WORKING PAPER
WP 01-08

TRUST AND KNOWLEDGE MANAGEMENT: THE SEEDS OF SUCCESS

Dianne Ford
Queen's University at Kingston
November, 2001

Queen's KBE Centre for Knowledge-Based Enterprises
http: www.business.queensu.ca/kbe

Abstract

Within the practitioner literature, trust has often been noted as a key component for the success of knowledge management practices; however, trust is a very complex construct that has many different facets and definitions. This paper reviews the trust literature to create an understanding of the different types and bases of trust. These types and bases of trust are then applied to the knowledge management processes (knowledge generation, knowledge codification, knowledge transfer, and knowledge application) to create better understanding of the possible relationships between trust and the knowledge management processes, and which processes require which type of trust for knowledge management success. Implications for practitioners and research are then discussed.

The author would like to thank the following people for their feedback on this paper: Jim McKeen, Brent Gallupe, Julian Barling, Peter Gray, Darren Meister, Yolande Chan, and the participants of Queen's KBE Knowledge Café. Also, the author would like to thank Queen's Management Research Centre for Knowledge-Based Enterprises for it generous support of this project.

Trust and Knowledge Management: The Seeds of Success[1]

Introduction

For several years now, researchers and practitioners have been extolling the virtues of knowledge management (KM) and its role in organizational success through sustainable competitive advantage (e.g., Drucker, 1969; Matusik & Hill, 1998; Holsapple & Joshi, 2000). In line with this statement, knowledge management has been a hot topic. The processes knowledge management involves, knowledge management systems, and how an organization can successfully implement knowledge management are just some examples of how it has been studied (e.g., Alavi & Leidner, 2001; Jarvenpaa & Staples, 2000; Buckley & Carter, 1999; Gold, Malhotra & Segars, 2001).

Within the knowledge management literature, trust is often discussed as an important element for successful knowledge management ventures (e.g., Bukowitz & Williams, 1999; Rolland & Chauvel, 2000; Roberts, 2000). For example, statements such as, "Trust is, after all, the single most important precondition for knowledge exchange" (Rolland & Chauvel, 2000, p.239) are a common occurrence, particularly in practitioner oriented literature.

If trust is a key ingredient for the success of knowledge management, then it is important to understand how it relates to the various knowledge management processes, and how a manager may plant the seeds required for trust and knowledge management to grow (i.e., be successfully implemented).

Trust is a very complex construct, with multiple levels, bases, and determinants (Rousseau, Sitkin, Burt & Camerer, 1998). The word is well known, and is frequently

[1] **Acknowledgements:** The author would like to thank the following people for their time and assistance with this paper: Jim McKeen, Brent Gallupe, Julian Barling, Peter Gray, Darren Meister, Yolande Chan, and the participants of Queen's KBE Knowledge Café. Their feedback was greatly appreciated.

believed to be understood. Yet, throughout the years, trust has been defined in many different ways (e.g., Williamson, 1993; Zucker, 1986; Rotter, 1967). For instance, trust has been defined in terms of a personality trait (e.g., the propensity to trust; Rotter, 1967) but also has been defined as a behaviour (e.g., trusting behaviour; Mayer, Davis & Schoorman, 1995).   Therefore, it is inappropriate to solely use the term "trust" and to assume its meaning is fully and properly understood.

Researchers have been studying this construct for many years as it applies to interpersonal relationships (e.g., Rotter, 1967; Johnson & Noonan, 1972).   More recently, researchers have been applying this construct to organizations, and investigating its implications and relevance for business success (e.g., McKnight & Cummings, 1998; Elangovan & Shapiro, 1998). For example, trust has been examined with respect to increasing the efficiency of transactions, cooperation, and openness of communication between firms (e.g., Cummings & Bromiley, 1996; Ratnasingham & Kumar, 2000).

One of the aspects of trust that is pertinent to an organization is its association with employee motivation and job satisfaction (e.g., Kelloway & Barling, 2000). In particular, organizational trust is an important component to motivating employees via affective commitment. To the extent that trust has been associated with motivation and business success, trust will lead to successful knowledge management.

Yet, despite trust's claimed or apparent importance within the knowledge management literature, the construct of trust is typically left undefined and its meaning is assumed to be understood even though there is an extensive trust literature defining different types of trust. The types of trust are discussed even less frequently with respect to the various knowledge management processes. While there are some exceptions to this statement (e.g., Huemer et al., 1998; Kelloway & Barling, 2000; Roberts, 2000), none of these articles address the different types of trust and how these different types may relate to the various KM processes. Furthermore, they have not directly addressed the true necessity of trust, or how a manager may assist the development of the "proper" types of trust for each of the knowledge management processes.

Therefore, the purpose of this paper is the following: 1) to clarify the definition of trust; 2) to explain its role with respect to the various knowledge management processes; 3) to discuss the implications of trust's relationship with KM for practitioners; and 4) to identify future research areas. The literature for trust and knowledge management shall be discussed. Then the types of trust will be discussed with respect to each of the knowledge management processes of knowledge generation, knowledge codification, knowledge transfer, and knowledge application, and how they assist knowledge management processes. Then the discussion will address the implications for practitioners, and finally, future avenues for research will be identified as a result of this analysis.

Definition of Trust

Although trust has many possible definitions (see Table 1) Rousseau, et al. (1998) have noted several commonalities amongst different definitions, namely: (a) risk, (b) expectations or beliefs, and (c) a willingness to place oneself at risk with the assumption and expectation that no harm will come to oneself. One of the most frequently used definitions of trust is the following, "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, et al., 1995, p.712).

Mayer et al. (1995) differentiated trust from constructs such as predictability, cooperation, and confidence. As shown in Table 1, these separate constructs have been used by others as synonyms with trust (as highlighted) despite Mayer et al.'s (1995) convincing arguments that they are not identical. For example, if a person's harmful behaviour is highly predictable, then trust is less likely to occur because the high predictability decreases risk, and the presence of risk is a required condition for trust (Mayer, et al., 1995). Deutsch (1958) stated that in order for trust to be meaningful, it must go beyond predictability (c.f. Mayer et al., 1995). Cooperation can occur without risk being present. For example, John could cooperate with Max because it would be to his benefit to cooperate, not because he trusts him. Hence, the presence of cooperation does not determine the presence of trust.

PLACE TABLE 1 HERE

A second stream of literature discusses the bases of trust, or how trust is derived (e.g., Shapiro, Sheppard & Cheraskin, 1992; Brewer, 1981; Williamson, 1993). Trust can be deterrence-based trust, knowledge-based trust, identification-based trust, cognition-based trust, relational trust, calculus-based trust, economics-based trust, institutional-based trust, or personality-based trust. (See Table 2 for a summary of the definitions and citations.)

PLACE TABLE 2 HERE

In addition to different bases of trust, there are also different types of trust. For instance, Morris and Moberg (1994) make the distinction between personal and impersonal trust. Personal trust is based on person-to-person interactions; whereas, impersonal trust is based on positions (e.g., job titles, offices) not the actual person.

Another distinction made within the trust literature regards the target of trust. Interpersonal trust, and organizational trust (e.g., Rotter, 1967; Gilbert & Li-Ping Tang, 1998) are the most common ones identified. Interpersonal trust is trust in which the trustee is another individual. The target is the person in and of themselves, it is not based on their position, title, or because they represent an organization. Organizational trust is when the trustee is an organization (e.g., the employee trusts his or her company). Another aspect of organizational trust is that the target could also be the manager or supervisor of the trustor; however, this is not interpersonal trust necessarily because the trustee is a representative of the organization. Other targets of trust are trust in groups, and trust in institutions (Rousseau, et al., 1998).

Jones and George (1998) differentiate three different states of trust: distrust, conditional trust, and unconditional trust (see Table 3). According to Jones and George (1998), conditional, unconditional trust and distrust all belong to the same construct – the experience of trust. Distrust is the lack of trust, and unconditional trust is the epitome of interpersonal trust. As a relationship develops, trust evolves from conditional trust to unconditional trust. When the trust is betrayed, unconditional trust may turn to conditional trust, or it may turn into distrust, depending upon the severity of betrayal. The more severe the betrayal, the more drastic change is for the state of trust.

PLACE TABLE 3 HERE

However, Lewicki, McAllister and Bies (1998) argued that distrust is not a lack of trust, but rather a separate construct from trust. They argue that trust is characterized by hope, faith, confidence, assurance, and initiative, whereas distrust is characterized by fear, scepticism, cynicism, wariness and watchfulness, and vigilance. In this context, trust and distrust can coexist at different levels simultaneously within the relationship.

Finally, there have been different determinants of trust discussed within the literature (e.g., Mishra & Morrisey, 1990; Mayer, et al., 1995; Gilbert & Li-Ping Tang, 1998). Determinants of trust are behaviours and factors that increase the likelihood of trust incurring (see Table 3). For Mishra and Morrisey (1990), the following behaviours are determinants in trust: open communication, inclusion in decision making, sharing critical information, and sharing of feelings and perceptions. For Mayer, et al. (1995) the following characteristics are determinants: perceived trustee's ability, perceived trustee's benevolence, perceived trustee's integrity, and trustor's propensity to trust. Three additional determinants are identified by Gilbert and Li-Ping Tang (1998) for organizational trust: work group cohesion, friendship centrality, and receiving information through social integration and mentoring.

In summary, trust is a very complex construct, which has many targets, bases, states, and definitions. The key aspects of trust, which will be discussed further in this paper, are the different targets of trust (e.g., interpersonal versus organizational), and the different bases of trust (e.g., institutional-based trust versus identification-based trust). It is important to understand how these different aspects relate to the knowledge management processes as they suggest different management practices for implementing knowledge management.

Definition of Knowledge Management

Knowledge management has also been defined in many different ways. However, the most common description of knowledge management is as a business practice, which emphasizes the creation, dispersion, and use of knowledge (e.g., Davenport & Prusak, 1998; Alavi & Leidner, 2000). The purpose of knowledge management is to enable the organization to gain access to the knowledge held within the individuals of the firm. Knowledge has been defined as the following:

> "Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes imbedded not only in documents or repositories but also in organizational routines, processes, practices, and norms." (Davenport & Prusak, 1998, p.5).

Knowledge, like trust, has been differentiated into different types and levels (see Table 4 for a summary). For instance, different levels of knowledge would be knowledge as an object (separate from individuals), knowledge within the individual, knowledge within a group or community, knowledge within a firm (group and firm knowledge is also considered to be collective knowledge), and public knowledge (e.g., McLure Wasko & Faraj, 2000; Matusik & Hill, 1998; Davenport & Prusak, 1998). The key for an organization, which is focusing on knowledge management, is to maximize the collective knowledge, and to constantly be aware of and acquire public knowledge (but to not let the firm knowledge become public knowledge; Matusik & Hill, 1998).

PLACE TABLE 4 APPROXIMATELY HERE

Knowledge has been differentiated into two main types: explicit and tacit knowledge (Nonaka & Takeuchi, 1995). Explicit knowledge, otherwise known as codifiable knowledge, is knowledge that is readily and easily codified into text, diagrams, etc. (e.g., Nonaka, 1991; Roberts, 2000). Tacit knowledge, on the other hand, is learned from experience, and can be very difficult to articulate and codify (Matusik & Hill, 1998). Others contend that the distinction between just explicit and just tacit knowledge is not as clear as it is believed to be, since they are not mutually exclusive, as Michael Polanyi (1966) states:

> "While tacit knowledge can be possessed by itself, explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is either tacit or rooted in tacit knowledge. A wholly explicit knowledge is unthinkable" (p. 7).

Within the knowledge management literature, there are at least two classifications of knowledge processes. Nonaka (1994) defines one in which there are four processes: internationalization, externalization, combination, and socialization. Internalization is the process in which an individual internalizes explicit knowledge to create tacit knowledge. Externalization is the process in which the person turns their tacit knowledge into explicit knowledge through documentation, verbalization, etc. Combination is the process where new explicit knowledge is created through the combination of other explicit knowledge. Finally, socialization is the process of transferring tacit knowledge between individuals through observations and working with a mentor or a more skilled/knowledgeable individual.

Another classification of knowledge processes is somewhat more popular within the literature (e.g., Alavi & Leidner, 2000; Davenport & Prusak, 1998). This classification focuses on the lifecycle of knowledge within a firm; whereas, the above classification focuses on different processes in which knowledge is created and transferred throughout an organization. There are essentially four knowledge processes in this classification: knowledge generation (creation and knowledge acquisition), knowledge codification (storing), knowledge transfer (sharing), and knowledge application.

Knowledge generation involves the discovery and resolution of opportunities or problems, and the creation of innovations for example (e.g., Gray & Chan, 2000; Matusik & Hill, 1998), and knowledge acquisition, which is the acquiring and integrating knowledge from external sources (Davenport & Prusak, 1998). Knowledge codification is the translation of knowledge into text, drawings, etc. for storage in a repository. Knowledge transfer is the sharing of knowledge between individuals within the organization. Finally, knowledge application is the use of knowledge to gain the competitive advantage (Alavi & Leidner, 2000).

For the purpose of this paper, which is to examine the relationship between trust and knowledge management processes, the knowledge processes as defined by Davenport and Prusak (1998) will be used to frame this examination. This classification of knowledge management processes was chosen as it relates more directly to tangible business practices, and is thus more pertinent to practitioners.

Trust and Knowledge Management

This section discusses the importance of trust for each of the knowledge management processes, as defined by Davenport and Prusak (1998).

Knowledge Generation

Within knowledge generation, there are two main processes in which knowledge is generated: knowledge creation and knowledge acquisition. Knowledge can either be generated through original knowledge creation within the confines of the organization, or it can be acquired from an external source and brought into the organization.

Knowledge Creation

Trust has not been discussed extensively with respect to knowledge generation; however, it has been suggested that trust is required for it to thrive. For instance, Probst, Raub and Romhardt (2000) discuss that there should be a trust in the tolerance for mistakes; this enhances the culture for knowledge creation. The trust discussed with respect to knowledge generation is organizational trust. In other words, the employees trust that the organization tolerates mistakes and will thus act accordingly (i.e., participate in more "risky" behaviour). Interpersonal trust may also come into play such that the employee will have to trust his/her supervisor to follow the policies; however, this form of interpersonal trust falls under organizational trust as defined by Gilbert and Li-Ping Tang (1998). Furthermore, this trust would be more knowledge-based, deterrence-based, or institution-based trust, not necessarily relational trust, because the trust would most likely be based on the employee's ability to predict and understand their supervisor's behaviours and motives, or through the rules and policies of the organization.

Knowledge generation not only occurs with individuals, but it also occurs within groups or teams. Knowledge generation within a group often requires individuals to share their knowledge and information (which involves the second knowledge process of knowledge transfer) in order for new knowledge to be created.

While it has not been extensively discussed, knowledge generation within a group or team setting is presumed to require trust. However, the more the organizational policies and regulations support knowledge generation for the group, then trust's importance decreases to the extent that controls and policies replace trust. On the other hand, if distrust is present, then knowledge generation will be blocked, as fear, cynicism, wariness will prevent an individual from sharing required knowledge or information with the team to generate new knowledge.

Conversely, the more trust that is present, the more information people will share with one another (Connelly & Kelloway, 2000), thus enabling the knowledge generation process. Therefore, while trust may not be a required component for knowledge generation, its presence would increase the success of the group/team in terms of knowledge generation. This time, interpersonal trust is the focus, as individuals within the group must trust the other individuals to share their information and knowledge, to generate the knowledge.

This trust may have different bases; for instance it could be relational trust, identification-based, knowledge-based, institution-based trust, deterrence-based trust, calculus-based trust, personality-based trust. However, if the interpersonal trust is relational trust or identification-based trust, then the group members will be more willing to share information, thus increasing the likelihood of knowledge generation (e.g., Bowles, 1999; Kramer, 1999). The reason for this elevated willingness to share information is due to the individual's identification with the group members' goals and the simple action of sharing information within a relationship creates relational trust. Therefore, the ideal trust for knowledge generation would be relational trust or identification-based trust.

The promotion of relational trust and identity-based trust is illustrated through the recommendation to create communities of practice for knowledge generation and sharing (von Krogh, Ichijo & Nonaka, 2000). Communities of practice are groups in which the social cohesiveness has been promoted, and the group assists in the generation of new knowledge (Davenport & Prusak, 1998). The promotion of social ties within these groups is related to the development of knowledge-based, identification-based and relational trust.

The above discussion suggests the following propositions for knowledge creation:

Proposition 1a: For individual-generated knowledge: the presence of organizational trust, which is either deterrence-based or institution-based trust, will be associated with more knowledge creation than with no trust at all.

Proposition 1b: For individual-generated knowledge: the presence of interpersonal trust with the supervisor, which is either deterrence-based, institution-based or knowledge-based trust, will be associated with more knowledge creation than with no trust at all.

Proposition 2a: For group-generated knowledge: the presence of organizational trust, which is institution-based trust, will be associated with more knowledge creation, than if there is no trust present.

*Proposition 2b:*For group-generated knowledge: the presence of trust in the group will be associated with more knowledge creation, than if there was simply organizational trust, or no trust present.

Proposition 2c: For group-generated knowledge: the presence of interpersonal trust, which is identification-based or relational trust, will be associated with more knowledge creation than if there was simply group trust, organizational trust, or no trust present.

Knowledge Acquisition

Knowledge acquisition involves accessing expertise from external sources in the knowledge market. Probst et al. (2000) suggest that personal trust is required within the knowledge market as it is difficult to assess the value of the knowledge being acquired. Acquisition of knowledge from an individual outside of the organization cannot benefit from organizational trust, as the individual is not a part of the organization. Impersonal trust also would not be effective as the trust is directed to a position or title within the organization; therefore, interpersonal trust is the best type of trust for knowledge acquisition. This interpersonal trust could have any of the following bases to be effective: knowledge-based trust, competency trust, relational trust, cognition-based trust, identification-based trust.

Therefore, the following propositions may be stated:

*Proposition 3a:*For knowledge acquisition, the presence of personal trust will be associated with more knowledge acquired than without personal trust.

Proposition 3b: For knowledge acquisition: the presence of interpersonal trust, which is either knowledge-based, competency, relational, cognition-based, or identification-based trust, will be associated with more knowledge acquired than without the presence of interpersonal trust.

Knowledge Codification

Knowledge codification is the translation of explicit knowledge into some written or visual format. Frequently, the codified knowledge is stored within knowledge management systems, or manuals. While there has been very little discussed with respect to trust in knowledge codification, there has been some discussion regarding trust in the quality of the data within the knowledge management systems and the use of these syst ems (e.g., Jarvenpaa & Staples, 2000; Probst et al., 2000). Therefore, it is possible to conceive that trust is required in the use of codified knowledge. This trust would be impersonal trust, as it is not directed toward a particular individual. This may also be trust in the system.

Similarly, when knowledge is being codified, the individual whose knowledge is being codified may need to trust the system such that the coded knowledge is stored as it is meant to be, and that it will be protected from those who should not have access to it. This can be an issue to not only the individuals within the organization, but it can also be a concern for individuals outside the organization (e.g., clients of that organization). Furthermore, the individual may need to trust the organization that the organization will use the knowledge properly. This will be discussed further in the knowledge use section.

In addition to the codification of explicit knowledge, some KM authors have proposed methods for categorizing tacit knowledge within the organization. One of the techniques is to create a knowledge map (i.e., a knowledge "Yellow Pages"), which identifies the experts and their field of expertise within the organization (Davenport & Prusak, 1998). To increase the level of trust in the users of the knowledge map, the inclusion of pictures or videos of the expert has been recommended (Davenport & Prusak, 1998). This relates to interpersonal trust as the trust is targeted towards the expert.

From this section, the following three propositions may be made:

Proposition 4a: The presence of impersonal trust of the data quality, which is trust in the system, will be associated with more knowledge codification.

Proposition 4b: The presence of organizational trust will be associated with more knowledge codification than if there was no organizational trust.

Proposition 4c: For knowledge maps: the use of pictures or videos in the knowledge maps increases interpersonal trust.

Knowledge Transfer

The most commonly discussed knowledge management process with respect to trust is knowledge transfer (i.e., knowledge sharing). It is frequently commented that in order for people to be willing to share their knowledge, they must have trust (e.g., Davenport & Prusak, 1998; Podolny & Baron, 1997; Kramer, 1999). It has even been commented, "trust is, after all, the single most important precondition for knowledge exchange" (Rolland & Chauvel, 2000, p.239). More specifically, trust has been discussed as a prerequisite for tacit knowledge sharing (e.g., Roberts, 2000; Rolland & Chauvel, 2000).

The importance of trust has been supported in a study by Connelly and Kelloway (2000). In this study, respondents noted that they would only be willing to share knowledge in contexts where they trusted the recipient of the knowledge (Connelly & Kelloway, 2000). While the type of trust was not specified, it can be inferred that the respondents were referring to interpersonal trust, as the trust was targeted towards an individual, not an organization; however, as with other studies, the bases of the trust were not discussed or investigated.

However, the relevance of trust (and the findings regarding the significance of the presence of trust) may be limited because of the uncertainty surrounding causal direction, as it has also been noted that the sharing of information also increases the level of trust (Bowles, 1999). In other words, as one shares information and knowledge with another individual, the perceived trust increases between these individuals. This implies that as people start sharing their knowledge because the company dictates it (and censures opportunistic behaviours), they will then start to feel interpersonal trust with those whom they share the information and knowledge. Therefore, interpersonal trust may not be required (as commonly believed) for the start of knowledge sharing, but it may develop as a result of knowledge sharing.

Sharing knowledge (and in particular tacit knowledge) is a risky behaviour, as the individual does not know for certain how the knowledge will be used. Furthermore, the trustor does not know for certain that the value that is associated with the knowledge will be transferred to the trustee. Therefore, to share knowledge is to assume risk by both parties (e.g., Kramer, 1999). As mentioned by Mayer et al. (1995), the assumption of risk is not sufficient to assume that trust is required. However, Mayer et al. (1995) claim "trust will lead to risk taking in a relationship" (p. 724). In situations in which there is little or no trust, the individual will rely on third parties to mitigate the level of risk. For instance, they will rely on organizational policies and rules to mitigate the level of risk. This is the case with deterrence-based trust, and institutional trust; controls are available to mitigate the likelihood of harm. To the extent that knowledge sharing is institutionalised, and sanctions exist for limiting opportunistic behaviour, then knowledge sharing should occur.

Without the sanctions, or policies and strong culture, interpersonal trust must replace external controls (e.g., Das & Teng, 1998; Edmondson & Moingeon, 1999). This interpersonal trust could be differently based trusts, such as: calculus-based trust, knowledge-based trust, identification-based trust, relational trust, cognition-based trust, economics-based trust, or personality-based trust. The literature does not differentiate between these types of trust and their implication on knowledge transfer. However, as noted earlier, if the interpersonal trust is relational or identification-based trust, then people will be more willing to share (e.g., Bowles, 1999; Kramer, 1999). Therefore, it is proposed that without a strong organizational culture regarding knowledge sharing, which may result in a lack of related policies, rewards, sanctions, then knowledge-based trust, identification-based trust, and relational trust become more important.

This proposition may explain the proliferation of recommendations for companies to support communication and sharing of personal information (Bowles, 1999), enhancing interdependency (Rolland & Chauvel, 2000), creating optimized networks (Burt, 1992), as these behaviours lead to an increase in knowledge and understanding, hence trust (i.e., identification-based or knowledge-based trust). Von Krogh, Ichijo and Nonaka (2000) also make recommendations for creating trust for knowledge management. The recommendations are the following:

- Create a sense of mutual dependence;
- Make trustworthy behaviour part of the performance review;
- Increase individual reliability be creating a map of expectations;
- Sharing personal information for smaller groups;
- Use symbolic gestures for interdependency (von Krogh et al., 2000).

The first and last comments create interdependency. Interdependency creates one type of interpersonal trust (Rolland & Chauvel, 2000). The second relates to institutional sanctions; therefore, it is related to the development of institutional-based or deterrence-based trust. It also relates to organizational trust. The third increases knowledge of other's intentions, which can increase interpersonal trust based on predictability (e.g., knowledge-based trust). Sharing personal information increases interpersonal trust (Mishra & Morrisey, 1990). More specifically, it can assist in the development of knowledge-based trust, and/or identification-based trust. These recommendations suggest knowledge transfer can be encouraged by the development of interpersonal trust, and/or organizational trust. Since it can be difficult for managers to cultivate simply one type of trust within an organization, von Krogh et al.'s (2000) recommendations support the development of all types of trust.

It is possible that knowledge transfer can occur with limited interpersonal trust, provided that there are sufficient sanctions and policies to compensate for the lack of interpersonal trust. However, it is also possible for knowledge transfer to occur solely with interpersonal trust. Therefore, in order to optimise the amount of knowledge transfer within the organization, it is best to encourage all types of trust - that way individuals who lack strong interpersonal trust with others in the organization can still partake in knowledge sharing due to organizational trust or deterrence-based trust. It should be noted that if a person experiences distrust, then knowledge sharing will be blocked and will fail with that individual.

From this discussion, the following propositions are made:

Proposition 5a: For conditions of little or no interpersonal trust: the presence of organizational trust, which is institution-based trust, will be associated with more knowledge transfer.

Proposition 5b: For conditions of little or no sanctions or policies: the presence of interpersonal trust, which is knowledge-based, identification-based or relational trust, will be associated with more knowledge transfer.

Proposition 5c: For conditions of distrust: knowledge transfer will be blocked and will fail due to fear, cynicism and wariness.

Proposition 5d: A company in which there is strong organizational trust and interpersonal trust present will have more knowledge transfer than companies in which there is solely organizational or interpersonal trust.

Proposition 5e: The presence of knowledge transference will lead to an increase in interpersonal trust between the individuals of the organization; thus leading to more knowledge transfer.

Proposition 5f: The presence of distrust will be associated with knowledge blocks and failure in knowledge management if prevalent within an organization.

Knowledge Application / Use

Davenport and Prusak (1998) discuss the "not-invented-here" mentality, arguing that it creates a barrier to the use of knowledge that has come from a second source (i.e., someone other than the user). To overcome this barrier, it is important for the organization to have a culture and policies that condone the use of outside or borrowed knowledge (Davenport & Prusak, 1998). As with the tolerance of mistakes, the use of second source knowledge creates a need for organizational trust, and interpersonal trust with the supervisor. It is proposed that this type of trust would be institutional-based trust, or knowledge-based trust.

Therefore, the propositions are the following:

*Proposition 6a:*The presence of organizational trust, which is institution-based trust, will be associated with higher knowledge use and application.

Proposition 6b: The presence of interpersonal trust with the supervisor, with could be deterrence-based, institution-based or knowledge-based trust, will be associated with higher knowledge use and application than without it.

Discussion

Thus far trust, as it pertains to the five knowledge management practices, knowledge creation, acquisition, codification, transfer, and use, has been discussed and propositions have been derived from the literature (see Table 5 for a summary). The following implications for managers can be derived from these propositions and the above literature review.

PLACE TABLE 5 HERE

These propositions suggest that in order for an organization to implement knowledge management successfully, they would need multiple types of trust promoted within the organization if they wish to be successful at all knowledge processes. The following section discusses the implications for managers, and directions for future research.

Implications for Managers

The above propositions suggest several implications for management regarding knowledge management practices. First, a manager of a firm cannot force employees to trust one another (i.e., interpersonal trust). This is partly because the trust is on the basis of the relationship of those two individuals, and second, trust is a person's perception and willingness. Simply put, a third person cannot fully alter or enforce a person's perception; therefore, it is in managements' best interest to focus their energy in areas that they have more influence. In other words, the manager should look at knowledge management as a flower that they seek to grow. Since a gardener cannot force a flower to thrive on its own without a plant and the right environment, the gardener is forced in essence to create the best conditions and plant the right seeds to grow the flower *over time*.

The seeds for knowledge management are the components that define what practices should grow. These are the mission statement, valued behaviours, the reward structure, and policies. The seeds are only a start, since a seed will remain a seed without the proper environment. The environment is the organizational culture and organizational trust. Organizational trust is out of the manager's control (as it is the employee's choice to trust or not); however, a manager can influence the organization's trustworthiness provided the manager is consistent with respect to the policies, reward structure, valued behaviours, and his/her actions with respect to the employees. Together organizational culture and organizational trust should support the growth of knowledge management.

When the seeds are planted, the seeds start to turn into plants – albeit slowly. This would also be illustrated in the organization as knowledge management processes start to occur (albeit slowly). The more organizational trust there is (e.g., nourishing environment), the more knowledge management processes should flourish.

At this point, there should be a full-grown plant; however, the flower of the successful knowledge management is not yet blooming. This is where interpersonal trust enters the equation. Just as a plant's biology allows it to bloom flowers under the right conditions, so to does knowledge management's processes allow for successful knowledge management to develop. Interpersonal trust is the special ingredient that creates the most beautiful flowers. It is this extra condition that knowledge management requires to bloom fully. However, it must come from the plant (e.g., the people within the organization) and not from the gardener (e.g., the manager).

So, in business terms, let us revisit this process. A manager does have influence over policies, procedure, and to some extent they have control over organizational culture and the related expectations. This will assist in starting knowledge management practices within the organization. Due to the existence of these sanctions, policies, and organizational “laws”, institutional-based trust can develop, and people will start to share their knowledge and generate new knowledge. This will occur due to people’s understanding that there are safety nets protecting their self-interests (i.e., Jan can share her knowledge with Joe, because she knows that if he uses it against her in some manner, he will be reprimanded for such behaviour). Furthermore, this can also address and assist in the development of organizational trust (i.e., Bill knows that he is to share his knowledge, and that his success within the company will not be jeopardized by doing so – that Bill will not be harmed by the organization (lose his promotion, etc.) by following its rules).

The presence of institutional-based trust and organizational trust will assist in basic levels of knowledge management processes such as generation, codification, sharing and use. However, as noted previously, knowledge generation, transfer, and use will be more successful and prevalent with the assistance of interpersonal trust. An interesting aspect of interpersonal trust is that it can be developed through the sharing of information between people. Furthermore, companies that are successful at knowledge management seem to have trust prevalent within the organization. It is suggested here that as knowledge transfer becomes more prevalent, interpersonal trust will naturally develop within the organization.

Mishra and Morrisey (1990) specify four determinants of trust, which are the following: open communication, inclusion in decision making, sharing critical information, and sharing of feelings and perceptions. Open communication and sharing of critical information are two factors that are inherent within the knowledge processes of knowledge generation and transfer. Sharing of feelings and perceptions also may occur within teams or groups (e.g., communities of practice). Therefore, it is very possible that as knowledge generation and transfer are occurring due to organizational policies, interpersonal trust is developing between these individuals.

As interpersonal trust develops, knowledge management practices get a “booster shot” – such that knowledge generation, use, and in particular transfer flourish even more within the organization with interpersonal trust present. The only knowledge process that does not benefit from interpersonal trust is knowledge codification.

Managers may wish to know how to create this booster shot effect of interpersonal trust, and may want to add this under their regime of control. As mentioned earlier, it is difficult if not impossible for a manager to force Person A to trust Person B; however, it is possible for a manager to create the setting in which interpersonal trust may develop. For instance, giving employees the opportunity to share their feelings and perceptions, critical information, and open communication should enhance interpersonal trust. Examples of such a setting would be communities of practice, office retreats, social events, and an open environment to “water cooler discussions”.

The final key issue for trust and knowledge management is the issue of distrust. While there is the debate as to whether or not trust and distrust are the same construct or not, this paper is going to take the stance that they are two separate constructs, where distrust is characterized by fear, scepticism, cynicism, wariness and watchfulness and vigilance (Lewicki, et al., 1998). If distrust is present within an organization, knowledge management cannot, and will not succeed. The reason for this failure is that when fear is present, people will not partake in “risky” behaviour (such as sharing critical information and their knowledge). They will be cynical regarding the organization’s true intentions regarding the employee's knowledge. For example, Blair is cynical regarding the organization's claim that a person's success is related to their ability to share what they know with others and to document this knowledge; Blair thus believes that it is a measure to disempower him and thus it threatens his job security. As a result of this cynicism, Blair is very unlikely to participate willingly or fully in the knowledge management practices. Distrust is therefore the abort button of the knowledge management mission.

Finally, the knowledge management process that falls outside of this model is knowledge acquisition. This is because the person or organization from whom the knowledge is received is outside of the organization; therefore, organizational trust is null and void. This means that monitoring and interpersonal trust will be the key mechanism for this process. In other words, since there is no way to measure the true value of the acquired knowledge, conditional interpersonal-trust will be the key factor for the acquisition. The importance of interpersonal trust is evident through the importance of the company representatives of the respective companies. For instance when there is a strategic alliance, the employees who represent the respective companies and who work together create a relationship with one another, and changes in the representatives can disrupt the flow of knowledge and the firms' willingness to do business with one another.

Implications for Research

It should be noted that these propositions have not been tested empirically; therefore, it is recommended that studies be conducted to investigate this further.

Field studies could be conducted to test the propositions; however, the true influence and development of interpersonal trust may not be discernible within such a study. Therefore, it may be interesting to also test these propositions in an experiment.

An issue that has been raised by this paper is that it may be possible to do some, if not all the knowledge processes without interpersonal trust (i.e., solely through organizational trust); however, it may be less effective. There may be field examples of this scenario in which companies generate their knowledge through individuals (not groups), transfer the knowledge impersonally (via technology), and never develop strong interpersonal ties (thus interpersonal trust) among the organization's associates due to the geographical dispersion of the associates. This too could be examined further through a series of field studies, or again, experimental studies.

A second issue is that this paper has not discussed the implications of trust between firms for knowledge transfer between strategic alliances, for example. The focus of this paper has been intrafirm knowledge management, and an individual's trust, not trust between groups or firms.

Conclusion

Within this paper, the constructs of trust and knowledge management have been investigated, and their relationship has been explored. This has been to address the weakness within the knowledge management literature, as it typically uses trust in a very generic sense, and does not address the issue fully.

In conclusion, many different types of trust apply to the various knowledge management processes. In order for an organization to maximize the knowledge management efforts, they will need to support the various types of trust, primarily, organizational trust and, in turn, interpersonal trust. Kelloway and Barling (2000) similarly state that organizational trust is important for knowledge management, such that organizational trust assists in motivation. This paper has extended this concept to include different types of interpersonal trust for the various knowledge management processes to supplement the organizational trust. In conclusion, managers cannot force trust to occur; however, they could create the conditions in which trust can interact with knowledge management seedlings to create successful knowledge management.

References

Alavi, M. & Leidner, D. (2001). Knowledge management and knowledge management systems: Conceptual foundations and research issues. MISQ Review, 25(1), from MISQ Review website < http://216.33.236.250/cgi-bin/linkrd?_lang=EN&lah=626a005143622b63961723052ea7ba2e&lat=983564185&hm___action=http%3a%2f%2fmisq%2eorg%2farchivist%2fvol%2fno25%2fissue1%2fvol25n1art6%2ehtml>

Aulakh, P. Kotabe, M. & Sahay, A. (1996). Trust and performance in cross-border marketing partnerships: A behavioural approach. Journal of International Business Studies, 27(5), 1005-1032.

Bhattacharya, R., Devinney, T. & Pillutla, M. (1998). A formal model of trust based on outcomes. Academy of Management Review, 33(3), 459-472.

Bowles, T. (1999). Chapter 14: Themes and variations in shared cognition in organizations. In Thompson, L., Levine, J. & Messick, D. (Eds.) Shared Cognition in Organizations: The Management of Knowledge, Lawrence Erlbaum Assoc. Publishers, Mahwah, NJ, 328-348.

Brewer, M. (1981). Ethnocentrism and its role in interpersonal trust. In Brewer, M. & Collins, B. (Eds.) Scientific Inquiry and the Social Sciences. Jossey-Bass, San Francisco, CA, 214-231.

Buckley, P. & Carter, M. (1999). Managing cross-border complementary knowledge. International Studies of Management & Organization, 29(1), 80-104.

Bukowitz, W. & Williams, R. (1999). The Knowledge Management Fieldbook. Financial Times Prentice Hall, London, UK.

Burt, R. (1992). Structural Holes: The Social Structure of Competition. Cambridge, Mass; Harvard University Press.

Connelly, C. & Kelloway, K. (2000). Predictors of Knowledge Sharing in Organizations, MSc Thesis for Queen’s School of Business, Queen’s University, Kingston, ON.

Cummings, L. & Bromiley, P. (1996) The organizational trust inventory (OTI): Development and validation. In Kramer, R. & Tyler, T. (Eds.) Trust in Organizations: Frontiers of Theory and Research, Sage Publications, Thousand Oaks, CA., p. 302-320.

Crainer, S. (1999). Prophet of the information age. Management Today, (January), 77.

Das, T. & Teng, B.S. (1998). Between trust and control: Developing confidence in partner cooperation in alliances. Academy of Management, 23(3), 491-512.

Davenport, T. & Prusak, L. (1998). Working Knowledge: How Organizations Manage What They Know. Harvard Business School Press, Boston, MASS.

Deutsch, M. (1958). Trust and suspicion. Journal of Conflict Resolution, 2, 265-279.

Doney, P., Cannon, J. & Mullen, M. (1998). Understanding the influence of national culture on the development of trust. Academy of Management. The Academy of Management Review, 23(3), 601-620.

Edmondson, A. & Moingeon, B. (1999). Learning, trust and organizational change: Contrasting models of intervention research in organizational behaviour. In Easterby-Smith, M., Burgoyne, J. & Araujo, L. (Eds.) Organizational Learning and the Learning Organization: Developments in Theory and Practice. Sage Publications, London, 157-175.

Elangovan, A. & Shapiro, D. (1998). Betrayal of trust in organizations. Academy of Management Review, 23(3), 547-566.

Gilbert, J. & Li-Ping Tang, T. (1998). An examination of organizational trust antecedents. Public Personnel Management, 27(3), 321-338.

Gold, A., Malhotra, A. & Segars, A. (2001). Knowledge management: An organizational capabilities perspective. Journal of Management Information Systems, 18(1), 185-214.

Gray, P. & Chan, Y. (2000). Integrating knowledge management practices through a problem-solving framework. Communications of the Association for Information Systems, 4(12), 1-21.

Holsapple, C. & Joshi, K. (2000). An investigation of factors that influence the management of knowledge in organizations. Journal of Strategic Information Systems, 9, 235-261.

Jarvenpaa, S. & Staples, S. (2000). The use of collaborative electronic media for information sharing: An exploratory study of determinants. Journal of Strategic Information Systems, 9, 129-154.

Johnson, D. & Noonan, P. (1972). Effects of acceptance and reciprocation of self-disclosures on the development of trust. Journal of Counseling Psychology, 19(5), 411-416.

Jones, G. & George, J. (1998). The experience and evolution of trust: Implications for cooperation and teamwork. Academy of Management Review, 23(3), 531-548.

Kelloway, K. & Barling, J. (2000). Knowledge work as organizational behaviour. International Journal of Management Reviews, 2(3), 287-304.

Kim, K. & Prabhakar, B. (2000). Initial trust, perceived risk, and the adoption of Internet banking. ICIS 2000 Proceedings, Brisbane, Australia, p. 537-543.

Kramer, R. (1999). Chapter 8: Social uncertainty and collective paranoia in knowledge communities: Thinking and acting in the shadow of doubt. In Thompson, L., Levine, J. & Messick, D. (Eds.) Shared Cognition in Organizations: The Management of Knowledge, Lawrence Erlbaum Assoc. Publishers, Mahwah, NJ, 163-191.

Lewicki, R., McAllister, D. & Bies, R. (1998). Trust and distrust: New relationships and realities. Academy of Management Review, 23(3), 438-458.

Matusik, S. & Hill, C. (1998). The utilization of contingent work, knowledge creation, and competitive advantage. Academy of Management Review, 23(4), 680-697.

Mayer, R., Davis, J. & Schoorman, F. (1995). An integrative model of organizational trust. The Academy of Management Review, 20(3), 709-734.

McKnight, D.H. & Cummings, L. (1998). Initial trust formation in new organizational relationships. Academy of Management Review, 23(3), 473-490.

McLure Wasko, M. & Faraj, S. (2000). "It is what one does": Why people participate and help others in electronic communities of practice. Journal of Strategic Information Systems, 9, 155-173.

Mishra, J. & Morrisey, M. (1990). Trust in employee/employer relationships: A survey of West Michigan managers. Public Personnel Management, 19(4), 443-463.

Morris, J. & Moberg, D. (1994). Work organizations as contexts for trust and betrayal. In Sarbin, T., Carney, R. & Eoyang, C. (Eds.) Citizen Espionage: Studies in Trust and Betrayal. Praeger, Westport, CT, 163-187.

Nonaka, I. (1991). The knowledge-creating company. Harvard Business Review, 69, 96-104.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. Organizational Science, 5, 1437.

Nonaka, I. & Takeuchi, H. (1995). The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. Oxford University Press, New York.

Podolny, J.M. & Baron, J.N., (1997). Resources and relationships: Social networks and mobility in the workplace. American Sociological Review, 62, 673-693.

Polanyi, M. (1966). The Logic of Tacit Inference, Philosophy, 41, 1-18.

Probst, G., Raub, S. & Romhardt, K. (2000). Managing Knowledge: Building Blocks for Success. John Wiley & Sons, Ltd., Chichester.

Ratnasingham, P. & Kumar, K. (2000). Trading partner trust in electronic commerce participation. ICIS 2000 Preceedings, Brisbane, Australia, 544-552.

Roberts, J. (2000). From know-how to show-how? Questioning the role of information and communication technologies in knowledge transfer. Technology Analysis & Strategic Management, 12(4), 429-443.

Robinson, S.L. (1996). Trust and breach of the psychological contract. Administrative Science Quarterly, 41, 574-590.

Rolland, N. & Chauvel, D. (2000). Knowledge transfer in strategic alliances. In Despres, C. & Chauvel, D. (Eds.) Knowledge Horizons: The Present and the Promise of Knowledge Management, Butterworth Heinemann, Boston, MA, 225-236.

Rousseau, D., Sitkin, S., Burt, R. & Camerer, C. (1998). Introduction to special topic forum. Not so different after all: A cross-discipline view of trust. Academy of Management Review, 23(3), 393-404.

Rotter, J. (1967). A new scale for the measurement of interpersonal trust. Journal of Personality, 35, 651-665.

Shapiro, D., Sheppard, B. & Cheraskin, L. (1992). Business on a handshake. Negotiation Journal, 8, 365-377.

von Krogh, G., Ichijo, K. & Nonaka, I. (2000). Enabling Knowledge Creation: How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation, Oxford University Press, New York, NY.

Williamson, O. (1993). Calculativeness, trust and economic organization. Journal of Law and Economics, 34, 453-502.

Zucker, L. (1986). Production of trust: Institutional sources of economic structure, 1840-1920. In Straw, B. & Cummings, L. (Eds.) Research in Organizational Behavior, vol. 8. JAI Press, Greenwich, CT, 53-111.

Table 1: A Sample of Trust Definitions

Definition of Trust	Source Citation
"Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another."	Rousseau, 1998, p. 395
"Trust is a psychological construct, the experience of which is the outcome of the interaction of people's values, attitudes, and moods and emotions."	Jones & George, 1998, p. 532
"An individual's reliance on another party under conditions of dependence and risk."	Currall & Judge, 1995, cited from Kim & Prabhakar, 2000, p. 537
Trust is the "expectation of regular, honest, and *cooperative* behavior based on commonly shared norms and values." [Emphasis added.]	Fukuyama, 1995, cited from Doney, Cannon & Mullen, 1998, p. 603
"Trust is the degree to which the trustor holds a positive attitude toward the trustee's goodwill and reliability in a risky exchange situation."	Das & Tang, 1998, p. 494
"Trust exists in an uncertain and risky environment; trust reflects an aspect of *predictability* – that is, it is an expectance." [Emphasis added.]	Bhattacharya, Devinney & Pillutla, 1998, p. 461
Trust is "one's expectations, assumptions, or beliefs about the likelihood that another's future actions will be beneficial, favourable, or at least not detrimental to one's interests."	Robinson, 1996, p. 576
Trust is "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, et al., 1995, p.712

Table 2: Categorizations and Types of Trust

Types of Trust		Definition
Common Research Approaches for Trust	Economics	e.g., economics-based trust (Williamson, 1993)
	Sociology	e.g., institution-based trust (Zucker, 1986)
	Psychology	e.g., personality-based trust (Rotter, 1967)
Bases for Trust	Deterrence-based trust (Shapiro, Sheppard, & Cheraskin, 1992)	Trust is derived through the presence of costly sanctions for opportunistic behaviour. Some contend that this is a form of control, not trust; however, others do as someone trusts an individual because of the presence of the sanctions. (Rousseau et al, 1998)
	Knowledge-based trust (Shapiro et al, 1992)	Trust is derived through getting to know the other individual, and being able to predict his/her behaviour.
	Identification-based trust (Shapiro, et al., 1992)	Trust is derived through empathy, and a sharing of common values (i.e., through identifying with the other individual).
	Cognition-based trust (Brewer, 1981)	Trust is derived through cognitive cues such as first impressions (Brewer, 1981)
	Relational trust (Rousseau, et al., 1998)	Trust is derived over time through information of trustee within the frame of the relationship (Rousseau, et al., 1998)
	Calculus-based trust	Trust is calculated on the basis of deterrents and intentions / competence (Rousseau, et al., 1998).
	Economics-based trust (Williamson, 1993)	Trust is derived from a rational decision based on costs and benefits (Kim & Prabhakar, 2000)
	Institution-based trust (Zucker, 1986)	Trust reflects the security felt due to guarantees, safety nets, or other structures (McKnight & Cummings, 1998)
	Personality-based trust (Rotter, 1967)	Propensity to trust; developed through childhood relations with caregivers. (Rotter, 1967)
Targets of Trust	Interpersonal trust	The "willingness of one person to increase his/her vulnerability to the actions of another person [e.g., Zand 1972]" (Aulakh, Kotabe & Sahay, 1996, p. 1007). Also defined as "generalized expectancy that the verbal statements of others can be relied upon" (Rotter, 1967, p. 651).
	Group trust (Rousseau, et al., 1998)	The willingness of one person to increase his/her vulnerability to the actions of a group of people.
	Organizational trust	"Organizational trust is a feeling of confidence and support in an employer… organizational trust refers to employee faith in corporate goal attainment and organizational leaders, and to the belief that ultimately, organizational action will prove beneficial for employees" (Gilbert & Li-Ping Tang, 1998, p. 322).
	Institutional trust	Institutional trust is a feeling of confidence and security in institutions (e.g., the law, organizations), that the laws, policies, regulations, etc. are to protect the individual's rights, and will not harm her/him.
	Trust in individuals	This is the same as interpersonal trust.
	Trust in firms	This is the same as organizational trust.
	Trust in institutions	This is the same as institutional trust.
Types of Trust (Morris & Moberg, 1994)	Personal	Trust is based on the person-to-person interaction; it is unique to each relationship. Violation of this trust is betrayal (Elangovan & Shapiro, 1998).
	Impersonal	Trust is based on the position within the organization, not the individual who fills the position. Violations of this trust are considered to be deviant, and are managed through formal reprimands and sanctions (Elangovan & Shapiro, 1998).

Table 3: Development of Trust

<table>
<tr><th colspan="2"></th><th colspan="2">Description</th></tr>
<tr><td rowspan="3">States of Trust (Jones & George, 1998)</td><td>Distrust</td><td colspan="2">Distrust is a difficult concept and its relation to trust is controversial within the literature. Two definitions are the following.
▪ Distrust and trust are of the same construct, which is the experience of trust (Jones & George, 1998). Distrust is, therefore, the lack of trust within a relationship (i.e., the lack of belief that a person is trustworthy, and the unwillingness to expose oneself to risk with respect to that individual).
▪ The other definition is that trust is a different construct of trust, and the two can coincide (Lewicki, McAllister & Bies, 1998). Distrust is characterized by: fear, scepticism, cynicism, wariness and watchfulness, and vigilance (Lewicki et al., 1998).</td></tr>
<tr><td>Conditional</td><td colspan="2">“Conditional trust is a state of trust in which both parties are willing to transact with each other, as long as each behaves appropriately, uses a similar interpretive scheme to define the situation, and can take the role of the other (Jones & George, 1998, p.536). This trust is based on knowledge of the other and expectations. This is a common trust within organizations.</td></tr>
<tr><td>Unconditional</td><td colspan="2">Unconditional trust is characterized by “individuals abandon[ing] the “pretense” [sic] of suspending belief, because shared values now structure the social situation and become the primary vehicle through which those individuals experience trust (Jones & George, 1998, p. 536). This trust can be identification-based trust, relational trust.</td></tr>
<tr><td rowspan="4">Determinants of Trust (Mishra & Morrisey, 1990) versus (Mayer et al., 1995)</td><td colspan="2">Open communication</td><td>Perceived trustee’s ability</td></tr>
<tr><td colspan="2">Inclusion in decision making</td><td>Perceived trustee’s benevolence</td></tr>
<tr><td colspan="2">Sharing critical information</td><td>Perceived trustee’s integrity</td></tr>
<tr><td colspan="2">Sharing of feelings and perceptions</td><td>Trustor’s propensity to trust</td></tr>
<tr><td rowspan="3">Determinants of Organizational Trust (Gilbert & Li-Ping Tang, 1998)</td><td colspan="3">Work group cohesion</td></tr>
<tr><td colspan="3">Friendship centrality</td></tr>
<tr><td colspan="3">Receiving information through social integration and mentoring</td></tr>
</table>

Table 4. Summary of Knowledge Classifications

Knowledge Classifications		Definition
Knowledge versus Data and Information	Data	Primary level, derived from transactions; building blocks for information (Davenport & Prusak, 1998).
	Information	Secondary level, derived from processing data or transforming knowledge into information. Information has meaning to the recipient (Davenport & Prusak, 1998).
	Knowledge	High level, derived from experience and processing information for example.
Levels of Knowledge	Knowledge as an object	Knowledge is an object that can be manipulated and transferred independent of people.
	Knowledge within an individual	Knowledge resides within an individual and is not always understood or even known by that individual.
	Knowledge within a group or community	Knowledge resides within a group or community through shared experiences, discussions, discoveries; it is not within one single individual.
	Knowledge within an organization	Knowledge resides within an organization through culture, processes, and experiences; it is not within one single individual or group.
	Public Knowledge	Knowledge resides within the public, it is well known to everyone; it is not knowledge that resides with one individual organization, group or individual.
Types of Knowledge	Explicit Knowledge	Explicit knowledge is easily coded (e.g., documented, identified, articulated). Some argue that explicit knowledge does not exist independently of tacit knowledge; others argue that explicit knowledge, independent of tacit knowledge, is simply information.
	Tacit Knowledge	Tacit knowledge is extremely difficult to code (e.g., identify, articulate, document). Some consider this true knowledge and tacit knowledge may not be fully known by the individual who has the tacit knowledge.
Knowledge Processes I	Externalization	The translation of tacit knowledge into explicit knowledge.
	Internalization	The translation of explicit knowledge into tacit knowledge.
	Combination	The creation of new explicit knowledge through combining existing explicit knowledge.
	Socialization	The transfer of tacit knowledge through mentoring (for example).
Knowledge Processes II (i.e., Business Processes)	Knowledge Generation	The creation of new knowledge, either through creating it in-house, or through acquiring it from external sources.
	Knowledge Codification	The codification of knowledge into diagrams, documents, knowledge maps, etc.
	Knowledge Transfer	The sharing of knowledge between one individual to another (or between groups, etc).
	Knowledge Use	The application of knowledge to business practices (e.g., problem solving).
Knowledge Management Business Practices	KM Systems	Information systems and technology to assist in the codification and transfer of knowledge. Examples are: intranets, Lotus Notes, document management systems, knowledge maps, executive support systems, artificial intelligence, neural nets.
	Documentation	Organizational documents assist in the codification and transfer of knowledge.
	Communities of practice	Communities of practice are groups (communities) of professionals or individuals with the same interest and goals. They are volunteer based communities in which knowledge is created, and transferred.
	Mentoring	Mentoring is a practice, which is best for the transfer of knowledge from an expert to a novice individual, through illustration, instruction, and active learning.
	Storytelling	Storytelling is a practice in which tacit knowledge is transferred through its illustration in context-rich stories.
	Serendipitous / Water cooler discussions	This is the business practice in which knowledge is created, and transferred through accidents / casual conversations between individuals.

Table 5: Summary of Propositions

Knowledge Process	Proposed Associated Trust(s)
Generation: Creation	*Proposition 1a:* For individual generated knowledge: the presence of organizational trust, which is either deterrence-based or institution-based trust, will be associated with more knowledge creation than with no trust at all. *Proposition 1b*: For individual generated knowledge: the presence of interpersonal trust with the supervisor, which is either deterrence-based, institution-based or knowledge-based trust, will be associated with more knowledge creation than with no trust at all. *Proposition 2a:* For group-generated knowledge: the presence of organizational trust, which is institution-based trust, will be associated with more knowledge creation, than if there is no trust present. *Proposition 2b:*For group-generated knowledge: the presence of trust in the group will be associated with more knowledge creation, than if there was simply organizational trust, or no trust present. *Proposition 2c:* For group-generated knowledge: the presence of interpersonal trust, which is identification-based or relational trust, will be associated with more knowledge creation than if there was simply group trust, organizational trust, or no trust present.
Generation: Acquisition	*Proposition 3a:*For knowledge acquisition, the presence of personal trust will be associated with more knowledge acquired than without personal trust. *Proposition 3b:* For knowledge acquisition: the presence of interpersonal trust, which is either knowledge-based, competency, relational, cognition-based, or identification-based trust, will be associated with more knowledge acquired than without the presence of interpersonal trust.
Codification	*Proposition 4a:* The presence of impersonal trust of the data quality, which is trust in the system, will be associated with more knowledge codification. *Proposition 4b:* The presence of organizational trust will be associated with more knowledge codification than if there was no organizational trust. *Proposition 4c:* For knowledge maps: the use of pictures or videos in the knowledge maps increases interpersonal trust.
Transfer	*Proposition 5a:*For conditions of little or no interpersonal trust: the presence of organizational trust, which is institution-based trust, will be associated with more knowledge transfer. *Proposition 5b:* For conditions of little or no sanctions or policies: the presence of interpersonal trust, which is knowledge-based, identification-based or relational trust, will be associated with more knowledge transfer. *Proposition 5c:* For conditions of distrust: knowledge transfer will be blocked and will fail due to fear, cynicism and wariness. *Proposition 5d:* A company in which there is strong organizational trust and interpersonal trust present will have more knowledge transfer than in any of the above conditions. *Proposition 5e:* The presence of knowledge transference will lead to an increase in interpersonal trust between the individuals of the organization; thus leading to more knowledge transfer. *Proposition 5f:* The presence of distrust will be associated with knowledge blocks and failure in knowledge management if prevalent within an organization.
Application	*Proposition 6a:*The presence of organizational trust, which is institution-based trust, will be associated with higher knowledge use and application. *Proposition 6b:* The presence of interpersonal trust with the supervisor, with could be deterrence-based, institution-based or knowledge-based trust, will be associated with higher knowledge use and application than without it.