trust each other (Senge, 1997). To make it possible for organiza-tional members to share their implicit knowledge, there should be strong concern, trust, and commitment among organiza-tional members, as trust is one of the major factors that support knowledge sharing (Nonaka et al., 2000). Hutchings and Michailava (2006) have indicated that knowledge sharing is often confined to an in-group of organizational members. Al-meida and Kogut (1999) have also found that knowledge tends to be a regional re-source, as people usually only trust those who they know, and it is difficult for them to transmit knowledge without adequate trust.

Many studies have also assumed that trust plays an important role in influencing the leader and the followers' behavior, and that the leader has an effect on followers' behavior under an environment full of trust (Holste and Fields, 2010; Pillai et al., 1999). From a knowledge market point of view, Davenport and Prusak (2000) proposed that trust must be visible, enabling members to experience mutual benefits, and must be comprehensive enough to allow the organiza-tion to reduce mistrust evaluations and nurture a trust culture. Meanwhile, the es-tablishment of trust must start from the higher-level leaders, with the employees following suit. This study therefore pro-poses:

*H4: Organizational trust reinforces the influence of individual perceived transformational leadership and the willingness to knowledge-share.*

### 3. Research Design

#### 3.1 Theoretical Framework and Measurement of Variables

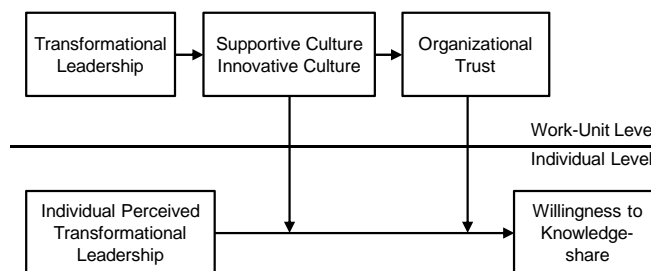


Figure 1 Theoretical Framework

Figure 1 shows the theoretical frame-work of this study. Most studies on the willingness to take part in knowledge shar-ing have been conducted using qualitative interview observation methods. Nonethe-less, this field is still short of empirical studies, and in the small number of empir-ical studies that do exist, respective opera-tional definition was applied in order to develop the scale.

*Willingness to Knowledge-share.* To measure employees' willingness towards knowledge sharing, employees were asked

to rate the scale referred to by Davenport and Prusak's (2000) study. The example items are "I would share my knowledge to other members to make them aware that I have professional skills", "Sharing knowledge with others make me feel good", and "I would share knowledge with others, as someday I may need some from them".

*Individual perceived transformational leadership.* To measure employees' indi-vidual experience and perception of lead-ership behavior, we asked the employees to rate the work-unit manager's transforma-

tional leadership behavior using Bass and Avolio's (1993) Multifactor Leadership Questionnaire (Form 5X—Short). The example items are “inspires others with his/her plans for the future”, “encourages employees to be team players”, and “shows respect for my personal feelings”. Meta analysis has shown that the four dimensions - charisma, inspirational motivation, intellectual stimulation, and individual consideration - of transformational leadership are very highly correlated (measured as .93 after correction for unreliability) and are thus, empirically, hard to separate from each other (Judge and Piccolo, 2004). In the current data, a principal factor analysis of the 20 items was conducted and this found only one factor with an eigenvalue greater than 1.0. Therefore, an index of transformational leadership was created.

*Work-unit-level transformational leadership.* To assess the overall pattern of the leadership behavior displayed to the work-unit as a whole, the work-unit employees' evaluations of their manager's transformational leadership were averaged to form a work-unit-level transformational leadership score.

*Supportive culture and innovative culture.* The work-unit's organizational culture was measured using the Organizational Culture Index (OCI) by Wallach (1983) with reference to the Organizational Climate Description Questionnaire by Litwin and Stringer (1968). This study made a reference to the OCI questionnaire and quoted two of its cultural dimensions (supportive and innovative cultures) from Wallach's (1983) original design of the items. For a supportive culture, the employees responded to a Likert 5-point scale on the basis of their observations regarding such aspects as “members are cooperative”, and “I feel a sense of safety working here”. For an innovative culture, aspect examples are “members are aggressive”, and “I feel energetic working here”. Organizational culture (supportive and innovative culture) is formed via a bottom-up process (Kozlowski and Klein, 2000) and has been

theorized and tested by the work-unit level analysis in the literature (Schneider, Ehrhart, Mayer, and Saltz, 2005). Therefore, individual employees' cultural perceptions were aggregated to the work-unit level to form the measurements for supportive and innovative cultures.

*Organizational trust.* The work-unit's organizational trust was measured with the Organizational Trust Inventory (OTI) conducted by Nyhan and Marlowe (1997), using the section regarding the testing of employee trust toward the whole work-unit. The employees responded to a Likert 5-point scale on the basis of their observations on aspects such as “I feel that the members in my work-unit trust each other”, “I trust my work-unit as we treat everyone equally” and “the decisions of my work-unit can be trusted”. Organizational trust is also formed via a bottom-up process and has been theorized and tested at the work-unit level of analysis in the literature (Ranca and Iordanescu, 2013). Therefore, individual employees' trust regarding work-unit perceptions in relation to the work-unit level was aggregated to form the measurement of organizational trust.

### 3.2 Data Collection

In the theoretical framework, variables in the work-unit-level, such as transformational leadership, supportive culture, innovative culture, and organizational trust, were aggregated for multi-level analysis. Additionally, the proposed theoretical framework was tested using data collected in two phases from a sample of employees in enterprises listed by the Chinese Knowledge Management Association (CKMA) in Taiwan and who have applied knowledge management for at least three years. The use of information obtained in the two phases and at multiple level designs may allow this study to reduce common method bias (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003).

In the first phase, starting from November 2012 and spanning approximately four and a half months, data were collected regarding items of knowledge sharing and



organizational culture. After a further three months, in the second phase, data were collected regarding items of organizational trust and transformational leadership. In the first phase, a total of 428 responses from enterprises were collected, and many had left their email addresses for the next phase of the study. In the second stage, from the 428 first-phase responses, 315 responses were collected from 48 work-units in 48 different enterprises. Among the 48 work-units, 16 work-units had an insufficient number of samples (fewer than 4 responses). Consequently, the responses from these 16 work-units, 95 responses in total, were all excluded. Finally, a total of 220 valid employee responses from 32 work-units were obtained.

#### 4. Data Analysis and Results

Principal component analysis of exploratory factor analysis (EFA) was con-

ducted to verify the construct validity of the questionnaire. Results show the factors were as the constructs expected, and displayed good factor loadings (0.45-0.92). Additionally, according to the factor analysis results, all the constructs were tested for reliability, with the results of Cronbach's alpha all being greater than 0.8 (0.834 - 0.932). The descriptive statistics of the variables are shown in Table 1.

This research was designed so as to conduct a multi-level analysis. Because many of the variables were taken from the data of a large number of individuals, theoretically, there should be a certain degree of consistency or consensus between these individuals. Therefore, consistency between the individuals regarding the perception of a specific phenomenon is a key criterion that determines whether a work-unit-level variable can be generated.

Table 1 Descriptive Statistics of Variables

Variables	1	2	3	4	5
1. Individual perceived transformational leadership					
2. Work-unit-level transformational leadership <sup>a</sup>	0.51*				
3. Supportive culture <sup>a</sup>	0.29*	0.43*			
4. Innovative culture <sup>a</sup>	0.33*	0.55*	0.07		
5. Organizational trust <sup>a</sup>	0.21*	0.64*	0.48*	0.09	
6. Willingness to knowledge-share	0.14*	0.12*	0.34*	0.07	0.44*
Mean	3.17	3.42	3.55	3.12	3.78
Standard Deviation	1.18	0.92	0.73	0.87	1.14

<sup>a</sup>Work-unit means of variables are assigned to employees of the same work-unit to calculate the individual-level correlations.

To test the hypotheses regarding the multilevel theoretical framework, Hierarchical Linear Modeling (HLM) analysis was used. The study grand-mean centered the Level 1 (individual level) predictors. This centering approach facilitates the interpretation of the HLM results, and ensures that the Level 1 effects are controlled during the testing of the incremental effects of the Level 2 (work-unit level) variables. It lessens multicollinearity in the Level 2 estimation by reducing the correlation between the Level 2 interception and slope estimates (Hofmann and Gavin, 1998; Raudenbush, 1989).

Additionally, the variance of the variable should be tested by explaining the work-unit-level variable and measuring the mean reliability at the work-unit level. The test was conducted by measuring rwg (within group agreement), intra-class correlation coefficient (ICC(I)), and reliability at the group level (ICC(II)). The results show that all the rwg values (0.73 – 0.90) are greater than the 0.7 threshold suggested by James (1982). With HLM analysis, estimated on the basis of Model C1 in Table 4, the ICCI(I) regarding the “willingness to knowledge-share” is 0.073, greater than the 0.059 standard proposed by Cohen (1988).

Additionally, the ICC(II) value is 0.832, greater than the 0.6 standard proposed by Glick (1985).

The results of Model A1 and A2 in Table 2 present that work-unit-level transformational leadership is significantly related to both a supportive culture and an innovative culture; the results of Model B1 and B2 in Table 3 present that a work-unit-level with a supportive culture is significantly related to organizational trust, but not to innovative culture.

To test the mediating effect of a supportive culture and an innovative culture, the steps of Baron and Kenny (1986) were followed. Comparing the results of Model B1 and B2 in Table 3, only a supportive culture is finally significantly related to trust, but not an innovative culture. From the results of Model A1 and A2, transformational leadership has a direct relation to both a supportive culture and an innovative culture. Also, the results of Model B1 and B2 show that the impact of transformational leadership on organizational trust decreases, while the model adds to both supportive and innovative cultures. Therefore, it was found that a supportive culture only has a partial mediating effect (Baron and Kenny, 1986) between transformational leadership and organizational trust. Consequently, hypothesis H2-1 is supported but H2-2 is not.

Table 2 Regression Results of Supportive and Innovative Cultures regarding Work-unit Level

Independent	Model A1 Supportive Culture	Model A2 Innovative Culture
Transformational Leadership	0.458 *	0.510 **
R <sup>2</sup>	0.210	0.236
F	10.132 ***	11.392 ***

\*P<0.05; \*\*P<0.01; \*\*\*P<0.001

Table 3 Regression Results of Organizational Trust regarding Work-unit Level

Independent	Model B1	Model B2
Transformational Leadership	0.628 ***	0.440 **
Supportive Culture		0.393 *
Innovative Culture		0.124
R <sup>2</sup>	0.395	0.595

Independent	Model B1	Model B2
ΔR <sup>2</sup>		0.197 **
F	19.561 ***	13.548 ***

\*P<0.05; \*\*P<0.01; \*\*\*P<0.001

The results of Model C2 regarding HLM in Table 4 show that individual perceived transformational leadership is positively related to the willingness to knowledge-share. Therefore, hypothesis H1 is supported. However, when including cross-level interactive variables, the results of Model C3 show the moderating effects of a supportive culture and organizational trust are significant. However, the moderating effect of an innovative culture is not. Therefore, hypotheses H3-1 and H4 are supported but H3-2 is not.

Table 4 HLM Results of Willingness to Knowledge-share

Independent	Model C1	Model C2	Model C3
<b>Individual</b>			
(constant)	3.97 ***	3.97 ***	3.90 ***
Transformational Leadership		0.13 *	0.08
<b>Cross-Level</b>			
Transformational Leadership × Supportive Culture			0.80 *
Transformational Leadership × Innovation Culture			-0.31
Transformational Leadership × Organizational Trust			1.48 ***
Between-Group Residual Variance	0.073 ***	0.037 ***	0.002 ***
Within-Group Residual Variance	0.458	0.336	0.335

\*P<0.05; \*\*P<0.01; \*\*\*P<0.001

## 5. Conclusions and Suggestions

### 5.1 Research Findings

In the era of economic globalization, knowledge is one of the most critical competitive advantages for enterprises. Knowledge sharing is identified as a major focus area for knowledge management, as knowledge gained without sharing can only benefit individuals. On the other hand, it has been verified in past studies that the behavior of leaders will affect that of their

followers. Consequently, the most effective approach of leadership that contributes to enhancing employees' willingness for knowledge sharing is transformational leadership, which can help knowledge management to achieve twice the results with half the effort.

Transformational leadership directly affects employees' willingness regarding knowledge sharing, which is consistent with Politis' (2001) research result on the relationships between various leadership styles and knowledge management. Nonetheless, between transformational leadership and the willingness to knowledge-share, there exist several other factors which may form essential mechanisms.

Organizational trust is one of the keys that have an impact on employees' willingness to knowledge-share. When employees perceive trust from an organization and its executives, they are more likely to be willing to share knowledge. This idea is consistent with those of a number of scholars in their research (Almeida and Kogut, 1999; Nonaka et al., 2000). The positive relationship of trust not only improves the teamwork of employees, but also promotes their willingness regarding knowledge sharing. Organizational members tend to interact well with each other in trust relationships, whereby employees' lowered risk expectations towards the substantial benefits and sense of accomplishment that they are able to gain from knowledge sharing can promote their willingness to knowledge-share.

Organizational trust can affect employees' willingness to take part in knowledge sharing and, as described above, the determinants of trust are transformational leadership and organizational culture. Consistent with many research findings (Bennis and Nanus, 1985; Podsakoff et al., 1990), it was found that a transformational leader's readiness to sympathize with followers and establish their confidence contributes to the building of employees' trust toward the leadership and the organization.

Whitener, Brodt, Korsgaard, and Werner (1998) further indicated that transformational leaders are willing to spend time communicating with followers, thus making them feel that the leader is trustworthy. Nyhan's (2000) research results suggested that transformational leaders are good at delegating, which is the prerequisite for developing organizational trust.

The organizational culture of cooperation, support, fairness, and security, as well as the attachment of great importance to the morale and personal autonomy of employees, are significant factors for building employee trust. In this regard, the current study found similar results to previous researches, and proposes that, with regard to such an organizational culture, a supportive culture is the most typical organizational culture. On the contrary, an innovative culture emphasizes innovation, risk, and change, and thus may increase employees' awareness of risk in a highly competitive and fast-paced environment. Golembiewski and McConkie (1975) indicated that, in an organization that encourages individual competition, it is difficult to cultivate trust. Unlike a supportive culture, an employee's particular awareness of risk does not have an obviously positive effect on trust.

## **5.2 Practical Implication**

Knowledge sharing is the critical part of knowledge management. Consequently, enhancing employees' willingness with regards to knowledge sharing is a high priority. The leader plays the most crucial role in the whole process of knowledge management. The behavior of transformational leaders contributes to the improvement of employees' willingness to knowledge-share. Therefore, the executives of an enterprise or organization should adopt transformational leadership and use their charm, spiritual motivation, intellectual enlightenment, and caring attitude to influence their employees and encourage them to be more devoted and willing to share their valuable knowledge. Most importantly, trust is the key factor. In addition to leadership style and a secure environment, trust is crucial

for interpersonal interaction within an organization. To enable employees to feel trust, the leader's behavior and attitude are very important. Transformational leadership provides a set of behavior criterions sufficient for promoting employees' trust, thereby increasing the number of team members who are willing to share knowledge in an organizational climate of trust and engage in the work that contributes to achieving organizational goals.

However, the creation of a climate of trust within an organization relies on an organizational culture that contributes toward promoting interactive security. In an innovative culture, where innovation and frequent changes are pursued, employees are required to work hard to meet high performance requests, and consequently, knowledge is quite likely to be shared. However, from the perspective of trust, in this type of culture, members tend to believe only in close colleagues, whilst not believing in other members or that the organization will develop and grow in a stable manner. As a result, they may withhold knowledge sharing and devotion. Therefore, the leader of an enterprise or organization, when pursuing reform, innovation, and work performance, must pay close attention to those environmental factors that may cause the instability of employees and which may affect their working behavior and attitude.

A supportive culture is the most reliable for employees. In an organization with a supportive culture, where there is the power of security, together with the leader's empowerment, individualized consideration, and a vision of charismatic leadership, employees will be ready to share their own knowledge for the sake of the company or their personal relationships. Knowledge sharing constitutes the characteristics of knowledge, and the motivation and opportunities for sharing. An organizational culture with a relationship that encourages trust together with a leader with the charm of transformational leadership

will offer the best opportunity and motivation for employees to share knowledge.

### 5.3 Research Limitation and Suggestions for Future Studies

With regards to the research on organizational behavior, it has been found that there are many factors that can affect employee behavior, although it is impossible to explore all of them due to time and cost limitations. Moreover, individual answers concerning the willingness to take part in knowledge sharing only represent individual perceptions, which may contain evaluations of the individual's morals rather than their actions. Additionally, willingness itself is only the motivation before an action, and this can change to the contrary under the moderating effects of other factors. Thus, future studies might construct proper measurement tools for, and conduct analyses of, the actual behavior of knowledge sharing, which would be of more direct value for knowledge management application.

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