

# Inter-organisational Knowledge Transfer Strategies For SMEs

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Inter-organisational knowledge transfer is very important for SMEs. However, compared to knowledge transfer within an organisation, its ‘boundary paradox’ makes its process more complicated and difficult to understand. In order to solve the ‘paradox’, inter-organisational knowledge transfer strategies need to be developed for SMEs. Through a review of the literature on knowledge transfer, this paper proposes an inter-organisational knowledge transfer process model that contains four stages (initiation, selection, interaction and conversion). It classifies three situations in which an SME exchanges knowledge with a customer (whether a larger company or an SME). It then applies a co-ordinating mechanism to analyse knowledge transfer strategies for the SME when it is a knowledge-giving firm and knowledge-receiving firm respectively, in the different stages of each situation.

Keywords: strategies, knowledge transfer, inter-organisation, SMEs

## Introduction

The importance of inter-organisational knowledge transfer for SMEs is demonstrated by several studies (Sparrow, 2000; Duan *et al.*, 2001). However, inter-organisational knowledge transfer also poses a ‘boundary paradox’ to the SME. That is, its borders must be open to flows of information and knowledge from the networks and markets in which it operates, but, at the same time, the SME must protect and nurture its own knowledge base and intellectual capital (Quintas *et al.*, 1997; Beeby and Booth, 2000; Chen *et al.*, 2002; Mohr and Sengupta, 2002). In other words, there is a ‘knowledge-sharing’ versus ‘knowledge-security’ trade-off that has to be resolved by appropriate strategies.

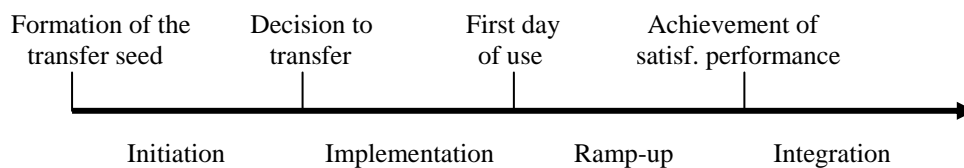
Increasing attention (Von Hippel, 1987; Carter, 1989; Albino *et al.*, 1999; Dyer and Nobeoka, 2000; Parker and Vaidya, 2001; Grundmann, 2001; Chen *et al.*, 2002) has been paid to this strategic issue. However, only a few studies (Schrader, 1991; McEvily *et al.*, 2000; Mohr and Sengupta, 2002) explicitly discuss strategies. McEvily *et al.* (2000) propose knowledge transfer strategies that suggest firms use their marketing powers or superior business performance to prevent their competitive advantage from being substituted by other firms. Assuming that employees trade information (or know-how) in accordance with the economic interests of their firms, Schrader (1991) analyses strategies for the employees on their decision whether to transfer information (or know-how) to counterparts from other firms. Mohr and Sengupta (2002) argue that “Prior research has not explicitly addressed the paradox inherent in inter-firm learning”, thus highlighting the role of firms’ governance mechanisms in dealing with the ‘paradox’ of inter-firm learning, and further propose some governance strategies for different situations. Obviously, McEvily *et al.*’s (2000) strategies may not be suitable for SMEs because of their limited market power and expertise. The strategies proposed by Mohr and Sengupta (2002) are not exclusively developed for SMEs either. The literature on informal knowledge trading (Schrader, 1991; Von Hippel, 1987; Carter, 1989) focuses on studying knowledge transfer through employees’ private relationship networks, without company management’s involvement, and “the authors tend to assume that only direct solutions to specific problems are sought through these channels” (McEvily *et al.*, 2000). So, inter-organisational knowledge transfer strategies for SMEs largely have been

neglected. Furthermore, inter-firm knowledge transfer strategies are “more complex than those envisioned in a simple, two-party Prisoner’s Dilemma,” and have “multiple layers of trading incentives and strategies active in a single trading entity as well” (Von Hippel, 1987). Mohr and Sengupta (2002) also argue that: “There may be subtle but important differences in learning from a partner compared to teaching a partner. Similarly, there may be value in exploring issues – about how to learn from a partner as well as teaching a partner how to learn.” Accordingly, this paper will try to address possible strategies for SMEs at two levels (i.e., inter-organisational layer and inter-employee layer) and from two perspectives (i.e., how to learn from a partner, and teaching a partner how to learn).

## Overview of Knowledge Transfer

Knowledge transfer implies that, knowledge is transferred from the sender(s) (person, or group, or team, or organisation) to the recipient(s) (person, or group, or team, or organisation) (Chen *et al.*, 2002; Lind and Seigerroth, 2000; Lind and Persborn, 2000; Bender and Fish, 2000; Albino *et al.*, 1999).

Knowledge transfer is often found to be laborious, time consuming and difficult, however, the difficulty experienced in the process of knowledge transfer has received little systematic attention (Szulanski, 2000; Huber, 2001). Szulanski (2000) argues that knowledge transfer is a process in which ‘difficulty’ should be seen as its characteristic feature; this process view may help organisations incorporate difficulty in the analysis of knowledge transfer. He further proposes a process model for intra-organisational knowledge transfer which contains four stages – initiation, implementation, ramp-up and integration (see Figure 1).



**Figure 1** The process for knowledge transfer within an organisation (Szulanski, 2000)

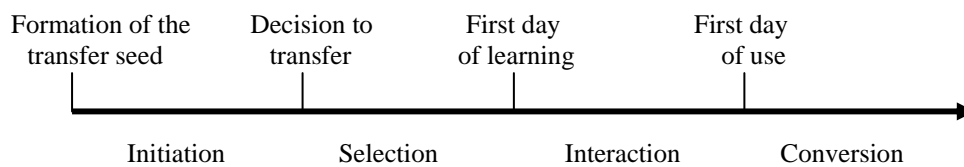
In the *initiation* stage, the effort aims to find an opportunity to transfer and to decide whether to pursue it. An opportunity to transfer exists as soon as the seed for that transfer is formed, i.e., as soon as a gap is found within the organisation and the knowledge to address the gap is thought to be available. In the *implementation* stage, following the decision to transfer knowledge, attention shifts to the exchange of information and resources between the source and the recipient, i.e., “learning before doing” for the recipient. In the *ramp-up* stage, the recipient begins using acquired knowledge, and tries to ‘ramp-up’ to satisfactory performance, i.e., “learning by doing” for the recipient. In the *integration* stage, the recipient takes subsequent follow-through and evaluation efforts to integrate the practice with other practices. Szulanski analyses the transfer difficulties in each stage of this process.

Although the process model outlined above describes the knowledge transfer process within an organisation, not the inter-organisational knowledge transfer process, it demonstrates that the process view does help organisations gain a better understanding of the complexities and difficulties in knowledge transfer. So, this paper will use the same view to propose a process model for inter-organisational knowledge transfer because knowledge transfer between organisations is much more complicated than within an organisation (Chen *et al.*, 2002). The specific difference is that, within an organisation, the organisation should try to expand the

amount of shared knowledge among its employees to an appropriate level (or to the highest level possible), so as to develop (or preserve) its competitive advantage (Lind and Seigerroth, 2000; Chen *et al.*, 2002). However, between organisations, the organisations have to face ‘the boundary paradox’, more complicated factors will impinge on the transaction, more strict governance mechanisms are required to regulate the transfer content, and much higher loyalty requirements will be placed on relevant employees.

Von Hippel (1987) classifies know-how trading into two routines: informal and formal, and provides a definition for the former but not the latter. Informal inter-organisational knowledge transfer has received somewhat more attention in the literature (Schrader, 1991; Carter, 1989). This paper will focus on **formal inter-organisational knowledge transfer**. Based on Von Hippel’s definition, formal inter-organisational knowledge transfer might be defined as: for their own organisational business, employees from different organisations exchange knowledge mainly through formal, organisational channels. Sometimes the formal way may be converted into or embrace informal transfer. For instance, if employee A acquires some knowledge from employee B in another firm through formal connections, their subsequent friendship might encourage subsequent informal exchange. It may therefore be difficult to make a clear-cut distinction between the two transfer forms.

Chen *et al.* (2002) suggest that the formal inter-organisational knowledge transfer process can be divided into two sub-processes: 1) inter-employee learning between employees from different organisations; 2) once the receiving employee acquires the needed knowledge, the individual learning will be converted into organisational learning through organisational internal mechanisms. Drawing on Szulanski’s (2000) process model (Figure 1), a similar four-stage model is offered (see Figure 2). The first sub-process is further divided into three stages: initiation, selection and interaction; the second sub-process is called conversion.



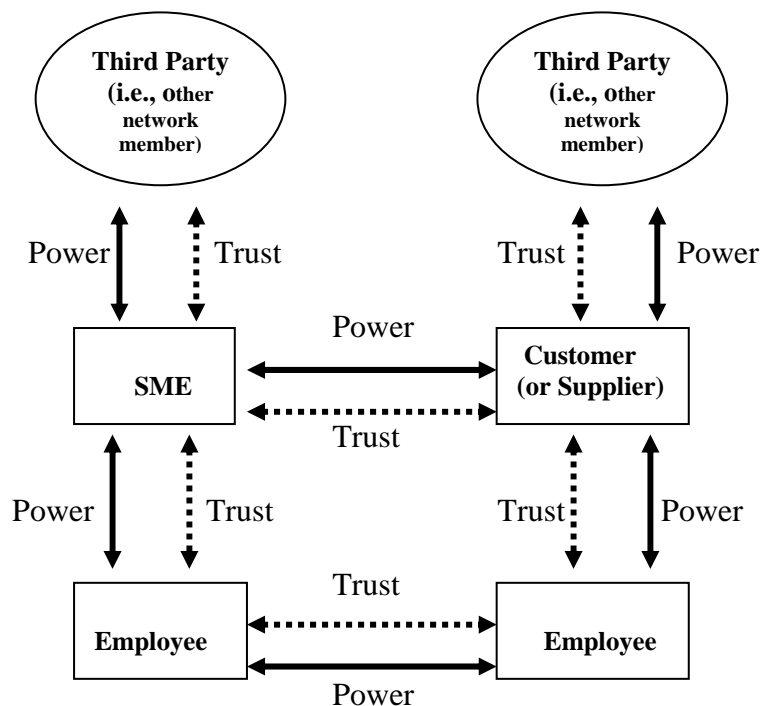
**Figure 2 The process for formal inter-organisational knowledge transfer**

In the **initiation** stage, two organisations try to find an opportunity to transfer and to decide whether to pursue it through negotiation. In the **selection** stage, the receiving and giving organisations select an employee as a receiving and giving employee respectively (more than one employee may be involved, of course, in either organisation). In the **interaction** stage, the giving employee transfers his knowledge to the receiving employee. In the **conversion** stage, the receiving employee transfers his acquired knowledge to his employer – the receiving organisation. The conversion stage is only related to the receiving organisation and receiving employee.

The relationship between the formal inter-organisational knowledge transfer process model and Szulanski’s (2000) process model may be seen as follows: 1) The initiation and interaction stages of the former are similar to the initiation and implementation stages of the latter. 2) In the conversion stage of the former, the receiving employee plays two roles: firstly, he is a recipient, will apply his acquired knowledge to his work, and have to experience the ramp-up and integration stages; secondly, he is also a source for his organisation – his colleagues may learn from him, completing the whole transfer process within an organisation.

So, the conversion stage contains the ramp-up and integration stages, as well as the whole transfer process within an organisation.

Through analysing the factors influencing formal inter-organisational knowledge transfer by means of social network theory, Chen *et al* (2002) suggest that there is a co-ordinating mechanism that exists in the transfer. They apply this mechanism to knowledge transfer between an SME and its customer (or supplier) (see Figure 3). The SME may be a receiving organisation or giving organisation. It is inevitable that a social actor who decides to trust another actor extrapolates on limited available information about the future behaviour of this actor, which has some risks (Bachmann, 1999). Power is the ability to influence people. It is the ability to get someone to do or not to do something, to persuade or dissuade (Zand, 1997). The relationship between trust and power is complex. On the one hand, they can be seen as alternative and compatible means – which do not exclude each other but occur in combination in many cases – to fulfil the same social function. On the other hand, power often appears as a precondition rather than an alternative to trust, and can foster the constitution of trust and minimise the risk of trust (Bachmann, 1999). Since trust and power both have drawbacks if used alone, a combination often seems to be the only way to ensure that the co-ordination of expectations and interactions is achieved satisfactorily. In fact most relationships are usually based on a mixture of both trust and power (Bachmann, 1999).



**Figure 3 The co-ordinating mechanism for inter-organisational knowledge transfer**

The co-ordinating mechanism can be used to help an SME to develop its strategies for each stage of the formal process model. However, because the conversion stage is actually involved in knowledge transfer within an organisation – relatively the subject of considerable attention in the literature – (e.g., Szulanski (2000), Goh (2002), Argyris and Schon (1996), Dodgson (1993) and Cohen *et al.* (1990)), this paper focuses on the first three stages, and uses the mechanism to analyse the strategies for an SME when it is a receiving firm or giving firm in the context of a supply chain.

## Strategies for Inter-organisational Knowledge Transfer for SMEs

### *Strategies When an SME is a Giving Firm*

If an SME holds some knowledge in the context of a supply chain, it may give the knowledge to its customers or suppliers. Using customers as the example, the SME may face the three situations shown in Table 1.

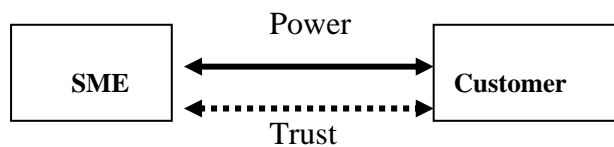
**Table 1. The Situations and Corresponding Strategies When an SME Is a Giving Firm**

Situation No	Situations	Strategies
1	Both the SME and its customer want the knowledge transaction on the basis of reciprocation.	Propositions 1, 2, 3, 4, 5, 6a, 6b, 7a, 7b, 8a, 8b.
2	The SME does not want to contribute the knowledge, but its customer may use power (e.g., market power) to force its contribution.	Propositions 1, 2, 3, 4, 5, 7a, 7b, 8a, 8b. Propositions 6a and 6b may not be suitable for this situation.
3	Both the SME and customer want the knowledge transaction, but customer <sup>C</sup> (i.e., another customer) uses power (especially market power) to threaten the SME.	Propositions 1, 2, 3, 4, 5, 6a, 6b, 7a, 7b, 8a, 8b, 9a, 9b, 9c.

#### *Situation 1: Reciprocation (as Giver)*

In this situation, both the SME and its customer want the knowledge transaction on the basis of reciprocation. The strategies for the SME in each stage are analysed, by means of the co-ordinating mechanism, as follows.

**In the initiation stage**, the SME is identified by its customer as an external knowledge source. Both sides will negotiate to decide whether to pursue the knowledge transfer. The relevant actors are the SME and customer. So, the co-ordinating mechanism may be simplified as the following figure 4.



**Figure 4 The relevant actors and their relationships in the initiation stage**

From Figure 4, it may be suggested that the SME and customer are connected through the extent of power (e.g., business dependence) and trust between them. The SME will analyse various factors that affect its costs and benefits according to their relationship.

The costs may be influenced by the following factors:

#### **(1) The importance of the knowledge for the SME**

Although the customer is not a competitor for the SME, and the transaction will not directly damage the SME's competitive advantages, the SME may still face a risk that the customer may give the knowledge to other companies (especially the SME's competitors). The SME will therefore refuse to give the knowledge to other companies no matter who they are if the knowledge is vital to its own business (Shrader, 1991).

***Proposition 1: the more important the knowledge is for the SME, the less likely it is that it will give the knowledge to its customer.***

**(2) Availability of alternative knowledge sources**

If the customer could acquire the knowledge from other external sources or develop the knowledge by itself without great effort and difficulty (Schrader, 1991), the SME, as a knowledge source, has not much advantage over other companies, may not treat the knowledge as important, and may feel that it does not lose much if the knowledge is transferred. Conversely, the relationship may be adversely influenced if the SME does not agree to the transaction.

***Proposition 2: the more likely it is that a customer can acquire the knowledge from other external sources or develop it by itself without great effort and difficulty, the more likely it is that the SME will give the knowledge to that customer.***

**(3) The SME's business dependence on the customer**

If the SME's business is highly dependent upon the customer, the former will attach much importance to meeting the latter's requirements. Otherwise, its business will be heavily damaged. Therefore, when the customer requests the SME to offer some knowledge, a proposition may be described as follows:

***Proposition 3: the more the SME's business depends on the customer, the more likely the SME will be to give the knowledge to the customer.***

The benefits may be influenced by the following factors:

Schrader (1991) points out that: "transferring information is part of exchange relationships grounded in reciprocity. In exchange relationships, providing another party with a favour obliges that party to reciprocate in order to maintain the balance of benefits and contributions, even without an explicit agreement." Based on this concept of reciprocity, the SME may expect some important benefits from the customer if it offers some important knowledge to it. In order to make sure the reciprocity occurs, the SME may consider the following risks:

**(4) The ability of the customer to provide reciprocal benefit**

When a receiving firm acquires the needed knowledge from the giving firm, it may provide other knowledge or payment to compensate the giving firm at that time or in the future. However, if the receiving firm has no or limited ability to reciprocate, the latter may face some risk of losing the expected benefits (Schrader, 1991; Von Hippel, 1987). Thus, the SME may assess the customer's ability to reciprocate before it agrees to the transaction; if the ability is poor, it may abandon the transaction.

***Proposition 4: the higher the ability of the customer to reciprocate, the more likely the SME is to provide the knowledge.***

**(5) The trust between the SME and customer**

The SME may face the risks of losing some benefits because some of the expected benefits of the knowledge transfer have to be received in the future (Schrader, 1991). In order to minimise these risks, the SME will prefer to deal only with a trustworthy customer. This judgement may be based on previous co-operation and the customer's previous behaviour. If they trust each other, the SME may feel confident in receiving the expected benefits from the customer, otherwise, the SME may prefer to avoid the transaction.

***Proposition 5: the higher the trust between the SME and a customer, the more likely the SME is to agree to the knowledge transaction.***

The SME will negotiate with the customer, then consider the latter's responses and select one of the possible solutions to acquire maximum anticipated benefits or minimum anticipated costs. Appleyard (1996) argues that knowledge transfer is undertaken by firms which process knowledge on the basis of anticipated costs and benefits, so that even rivals would share their knowledge if the benefits are larger than the costs. If the argument is extended to a third party, the following formula is suggested:

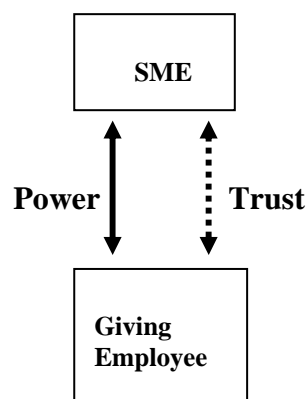
$$\text{Anticipated benefits} - \text{anticipated costs} + \text{anticipated benefits from a third party} - \text{anticipated costs from the third party} \geq \text{minimum benefits that the firm feels to be acceptable.}$$

(for the transfer to go ahead)

The SME will use the formula to check if the knowledge transaction is acceptable. However, the formula is only a necessary condition for it to reach the deal. There are two kinds of uncertainties: 1) the values of the anticipated costs and benefits are estimated, so it is unknown to what extent the estimated values are close to their true values; 2) it is also unknown if the anticipated costs and benefits will actually appear at all. There are, therefore, risks. The SME must find good reasons to convince itself that the relevant partners will behave as it expects. In other words, it must trust the partners' future behaviour.

The receiving firm (i.e. the customer) will make a similar cost and benefit analysis. If either party of the two feels that the transaction is unacceptable, the transaction will fail.

**In the selection stage.** Once the SME and customer reach a deal, the SME will use its power to select one (or more) employee (s) to do the specific work related to the transfer. From the SME's perspective, the actors are the SME and its giving employee. The co-ordinating mechanism can be simplified as in Figure 5.



**Figure 5 The SME (giving firm) and its giving employee in the selection stage**

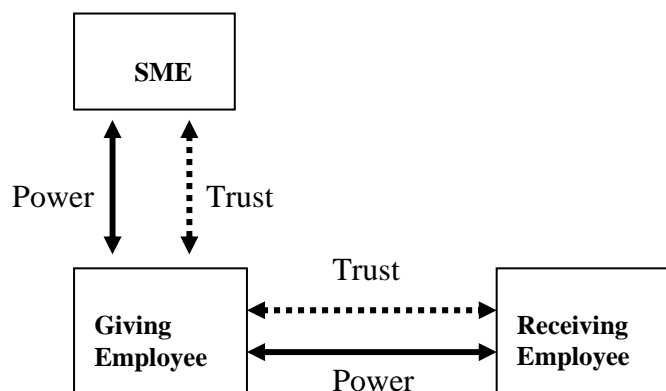
The giving employee is a key person in the knowledge transfer between the SME and the customer. His or her prior experience in the area of the transferred knowledge and expressiveness will heavily influence the knowledge transfer effectiveness (Cohen *et al*, 1990; Chen *et al*, 2002). However, this does not mean that the SME should use the most skilled negotiator as a giving employee for every knowledge transaction with the customer no matter what the transferred knowledge is. Some knowledge is easily transferred, or not high in value to the customer, and the SME will not receive highly valuable reciprocation. But if the knowledge is difficult to transfer, or of high value for the customer, the SME may arrange a

well-qualified employee to transfer the knowledge to ensure successful transfer and appropriate reciprocity. Whomever is used, however, they must be able to follow instructions be reliable, and, above all, trustworthy.

**Proposition 6a:** *the more difficult the knowledge is to be transferred, the more likely the SME is to select a giving employee who is trustworthy, and has good prior experience and expressiveness.*

**Proposition 6b:** *the higher the value of the transferred knowledge, the more likely the SME is to select a giving employee who is trustworthy, and has good prior experience and expressiveness.*

**In the interaction stage**, the giving employee will transfer the knowledge to the receiving employee from the customer, and mainly interact with his or her employer (i.e., the SME) and the receiving employee. The co-ordinating mechanism can be simplified as in figure 6.



**Figure 6** The relevant actors and their interactions in the interaction stage

Figure 6 shows that the giving employee's behaviours are influenced by both power and trust from the SME and receiving employee. If the SME's influence is weaker than the receiving employee, the giving employee may transfer knowledge as the receiving employee wants, not as the SME wants. In order to increase its influence on the giving employee, the SME may set up its strategies based on the following points:

**(1) The duration of the transfer**

If the duration of the transfer is sufficiently long, the giving employee may build up a close inter-personal relationship with the receiving employee even if they did not know each other before (Mohr and Sengupta, 2002). Some important knowledge may be transferred through their personal relationship network. If the giving employee does not behave as the SME wishes, unrestrained knowledge transfer may happen, and the SME may face the risk of competitive backlash. So a strict governance mechanism (e.g., contract to limit the giving employee's behaviour) should be imposed by the SME.

However, as knowledge (especially tacit knowledge) is difficult to find and difficult to audit, the SME cannot readily monitor the giving employee's behaviour. Secondly, it is difficult to precisely define or detail in contracts (or blueprints, patents and scientific text) the knowledge to be transferred. Property rights in knowledge are also narrowly defined (Parker and Vaidya, 2001; Liebeskind, 1996). Thus the SME must use a reliable employee as the giving employee who can carry out the knowledge transfer tasks in accordance with the economic interests of the SME. Secondly, the SME should build up its own corporate culture to enhance



employees' loyalty, and employ other motivation mechanisms to induce desirable knowledge transfer behaviour.

***Proposition 7a: in order to prevent the leakage of valuable knowledge, the longer the duration of the transfer, the stricter governance mechanism the SME should have.***

***Proposition 7b: in order to prevent the leakage of valuable knowledge, the longer the duration of the transfer, the more reliable giving employee and more effective corporate culture based on trust are needed.***

## **(2) Difficulty of the transfer**

Tacit knowledge is less transparent than explicit knowledge, and also more difficult to transfer than the latter. Its transfer normally requires that the receiving employee interact intensively with the giving employee face-to-face. Both sides are therefore more likely to establish a close personal relationship (Mohr and Sengupta, 2002). Therefore, another proposition may be described as follows:

***Proposition 8a: in order to prevent the leakage of valuable knowledge, the more difficult the knowledge is to be transferred, the stricter governance mechanism the SME should have.***

***Proposition 8b: in order to prevent the leakage of valuable knowledge, the more difficult the knowledge is to be transferred, the more reliable giving employee and more effective corporate culture based on trust are needed.***

### *Situation 2: the Reluctant Giver*

In situation 2, the SME does not want to contribute the knowledge, but its customer may use power (e.g. market power) to force its contribution. The difference between this and situation 1 is that the SME is unwilling to transfer the knowledge. This may make the SME have different strategies in selecting a giving employee. If the knowledge is easily transferred, or not high of value, the SME may allow matter to proceed. But if the knowledge is difficult to transfer, or high of value, the selection of the giving employee for the SME will be influenced by its reluctance to part with the knowledge. It is open to doubt that the SME would like to select a well-qualified employee as a giving employee. So, propositions 6a and 6b may not apply in this situation.

Other strategies for situation 2 are the same as those of situation 1 because the SME may experience similar problems in the two situations.

### *Situation 3: Third Party Interference (with Giving)*

In situation 3, both the SME and customer want the knowledge transaction, but customer<sup>C</sup> (i.e., another customer) wants to use its relationship (i.e., power – especially market power – and the extent of the trust with the SME) with the SME to stop the knowledge transaction. The co-ordinating mechanism for the initiation stage can be simplified as in figure 7.

Generally speaking, although customer and customer<sup>C</sup> are competitors, this does not mean that they will compete on every dimension of their business. If the transferred knowledge relates to a non-competitive dimension of their businesses, customer<sup>C</sup> may not threaten the knowledge transaction. Where the two customers compete, however, the SME will compare the influences from both customer and customer<sup>C</sup>, and make a choice between them. The propositions for the customer in situation 1 are still appropriate to the customer in situation 3. However, if the SME does as customer<sup>C</sup> wants, and gives up the knowledge transaction with the other customer, it may expect some benefits from customer<sup>C</sup> to compensate the losses caused by the abandonment of the transfer. In order to make sure the expected benefits

materialise, it will assess customer<sup>C</sup>'s ability to reciprocate, its business dependence and the extent of trust. For instance, if customer<sup>C</sup>'s ability to reciprocate is very strong, it is more likely that the SME will receive the expected benefits from customer<sup>C</sup>, and so it will choose to stop the knowledge transaction. Similar analyses can be made for both business dependence and trust.

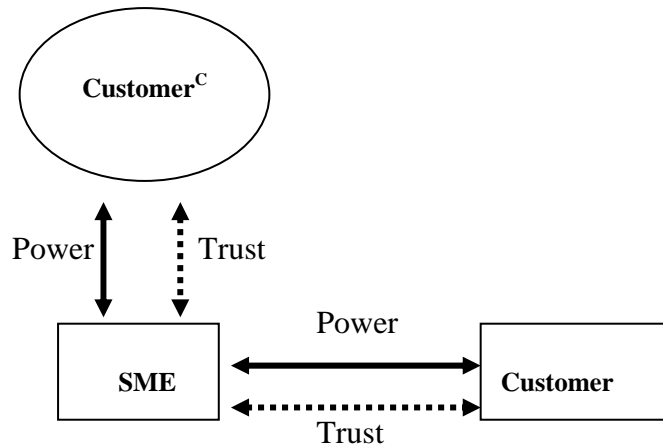


Figure 7 The relevant actors and their relationships in the initiation stage of the situation 3

**Proposition 9a:** *the higher the ability of customer<sup>C</sup> to reciprocate, the more likely the SME is to stop the transaction.*

**Proposition 9b:** *the higher the trust between the SME and customer<sup>C</sup>, the more likely the SME is to stop the transaction.*

**Proposition 9c:** *the more the SME's business dependence on the customer<sup>C</sup>, the more likely the SME is to stop the transaction.*

#### **Strategies When an SME is a Receiving Firm**

When an SME is in the position of the receiving firm, there are again three situations as shown in Table 2.

Table 2. The Situations and Corresponding Strategies When an SME Is an Receiving Firm

Situation No	Situations	Strategies
4	Both the SME and its customer want the knowledge transaction on the basis of reciprocation.	Propositions 10a, 10b, 11a, 11b.
5	The SME forces its customer to contribute some knowledge.	Same as situation 4. However, the SME should properly mitigate the tense relationship with the customer, and pay attention to the latter's covert behaviours against the transfer.
6	Both the SME and its customer want the knowledge transaction on the basis of reciprocation, but the SME <sup>C</sup> (i.e., the SME's competitor) uses power (especially market power) to threaten the giving firm (i.e., the customer).	Same as situation 4. But the SME should wisely give up the transaction if the SME <sup>C</sup> 's influence on the customer is much stronger than it, or it may secretly try to do the transaction with other external knowledge sources.

#### **Situation 4: Reciprocation (as Receiver)**

In situation 4, both the SME and its customer want the knowledge transaction on the basis of reciprocation.

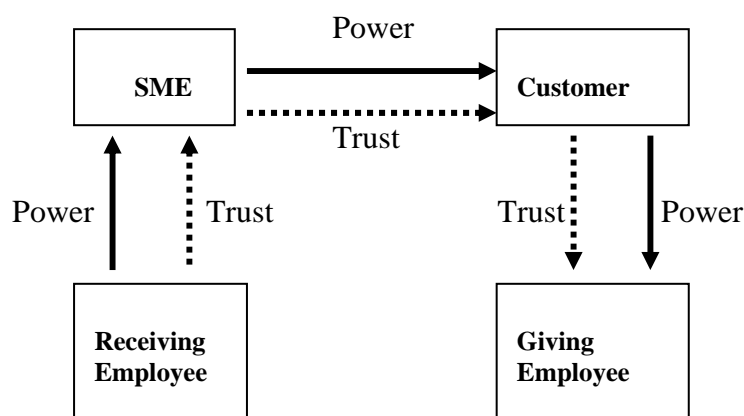
**In the initiation stage**, assuming that a customer has a solution that the SME wants to have to deal with its internal problem, both sides will negotiate on the knowledge transaction. The customer, as a giving firm, may expect some benefits and costs based on the previous propositions for a knowledge-giving firm in the initiation stage. To have more chance to acquire the needed knowledge, the SME is suggested to do as follows:

- Identify alternative knowledge sources as much as possible;
- Avoid pursuing a knowledge transaction that costs much more than its ability to reciprocate;
- Pay attention to its behaviour and co-operation with the customer;
- Pursue the establishment of a trusting relationship with the customer;
- Try to enhance its business connections with the customer.

**In the selection stage**, the SME will select one employee (maybe several) as a receiving employee to acquire the needed knowledge from the giving firm (i.e., the customer). The difference between the selection of a receiving employee and a giving employee is that in this case absorptive ability is required (Cohen *et al.*, 1990; Chen *et al.*, 2002; Mohr and Sengupta, 2002). Furthermore, the SME may positively try to acquire more knowledge than the customer wants to offer. However, the customer intuitively wants to protect its knowledge from diffusion, and only hopes to contribute what it wants to transfer. But the knowledge transfer task is eventually carried out by the giving employee. His personal objectives may not be in accordance with the economic interests of his employer. So, opportunities for the SME to acquire extra, high-value knowledge lie with the giving employee. Therefore the receiving employee is required to reliably do what the SME wants, and be skilled in social interaction with the giving employee.

**Proposition 10a:** *the more important the transferred knowledge is, the more likely the SME is to select a receiving employee who is trustworthy, good in both prior experience and absorptive ability, and skilled in social interaction.*

**Proposition 10b:** *the more difficult the knowledge is to transfer, the more likely the SME is to select a receiving employee who is trustworthy, good in both prior experience and absorptive ability, and skilled in social interaction.*



**Figure 8** The Channels for the Receiving Employee to Influence the Giving Employee's Behaviour

**In the interaction stage**, the receiving employee will learn from the giving employee. The giving employee's openness will directly influence the transfer effectiveness (Cohen *et al.*, 1990; Chen *et al.*, 2002; Mohr and Sengupta, 2002). If the receiving employee wants to force the giving employee to raise his openness level, the receiving employee (see Figure 8) has to

go through the SME to ask the customer to exert powerful influence on the giving employee because the receiving employee has little personal power to influence the giving employee's behaviour. The customer may positively respond to the appeal, but the giving employee still has many opportunities to make trouble for the giving employee if he is not replaced, because knowledge (especially tacit knowledge) transfer is difficult to audit. So, it is wise for the giving employee to try his best to build up good relationship with the giving employee, and win his trust (at least, not disliked by him) so that the giving employee could raise his openness level and codification level to his knowledge.

***Proposition 11a: the longer the duration of the transfer is, the more important it is for the receiving employee to establish a strong relationship with the giving employee.***

***Proposition 11b: the more difficult the knowledge to be transferred, the more important it is for the receiving employee to establish a strong relationship with the giving employee.***

#### *Situation 5: the Forceful Recipient*

In situation 5, the SME forces its customer to contribute some knowledge. The strategies for the SME are similar to those of situation 4, however, the SME should properly mitigate the tense relationship with the customer, and pay attention to the latter's covert behaviours against the transfer.

#### *Situation 6: Third Party Influence (with Receiving)*

In situation 6, both the SME and its customer want the knowledge transaction on the basis of reciprocation, but the SME<sup>C</sup> (i.e., the SME's competitor) uses power (especially market power) to threaten the giving firm (i.e., the customer). The strategies for the SME are also similar to those of situation 4, but the SME would be wise to give up the transaction if the SME<sup>C</sup>'s influence on the customer is much stronger than it, or it may secretly try to do the transaction with other external knowledge sources.

### **Summary and future work**

The foregoing theoretical discussions have covered the following points:

- A formal inter-organisational knowledge transfer process, based on the 'process view' advocated by Szulanski (2000), has been proposed. It may help organisations to gain a better understanding of the complexities and difficulties in inter-organisational knowledge transfer, and the relationship between knowledge transfer within and between organisations.
- A co-ordinating mechanism has been presented to help organisations to identify the main influencing factors when they exchange knowledge with their customers (or suppliers), and develop relevant strategies.
- Six different situations in which an SME exchanges knowledge with a customer are classified. Eleven propositions relating to possible strategies for SMEs are suggested.

The validity of the propositions needs to be evaluated empirically. The specific work is planned as follows:

- 100 sample SMEs will be selected from the Fame Database, and their managers will be interviewed by telephone using a questionnaire designed to evaluate the validity of the propositions.

### **References**

- Albino, V., Garavelli, A. C. and Schiuma, G. (1999), "Knowledge transfer and inter-firm relationships in industrial districts: the role of the leader firm", *Technovation*, Vol.19, pp.53-63.
- Appleyard, M. M. (1996), "How Does Knowledge Flow? Interfirm Patterns in the Semiconductor Industry", *Strategic Management Journal*, Vol.17 (Winter Special Issue), pp.137-154.
- Argyris, C. and Schon, D. A. (1996), *Organisational Learning II ---- Theory, Method, and Practice*, Addison – Wesley Publishing Company, ISBN 0-201-62983-6.
- Bachmann, R. (1999), "Trust, power and control in trans-organisational relations," Working paper (WP129), June 1999, ESRC Centre for Business Research, University of Cambridge.
- Beeby, M. and Booth, C. (2000), "Networks and inter-organisational learning: a critical review", *The Learning Organisation*, Vol.7 Issue 2.
- Bender, S. and Fish, A. (2000), "The transfer of knowledge and the retention of expertise: the continuing need for global assignments", *Journal of Knowledge Management*, Vol.4 No.2.
- Carter, A. P. (1989), "Knowhow trading as economic exchange", Issue 18, pp.155 - 163.
- Chen, S., Duan, Y. and Edwards, J. S. (2002), "Towards An Inter-organisational Knowledge Transfer Framework for SMEs", *The Proceeding of The Third European Conference on Knowledge Management*, 24 - 25 September, Dublin.
- Cohen, W. M. and Levinthal, D. A. (1990), "Absorptive Capacity: A New Perspective on Learning and Innovation", *Administrative Science Quarterly*, vol.35, pp.128-152.
- Dodgson, M. (1993), "Organisational Learning: A Review of Some Literatures," *Organisation Studies*, Vol.14 No.3, pp.375-394.
- Duan, Y., Mullins, R. and Hamblin, D. (2001), "Training for E-commerce Success in SMEs", in book ---- *Information Technologies in SMEs: Challenges and Solutions*, (in press, edited by) Stephen Burgess, Idea Group Publisher.
- Dyer, J. H. and Nobeoka, K. (2000), "Creating and Managing a High-performance Knowledge-sharing Network: the Toyota Case", *Strategic Management Journal*, Vol.21, pp.345-367.
- Goh, S. C. (2002), "Managing Effective Knowledge Transfer: An Integrative Framework and Some Practice Implications", *Journal of Knowledge Management*, Vol.6 No.1, pp. 23-30.
- Grundmann, R. (2001), "Organisations, networks, and learning: A sociological view", in the book "Social Interaction and Organisational Change (Edited by Jones, O., Conway, S. and Steward, F.)", ISBN 1-86094-203-2, Imperial College Press, London.
- Huber, G. (2001), "Transfer of knowledge in knowledge management systems: unexplored issues and suggested studies," *European Journal of Information Systems*, Vol.10, pp.72-79.
- Liebeskind, J. P. (1996), "Knowledge, strategy and the theory of the firm," *Strategic Management Journal*, (Winter Special Issue), Vol.17 No.2, pp.93-107.
- Lind, M. and Persborn, M. (2000), "Possibilities and risks with a knowledge broker in the knowledge transfer process", Presented at the 42<sup>nd</sup> Annual Conference of the Operational Research Society, 12-14 September, 2000, University of Wales, Swansea.
- Lind, M. and Seigerroth, U. (2000), "Development of organisational ability through team-based reconstruction --- going from personal to shared contextual knowledge ", Presented at the 42<sup>nd</sup> Annual Conference of the Operational Research Society, 12-14 September, 2000, University of Wales, Swansea.
- McEvily, S. K., Das, S. and McCabe, K. (2000), "Avoiding Competence Substitution through Knowledge Sharing", *Academy of Management Review*, Vol.25 No.2, pp.294-311.
- Mohr, J. J. and Sengupta, S. (2002), "Managing the paradox of inter-firm learning: the role of governance mechanisms", *Journal of Business and Industrial Marketing*, Vol.17 No.4, pp. 282-301.

Parker, D. and Vaidya, K. (2001), "An economic perspective on innovation networks", in the book "Social Interaction and Organisational Change (Edited by Jones, O., Conway, S. and Steward, F.)", ISBN 1-86094-203-2, Imperial College Press, London.

Quintas, P., Lefrere, P. and Jones, G. (1997), "Knowledge Management: a Strategic Agenda", Long Range Planning, Vol.30 No.3, pp.385-391.

Schrader, S. (1991), "Informal technology transfer between firms: Cooperation through information trading", Research Policy, Issue 20, pp.153 - 170.

Sparrow, J. (2000), "Knowledge Features of Small Firms: Implications for Knowledge Management," KMAC 2000 (The Knowledge Management Conference) Edited by J. Edwards and J. Kidd, pp. 148-159.

Szulanski, G. (2000), "The Process of Knowledge Transfer: A Diachronic Analysis of Stickiness", Organizational Behaviour and Human Decision Process, 82 (1), May, pp. 9-27.

Von Hippel, E. (1987), "Cooperation between rivals: Informal know-how trading", Research Policy, Issue 16, pp.291 - 302.

Zand, D. E. (1997), The Leadership Triad – Knowledge, Trust and Power, ISBN 0-19-509240-6, Oxford University Press.