Conflict in Inter-organisational Virtual Communication

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CONFLICT IN INTER-ORGANISATIONAL VIRTUAL COMMUNICATION

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Abstract

This study explores the nature of conflict in virtual communication in the course of inter-organisational collaborations. Conflict appears to exist inherently when organisations cooperate together because each company operates with different goals, norms and values, which are vital considerations for successful business collaborations. Special attention, therefore, needs to be paid to gaining a grounded understanding of conflict in the context of virtual communication in the inter-organisational business collaborations of today.

This research draws on fieldwork carried out over five months, using a multiple-case study approach, involving four cases of inter-organisational collaborations between a large high-tech corporation in Taiwan and its four supplier companies in Korea. In addition, participant observation was employed as the main method of data collection in this study, which allowed for this researcher to gain rich data in a direct way. The collected data included daily logs based on observations, in addition to interviews and documentation. This resulted in an extensive amount of useful information being gathered, which was analysed, categorised, interpreted, and summarised in relation to theory generalisation.

In this inter-organisational research setting, it was found that three patterns of inter-organisational conflict, namely: business strategic conflict, cultural conflict and organisational process conflict interact to influence participants' communication media selection and, in turn, conflict is influenced by the selected media. Moreover, it was found that conflict is expressed in email communication in a stylised way that is significantly different from spoken conversation and it could lead to conflict escalation and the subsequent termination of business collaboration. Based on the research findings, a comprehensive framework was established to describe and explain the interrelations between conflict transformation and computer-mediated communication (CMC) in inter-organisational collaborations.

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List of abbreviations

Abbreviation	Description
CAS	Customer Assurance Specification
CS	Customer Service (department)
CMC	Computer-mediated Communication
CPU	Central Processing Unit
DQA	Design Quality Assurance (team)
ECN	Engineering Change Notice
FAE	Field Application Engineering (department)
FTF	Face-to-Face
HQ	Headquarters
IIS	Incoming Inspection Standard
IS	Information System
ISO	International Organizations for Standardisation
IT	Information Technology
ODM	Own Design Manufacturing
OEM	Original Equipment Manufacturing
PC	Personal Computer
PCN	Production Change Notice
RoHS	Restriction of Hazardous Substances Directive
R&D	Research and Development
Spec	Specification
SRS	Specification Review Summary

Chapter 1: Introduction

The competitive business environment has been changing dramatically because of increasing globalization. Firms collaborate with suppliers and customers abroad, and purchase products from overseas vendors, for reasons of cost, quality and resource exchange (Howard & Squire, 2007; Reardon & Hasty, 1996), with the aim of achieving higher profits (Chan, 1992; Whitehead, 1986). Building good relationships with customers, suppliers and even competitors has therefore become of paramount importance in today's business landscape. When business collaborations transcend national and organisational boundaries, more challenges come into play. For instance, conflict is more likely to occur in a multinational environment, because the languages, customs, personal styles and other relevant cultural features are often different (Gorden, 1991). Furthermore, when interaction between organisations consists of members that have been traditionally competitors, this can be problematic and lead to conflict. In this study, conflict caused by cultural differences and business competition between different organisations are termed cultural conflict and business strategic conflict, respectively. This study focuses on these two patterns of inter-organisational conflict, whilst remaining open to any further elements regarding this phenomenon in the virtual context that emerge during the research.

With the potential to overcome temporal and spatial barriers, information technology (IT) plays a central role in today's business environment. Research has shown that virtual communication which mainly comprises computer-mediated communication (CMC) offers an effective integration of expertise from dispersed organisations and reduces wastage caused by time and cost because of travelling (Bal & Gundry, 1999; DeSanctis & Monge, 1998; Prasad & Akhilesh, 2002). However, CMC has been described as 'lean' communication owing to its lack of physical interaction and social contact (Daft & Lengel, 1986; Defillippi, 2002; Friedman & Currall, 2003; Maznevski & Chudoba, 2000) and may therefore impose 'high understanding cost' (Friedman & Currall, 2003) and 'social cost' (Panteli & Dawson, 2001). Further, it

can increase the likelihood of conflict escalation (Friedman & Currall, 2003) and, therefore, the failure of communication may inhibit business relationships between collaborating organisations (Barsade, 2002; Byron, 2008).

1.1 Research aim

Previous studies have highlighted the importance of organisational relationships in business collaborations. However, organisational collaborations that require high levels of mutual trust and successful relationships, but are having to rely on virtual communication, can encounter significant difficulties (Choe, 2008). This study therefore contains a detailed investigation into the nature of inter-organisational conflict, as it appears to be inherent in any business relationship, and thus is a vital consideration for the success of such collaborations. In addition, with the development of the Internet, CMC has become a prevalent communication platform, and this underlines the need for a clear understanding of the nature of conflict that may arise through its use. To synthesise, this thesis aims to understand the relations between inter-organisational conflict and virtual communication in the course of inter-organisational collaborations.

1.2 Research questions

Researchers have increasingly come to recognise that there is a strong relationship between conflict and CMC (e.g. Friedman et al., 2006; Kersten et al., 2002; Ulijn & Lincke, 2004; Usunier, 2003), but studies into this phenomenon in inter-organisational setting are still limited. This study intends to bridge some of this gap, by particularly focusing on the nature of inter-organisational conflict. Nevertheless, before considering the CMC context, this researcher aims to acquire a greater understanding of the nature of inter-organisational conflict, and the first research question is developed with this purpose in mind.

RQ1: What are the elements that lead to conflict in inter-organisational collaborations?

'Virtual communication' is a relatively broad concept, and there are various forms of CMC media available to people in the business environment. Previous theories have been put forward to describe the reasons why and the processes through which people choose a medium for communication. However, the choice of communication media in previous research has, on the whole, ignored the aspect of inter-organisational conflict and, hence, the impact of inter-organisational conflict on media selection needs to be better understood. Therefore, the second research question that arises is:

RQ2: How does the existence of conflict influence communication media selection?

Based on the existing literatures, this researcher argues that conflict influences media selection and in turn is influenced by the selected media. Therefore, understanding how this conflict is transformed by the choice of communication media is important for comprehending collaboration between organisations. The third research question has the aim of exploring and thereby explaining the development of conflict in the virtual environment and is:

RQ3: How is conflict expressed and transformed in a virtual communication environment?

1.3 Structure of the thesis

The thesis contains seven chapters which are described below.

- Chapter 2: Literature review

Chapter 2 discusses previous research in relation to this study and highlights the gaps in the knowledge in this field. First, there is an investigation into the nature of conflict, which is followed by a consideration of this in the inter-organisational setting. Next, the elements of the virtual communication environment are examined and, as result of a synthesis of this literature review, a conceptual framework is

developed. This framework is provided to assist in the data collection and to maintain a link with the previous research and this study.

- Chapter 3: Research methodology

The research design (qualitative research), research approach (multiple-case study), methods of data collection (participant observation) and analysis (comparative methods) are discussed in this chapter, including how the fieldwork of this study was planned and how it has been carried out.

- Chapter 4: Case-studies

This chapter describes and summarises the background information regarding the research setting and includes a description of: the organisations, the participants, the joint projects and products in each case. In addition, the different uses of the available communication media are presented for each of the collaborations.

- Chapter 5: Data analysis and research findings

This chapter is organised into several main sections according to the patterns of inter-organisational conflict. That is, building on the discussion of conflict in chapter 2, business strategic conflict and cultural conflict in the collaborations are examined. Moreover, an unexpected third form of conflict, namely, organisation process conflict that emerged from analysis of the data is also discussed. For each form of conflict, the research findings regarding how and why different communication media are selected for different purposes and how conflict is transformed by the selected media, are presented respectively.

- Chapter 6: Discussion

This chapter integrates the existing theories and the findings to provide answers to the research questions. That is, a comprehensive explanation of the relation between conflict and virtual communications in inter-organisational collaborations is provided. In addition, a framework is constructed with the purpose of offering a clearer

understanding of the interrelation between conflict and communication media selection.

- Chapter 7: Conclusion

This chapter summarises the relevant findings of this study, discusses its limitations and makes suggestions for future research.

1.4 Chapter summary

This chapter has contained a brief introduction to this study and has included the: research aim, research questions and the structure of the thesis. In the next chapter, a review of the relevant literature is presented.

Chapter 2: Literature review

'Conflict, like power, is one of those fascinating but frequently abused and misunderstood subjects' (Thomas, 1976, P.889). It has been studied at a number of levels focusing on who are the actors in the process, what influences the conflict, and has been discussed from how it should be managed to how it is managed. Definitions of conflict have been employed in various ways. For example, a quarrel between a husband and a wife can be called conflict, and fighting between countries is also termed conflict. This study adopts a restricted meaning of conflict, one which is related to organisational conflict and considers it as a dynamic process in organisations. A substantial volume of literature has focused on organisational conflict and this chapter provides an overview of such studies.

In order to resolve conflict, the importance of communication has been discussed in much of relevant research (e.g. Amason et al., 1995; Bazerman et al., 2000; Rahim, 2001; Usunier, 2003). What the previous research covered was appropriate for its time, but does not suffice for the present day. This is because organisations expect 'any time and any place' interactions with their customers, suppliers and employees, who are often geographically dispersed and, hence, such changes have forced firms to conduct CMC. In addition, because CMC is an essential means through which inter-organisation collaboration is accomplished, the nature of conflict in the virtual communication environment needs to be studied further.

The structure of the literature review of this study is illustrated below (Figure 2-1, next page).

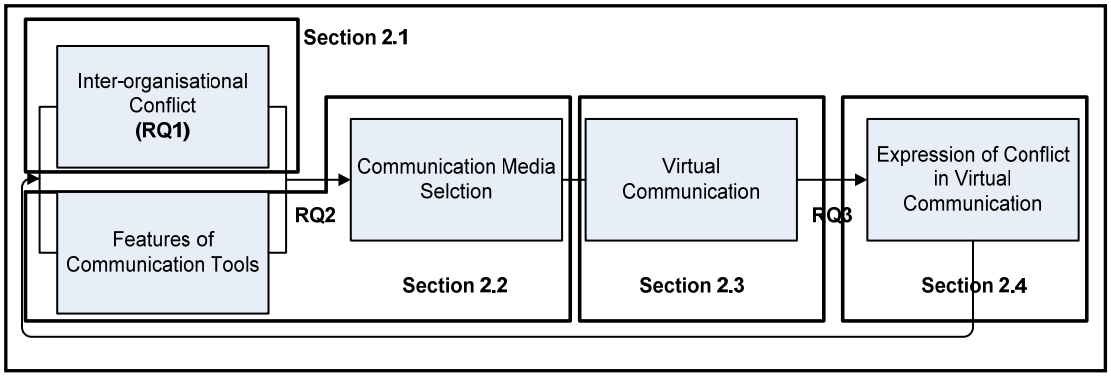


Figure 2-1 Structure of the literature review

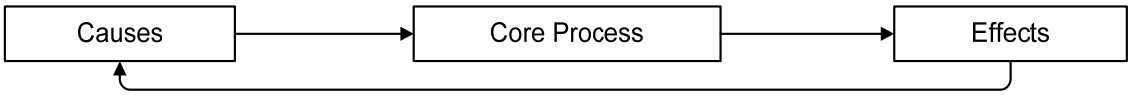
Firstly, an overview of previous conflict studies is presented, with a particular focus on business strategic conflict and cultural conflict (section 2.1). Secondly, communication media selection theories, including information richness theory and social influence theory, are discussed respectively (section 2.2). Next, virtual communication environment constructed from electronic communication tools and conventional communication media, with regard to their natural characteristics are introduced (section 2.3). Finally, a conceptual framework is developed to illustrate the relationship between inter-organisational conflict and communication media selection (section 2.4). This framework is used to guide the research process. A more comprehensive framework is created based on the results of the empirical study and is discussed later in Chapter 10.

2.1 An overview of conflict study

The term conflict originally meant a fight, battle or struggle, and has gradually come to include: disagreements and opposition of interests and ideas between two or more parties (Pruitt & Rubin, 1986; Webster, 1983). According to this definition, the concept of conflict contains not only physical confrontations, but also psychological collisions. This research investigating the phenomena of conflict focuses on the psychological aspect, which is more common and of great importance in a business environment.

The generic format of the conflict cycle (Figure 2-2), developed by Wall and Callister (1995), explains the interacting components of conflict, in terms of cause,

core process and effect. Although these three categories do not have clear boundaries, each one influences the other and, hence, they are adopted for guiding the process of the current literature review.



(Source: Wall & Callister, 1995)

Figure 2-2 Conflict cycle

Wall and Callister (1995) posited a definition that 'conflict is a process in which one party perceives that its interests are being opposed or negatively affected by another party'. Thus, to cause conflict, there must be something that the two parties are opposed to. Boulding (1963) discussed incompatible wishes and irreconcilable desires, Pruitt and Rubin (1986) focused on sharp disagreements, Putnam and Pool (1987) talked about the parties' different goals, aims and values and Rubin et al. (1994) referred to the divergence of interests and aspirations. Subsequently, Rahim (2001) concluded that the definition should include the following elements:

- Conflict includes opposing interests.
- Such opposing interests must be recognised.
- Conflict is a process; it develops out of existing relationships between parties and reflects their past interactions and the contexts in which these took place.
- Actions produced to thwart the opposing parties' goals.

Pondy (1967) identified the categories: antecedent conditions, affective states, cognitive states and conflictful behaviours, as a broad definition of conflict in organisations. In this study, he also developed a general theory of organisational conflict which viewed the phenomenon in a systematic way. Thomas (1976, P.891) defined conflict as 'the process which begins when one party perceives that another has frustrated, or is about to frustrate, some concern of his'. With regards to the significance of process in conflict, conflict 'episodes' as raised by Pondy (1967), are

an important concept for understanding cyclical conflict development. That is to say, conflict is treated as a series of episodes, and each episode passes through the stages of: latency, feeling, perception, manifestation and aftermath.

Moreover, Thomas (1976), taking a systematic approach to organisational conflict, proposed two models: one is the process model, and another is the structural model. The process model describes the internal dynamics of the conflict issue between two or more groups in organisations. According to the process model, conflict is sequentially ordered into five circumstances which are frustration, conceptualization, behaviour, interaction and outcome. On the other hand, the structural model considers that conflict is concerned with the variables involved in shaping the conflict process. With regards to this, four parameters relating to conflict issues were identified by Thomas in his study, these being: behavioural predisposition, social pressure, incentive structure, and rules and procedures. To summarise, following Thomas' research findings, it has been suggested that 'a process model that outlines the dynamics of conflict, and a structure model that considers underlying and environmental influences on conflict' (Wall & Callister, 1995, P.517) should be developed. In short, conflict is a dynamic process involving two or more parties (Fink, 1968), and there must be something which the parties care about, but are in opposition (Thomas, 1992) and that can be influenced by the environmental conditions.

The causes and process of conflict have been discussed above and have been seen to occur when people perceive incompatible wishes or desires (Boulding, 1963), divergence of aspirations (Thomas, 1976) and sharp disagreements (Pruitt & Rubin, 1986). Such statements appear to imply that conflict has solely negative and dysfunctional effects. However, increasingly, researchers have noticed that conflict can be productive and constructive. Deutsch (1973) proposed that productive conflict and destructive conflict were the two main attitudes to dealing with the phenomenon. In productive conflict, participants are involved in a variety of activities and interactions, which promote negotiation and communication so as to attain an acceptable solution in a relaxed organisational climate. In contrast, groups working

in destructive conflict have less flexibility, because they are not willing to accept different ideas or ways of behaving that contrast with their own, and as a consequence, the groups try to defeat one another rather than interacting in a constructive way. The effects of conflict have received the attention of a number of researchers, and the relevant studies are now discussed.

Conflict has been seen as a significant factor influencing organisational effectiveness and performance. Many people think that conflict is bad or dysfunctional; for example, Coser (1956) claimed that conflict leads to anomie. However, an increasing number of social scientists have realised that conflict itself is not destructive. For instance, Simmel (1955) stated that conflict leads to cohesion, because people are brought together in order to sort out the emergency of a conflict situation. There is no fixed answer as to whether the effect of conflict is positive or negative for organisations. It depends on 'what causes conflict' (Rahim, 2001) and 'how people manage it' (Thomas, 1976).

The relevant studies, thus far, have mainly discussed different types of conflict according to their origins and attributes. In one of the earliest studies on conflict, it was categorised as 'substantive' and 'affective': 'conflict rooted in the substance of the task which the group is undertaking, and conflict derived from the emotional, affective aspects of the group's interpersonal relations' (Guetzkow & Gyr, 1954, P.369). On the surface, the two types of conflict may result in the same manifestations, such as causing a delay in a company's product schedule. However, the two types of conflict usually occur due to different conditions. For instance, substantive conflict may occur when team members are task-oriented, striving to achieve specific tasks, whereas affective conflict may emerge when team members are hostile towards each other, leading to flawed team communication and, hence, reduced work efficiency. Similarly, Coser (1956) suggested that conflict can be divided into realistic and non-realistic forms. In realistic conflict, people's interaction focuses on incompatible tasks and goals, with the aim of resolving them. By contrast, in non-realistic conflict situations, people serve their own interests by weakening those of others. In other words, people in realistic conflict tend to be goal-oriented,

which fits with the notion of productive conflict (Deutsch, 1973); on the other hand, they are more emotionally oriented in non-realistic conflict which is considered destructive conflict.

Similarly, Appelbaum et al. (1998) considered studies on organisational conflict and differentiated two approaches of conflict theory: the cognitive perspective and the interactional perspective. From the cognitive perspective, researchers have studied organisational conflict by concentrating on how and what people think. Individuals are viewed as the fundamental elements that drive conflict and thus the emphasis in managing conflict should focus on human thought. Moreover, because people's thinking is unique, the ways they communicate information is determined by personal perspectives and their own agendas. With regards to the interactional perspective, 'action and behaviour are a series of interconnected events' (Appelbaum et al., 1998, P.214). In contrast to the cognitive perspective, researchers taking this approach are more concerned with how and with what people respond to conflict, as represented by their behaviour, rather than their mental processes.

In addition, the effect of conflict on organisational functions has been discussed with regard to both how it should be managed and how it has actually been tackled.

Amason et al. (1995, P.21) contended that 'effective teams know how to manage conflict so that it makes a positive contribution. Less effective teams avoid conflict altogether or allow it to produce negative consequences that hamper their effectiveness.' Amason et al.'s study also identified the categories of conflict as: cognitive conflict and affective conflict. In cognitive conflict situations people focus on substantive and issue-related differences of opinion, where disagreements among team members are bound to occur. On the other hand, affective conflict occurs when disagreements occur over personalised and individually oriented matters. Therefore, cognitive conflict may improve team effectiveness, and affective conflict curtails it (Amason et al., 1995).

One conflict study, employing the concepts of task conflict and relationship conflict, carried out by Jehn (1992, cited by Jehn & Mannix, 2001), offered an explanation for

conflict development in organisations. Relationship conflict refers to the recognition of interpersonal incompatibilities, such as dislike among group members, feelings of frustration and friction. Task conflict is defined as members having different viewpoints on a group task. Relationship conflict has consistently been found to be destructive to organisational functions, such as team satisfaction, group performance and effectiveness (Amason & Schweiger, 1997) whereas on the other hand, task conflict may be beneficial (Jehn et al., 1999). In a more recent study, Jehn (1997) proposed that conflict in work groups should to be considered over time and that process conflict should be considered as a series on-going tasks. Process conflict refers to the fact that group members have different opinions about how a task can be accomplished and what procedure should be used. In this context, Jehn (1997) found that process conflict interferes with a group task proceeding. The arguments about who does what and who should take how much responsibility impede effective task achievement. Relationship, task and process conflict have all been considered as key influences on organisational function. Based on these categories, several researchers (e.g. De Dreu & Weingart, 2003; Jehn & Mannix, 2001) have discussed the connection between conflict and organisational function, by raising such issues as group effectiveness and performance.

Overall, there have been numerous discussions on the diverse definitions, sources, process and effects of conflict in organisations in the literature. Table 2-1 provides an overview of previous conflict studies.

Table 2-1 Definitions and classifications of conflict

Presenter	Definition or Classification	Description
(Guetzkow & Gyr, 1954)	Substantive conflict & affective conflict	Conflict is categorised as 'substantive' and 'affective'; 'Conflict rooted in the substance of the task which the group is undertaking, and conflict derived from the emotional, affective aspects of the group's interpersonal relations' (Guetzkow & Gyr, 1954, P.369).
(Coser, 1956)	Realistic conflict & non-realistic conflict	In realistic conflict, people interact to focus on incompatible tasks to resolve problems in achieving their goals. In the non-realistic conflict, people serve their own interests by weakening those of others'. Realistic conflict is more goal-oriented and non-realistic conflict is more emotion-oriented.
(Boulding, 1963)	Discrepancies, incompatible wishes and desires	Conflict is awareness on the part of the parties involved of discrepancies, incompatible wishes, or irreconcilable desires
(Pondy, 1967)	Contributors to conflict	A working definition of conflict….: (1) antecedent conditions (for example, scarcity of resources, policy differences) of conflictful behavior, (2) affective states (e.g., stress, tension, hostility, anxiety, etc.) of the individuals involved, (3) cognitive states of individuals, i.e.., their perception or awareness of conflictful situations, and (4) conflictful behavior, ranging from passive resistance to overt aggression.' (Pondy, 1967, P.298)
(Deutsch, 1973)	Productive conflict & destructive conflict	In productive conflict, group members are involved in a variety of activities and interactions so as to negotiate an acceptable solution under a relaxed organisational climate. In contrast, for groups working in destructive conflict conditions the tem tasks and goals tend to be narrower and hence there is less flexibility.
(Thomas, 1976)	Perceived frustration	Conflict is the process which begins when one party perceives that another has frustrated, or is about to frustrate, some concern of his. (Thomas, 1976, P.891)
(Pruitt & Rubin, 1986)	Sharp disagreement	A sharp disagreement or opposition, as of interest, idea, etc.

Table 2-1 Definitions and classifications of conflict (cont.)

Presenter	Definition or Classification	Description
(Thomas, 1992)	Process model and structural model	'The process aspect of any system is the temporal sequence of events which occur as the system operates – e.g. the mental and behavioural activities of the conflicting parties; in contrast, the structural aspect of a system are the broader system 'parameters' – e.g. the more less stable (slow-changing) conditions which shape or control the system process. For example, norms, incentive structures and standardized procedures are some of a social system's structural features which shape its conflict process.' (Thomas, 1992, P266-267)
(Rubin et al., 1994)	Incompatible aspirations	Conflict is perceived divergence of interest, or a belief that the parties' current aspirations cannot be achieved simultaneously.(Rubin et al., 1994, P.5)
(Amason et al., 1995)	Cognitive conflict & affective conflict	'Cognitive conflict' improves team performance and 'affective conflict' curtails team performance
(Thompson, 1998)	Perceptive difference of interest	Conflict is the perception of differences of interests among people. (Thompson, 1998, P.4)
(Appelbaum et al., 1998)	cognitive perspective & interactional perspective	Appelbaum et al. (1998) viewed the studies on organisational conflict and differentiated two approaches to conflict theories: the cognitive perspective and the interactional perspective. Research from the cognitive perspective focuses on how and what people think. Studies on the interactional perspective emphasize 'action' and 'behaviour', and see these as 'a series of interconnected events'. (Appelbaum et al., 1998, P.214).
(Jehn, 1997; Jehn & Mannix, 2001)	Task, relationship and process conflicts	Task conflict is defined as members having different viewpoints on their group task. Relationship conflict refers to the recognition of interpersonal incompatibilities, such as dislike among group members, feeling of frustration and friction. Process conflict occurs when group members have different opinions about how a task can be accomplished and thus have different views on how to proceed with it. Hence, task conflict may be beneficial, whereas relationship conflict is considered to be harmful for team work and occurrence of process conflict interferes with a group task proceeding.

In addition to identifying productive and destructive conflict in organisations, as mentioned above, Deutsch (1973) highlighted the significant role of communication in conflict development. Subsequently, this has become an essential consideration of much conflict research. The substantial volume of publications (e.g. Friedman & Currall, 2003; Lewicki et al., 2003; Pinkley, 1990; Putnam & Poole, 1987; Thomas, 1976) on organisational conflict, which have considered communication and negotiation, reflects the high level of importance that has been conveyed on this subject.

Communication is central to getting organisations connected. 'Without communication, there would be no organising or organisation' (Schall, 1983). It underlies the sources, goals, strategies, tactics, relationships and contact systems that shape the nature of conflict and conflict management (Putnam & Poole, 1987, P.550). Nevertheless, the effects of communication upon conflict resolution have both advantages and disadvantages. On the negative side, low communication leads to poor knowledge of others and may lead to coordination difficulties that produce conflict. Extensive communication can also be detrimental as it can bring about misunderstandings and resultant conflict (Wall & Callister, 1995). For example, facial expression, body language and speed of speaking are all elements which can lead to attributions of intent and cause conflict (Thomas & Pondy, 1977). This situation is particularly prevalent in cross-cultural communication, because the elements of subjective culture (Triandis, 1972) shape the encoding of expressions (Triandis & Albert, 1987).

The coverage of the study of conflict has mainly been confined to the intra-organisational level and has not transcended organisational and national boundaries. The importance of managing inter-organisational conflict was raised in Putnam and Poole's study (1987), but the published research directly exploring conflict at this level has so far been inadequate (Reid et al., 2004; Weitz & Bradford, 1999). When inter-organisational conflict is brought into the discussion, a clear distinction between the definitions of competition and conflict needs to be made. Hitherto, much

of the literature has confused these two matters by defining them somewhat ambiguously (Rahim, 2001; Schmidt & Kochan, 1972).

Boulding (1963) stated that conflict is a subset of competition. Conflict and competition are also distinguished in Rahim's explanation (2001, P.20) 'all situation of incompatibility lead to competition, but conflict occurs when the parties become aware of the incompatibility and wish to interfere with the attainment of each other's goal attainment'. Competition does not necessarily lead to conflict, but conflict is more likely to emerge in a competitive situation. In a business environment, conflict is more likely to occur when the relationship changes from one of cooperation to one of competition, that is, such a change can lead to a conflict situation.

It has been argued that the organisational relationships can be generally categorised into two major types which are the adversarial (competitive) and the collaborative models (Gules & Burgess, 1996; Tang et al., 2001). The adversarial model is where companies pay little attention to developing long-term relationships and use a tough negotiation style. In contrast, the collaborative model refers to the situation when one organisation co-works with others and each is concerned about mutual benefit and long-term cooperation. However, this categorisation has been criticised as being too simplistic. Thomas (1976) noted that the dichotomy between competitive and collaborative appears to oversimplify the complex range of conflict orientations. Rubin et al. (1994) argued that a party can be both selfish (strongly concerned about the party's outcome) and cooperative (strongly concerned about the other parties' outcomes). The dual concern model (Figure 2-3) was developed by Blake and Mouton (1964) in an attempt to explain conflict behaviour and to demonstrate some of its complexities. It postulates two types of concerns: concern about a party's own outcome, as shown on the vertical axis, and concern about the other parties' outcomes, as shown on the horizontal axis. With different levels of concern about self or others' outcomes, four conflict styles are predicted: contending, problem solving, yielding and avoiding. This model can not only be used to illustrate the phenomena of conflict, but can also be applied to conflict behaviour prediction. For

example, when a party is highly concerned about both its own outcome and the others' outcomes, a problem solving style is likely to occur.

Detailed explanations of these four conflict styles are given in the later discussion on the theory of conflict-handling orientations (Figure 2-4) which derives from the dual concern model.

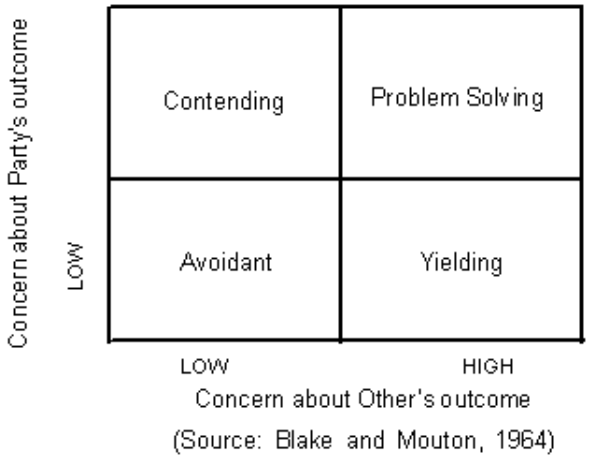


Figure 2-3 Dual concern model

Although conflict may produce a positive outcome, as discussed earlier, there is a limit to the level of conflict that organisations can tolerate. Conflict exhausts time and energy, and organisations can become embroiled in a situation of conflict escalation (Rubin et al., 1994). Therefore, the dual concern model has been adopted by some researchers to understand strategy choices with regards to conflict management. For instance, people are reluctant to accept change in high tension situations, so they often adopt the strategy of contending towards the opposed parties, even though they do not have to react in this way.

The dual concern model has been used and also modified to give further explanation for different conflict styles, examples being: the modified dual concern model of Rubin et al. (1994), the conflict styles model of Rahim (2001), and Thomas's conflict-handling orientations model (1976). The contents and meanings of these models are similar. This researcher adopts Thomas's conflict-handling orientations

model (1976), which provides clear expression regarding the conflict styles and orientations to investigate conflict behaviour (Figure 2-4). This model contains five conflict styles, these being: collaborative, competitive, accommodative, avoidant and sharing.

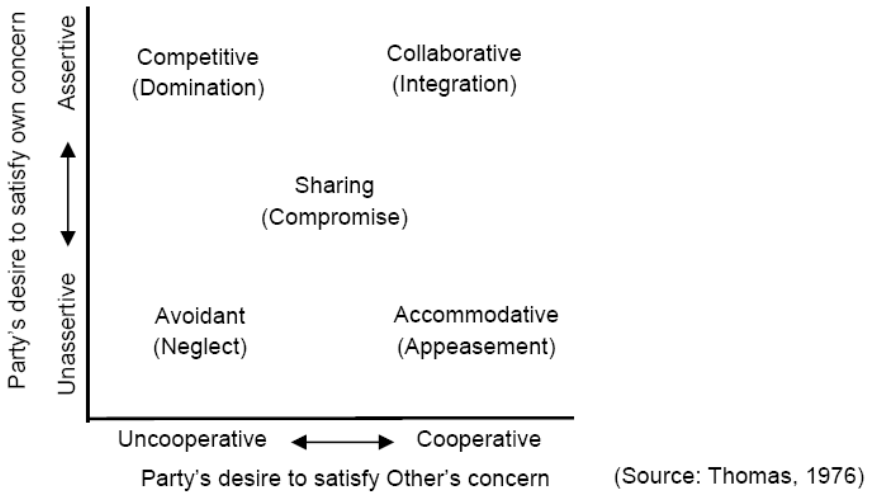


Figure 2-4 Conflict-handling orientations

- Collaborative orientation (also known as integration or problem solving style)

  Collaborative orientation represents a desire to satisfy both self and the other party and to integrate their concerns (Rahim, 2001). With this orientation, both parties are interested in reaching a mutually beneficial agreement and has also been referred to as a problem solving orientations (Blake & Mouton, 1964).

- Competitive orientation (also known as dominating or contending style)

  This orientation indicates a high concern for self and low concern for others and it has been identified as being concerned with win-lose power struggles (Blake & Mouton, 1961). Forceful behaviour usually occurs with this orientation in order to win one's position. An organisation that adopts this stance is only concerned with achieving its own satisfaction and pays little attention to the goals of others.

- Accommodative orientation (also known as appeasement, obliging or yielding style)

  This orientation indicates a low concern for self and a high one for others. With this orientation, a party may be generous and even self-sacrificing for the sake of the long-run relationship (Thomas, 1976). This stance has also been considered as being 'peaceful coexistence' (Blake & Mouton, 1964).

- Avoidant orientation (also known as neglect, inaction or withdrawing style)

  This orientation is evidenced by low concern for both self and others. With this orientation, an organisation may simply withdraw from a conflicting situation, or it may postpone addressing an issue until a more opportune time (Rahim, 2001).

- Sharing orientation (also known as compromise style)

  'Party gives up something and keeps something' is the feature of this orientation (Thomas, 1976). Parties seek an outcome which is compromised and intermediate between their preferences.

Collaborative orientation leads to a mutually beneficial solution to a conflict and is considered by many to be the best result. It is often the approach that is adopted first when the parties value the relationships with each other (Pruitt & Rubin, 1986). However, it is not always the outcome in controversial situations and often the parties resort to competitive practices to contend their own benefits or interests. What generally then ensues is a conflict situation that oscillates between competition, accommodation and avoidance orientations, and these can last for a while. Eventually, a stalemate may be reached, or the situation can be broken by reaching a compromise, hence allowing for a collaborative solution to be reasserted.

The dual concern model and the five-category schemes were originally developed as theories of conflict style at the individual level, and the concepts and descriptions of the five conflict orientations are used in this study.

2.2 Intra- and inter-organisational conflict

Conflict can be differentiated into three levels, which are the: individual, group and organisational levels (Putnam & Poole, 1987). Individual conflict occurs when two or more persons' purposes, opinions and/or actions are in opposition. When conflict happens in two or more groups who have contradictory goals, issues and/or actions, this is termed inter-group conflict. Organisational conflict refers to the friction and discrepancies that happen between two or more organisations. An organisation is constructed of individuals and groups, so by its nature, it includes both individual and group conflict. In this study, a particularly close look is taken at inter-organisational conflict, in that the focus is on organisational business strategy and national/organisational cultural elements which have the potential to influence significantly inter-organisational business collaborations. This is discussed in detail in the following sections.

2.2.1 Conflict at individual, group and organisational levels

General speaking, conflict at the personal level refers to the manifestation of incompatibility, disagreement or difference between two or more interacting individuals and group conflict refers to the collective incompatibility or disagreement between two or more divisions, departments or sub-systems on the subject of tasks, resources and so on (Rahim, 2001). As the previous sections have shown, researchers have devoted considerable attention to the impact of conflict at both individual and group levels. In particular, in the context of the latter it has been found that when groups rather than individuals are engaged in conflict, several complicated elements come into play. Whether the individual conflict and group conflict are harmful or helpful for organisation functions has been investigated by previous researchers in terms of their effect on group performance. For instance, Walton and Dutton's literature review (1969), summarised in Table 2-2, revealed that whether the effects of inter-group conflict are beneficial or harmful depends on the nature of specific conflict relationships and the tasks involved. Further, Julian and Perry's experimental study (1967) found that groups in competitive conditions increased their quality and

quantity of the output more than those operating under cooperative conditions. Although further studies are still needed to give more detailed validity regarding the consequences of conflict between groups (Rahim, 2001), several studies (e.g. Jehn & Mannix, 2001; Rahim, 1990; Simmel, 1955) have provided supports for these findings and these research efforts have revealed that the consequences of inter-group conflict can be both functional and dysfunctional for the organisations.

Table 2-2 Consequences of inter-group conflict

Attributes of conflicting lateral relationships	Illustrative consequences
Competition in general	Motivates or debilitates Provides checks and balances
Concealment and distortion	Lowers quality of decisions
Channelled inter-unit contacts	Enhances stability in the system
Regidity, formality in decision procedures	Enhances stability in the system Lowers adaptability to change
Appeals to superiors for decisions	Provides more contact for superiors May increase or decrease quality of decisions
Decreased rate of inter-unit interaction	Hinders coordination and implementation of tasks
Low trust, suspicious, hostility	Psychological strain and turnover of personal or decrease in individual performance

(Source: Walton & Dutton, 1969)

Conflict occurring at the group and organisational levels exhibits several similarities. Firstly, there is the issue of social identity (Rubin et al., 1994), which has been defined as: ‘ that part of an individual’s self-concept which derives from knowledge of their membership of a social group (or groups) together with the value and emotional significance attached to that membership’ (Tajfel, 1981, P.255). That is, at the group/organisational level the individuals concerned tend to categorise themselves and the others as different groups, such that the focus is on ‘we versus they’ in group conflict, rather than ‘I versus he or she’ as in individual conflict. Secondly, when inter-group conflict occurs, individuals in one group hold more positive images for their own group and more negative ones regarding the others (Cialdini & Richardson, 1980), in defence of the group they belong to. As a result, competition among individuals within the same group is reduced and cohesion is increased (Rahim, 2001; Schein, 1980). The awareness of social identity can act to reinforce people’s strong support for conflicting behaviour towards the others. Consequently, conflict becomes more common in relations between groups and

organisations than in relations between individuals (Komorita & Lapworth, 1982; McCallum et al., 1985; Rubin et al., 1994).

In relation to the development of conflict at personal, group and organisational levels, each has specific elements (Rubin et al., 1994). For instance, group and organisational conflict is more likely to appear when the awareness of 'social identity' (Tajfel, 1981) exists, whereas social identity is not relevant in personal conflict. Moreover, inter-organisational conflict concerns the industrial environment and national/organisational cultural elements, which convey on this form a unique pattern, when compared with group and personal conflict situations.

However, inter-organisational conflict has the distinction of happening in a dynamic business environment. When conflict occurs between organisations, the existence of the 'environmental context' (Phatak & Habib, 1999) of ever-changing organisational relationships influences its development. The environmental context refers to those forces in the environment that are beyond organisations' control (Phatak & Habib, 1999). Putnam and Poole (1987) revealed the similarities and differences between inter-group and inter-organisational conflict as follows:

> Many of the same dynamics that operate in inter-group conflict also have an impact on inter-organizational conflict. Specially, the role of structure in shaping and being shaped by conflict interaction, the importance of tightly and loosely connected linkages, and the effects of within-group issue definition on between-group controversies also apply to inter-organizational conflict. However, unlike inter-group conflict, the institutional environment in inter-organizational conflict assumes a significant role since it is the arena in which conflict is played out. Moreover, conflict, in turn, can reshape the relationships that make up the institutional environment. (Putnam & Poole, 1987, P.581)

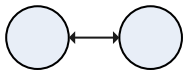
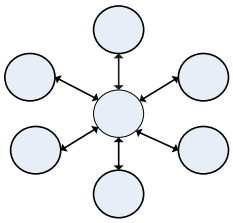
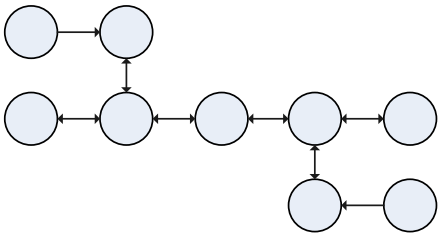
Moreover, when organisations are in the throes of conflict, 'organisational identity' (Albert & Whetten, 1985) provides a context in which individuals and groups are embedded, being simultaneously enabled and constrained. 'Identity refers to an organization's central, distinctive, and enduring character, typically anchored to its mission' (Ashforth & Mael, 1996, P.19). A sense of organisational identity embedded among the employees has tremendous potential to motivate and shape

individuals' self- or organisational interests (Ashforth & Mael, 1996) and sequentially this affects organisational strategic choice with respect to conflict styles (Rubin et al., 1994). Clearly, different organisations have different identities and therefore at the inter-organisational level there would be a distinct form of conflict as compared to that regarding the group and individual levels within an organisation.

2.2.2 Business strategic conflict

In order to survive or to control the uncertain marketplace, firms need support from other companies and thus they cooperate together. Inter-organisational collaboration, therefore, is not only a matter of convenience but also a strategic approach aimed at obtaining the required support for obtaining the required resources. Burn et al. (2002) identified three models of inter-organisational collaboration which illustrate the main forms of business relationships, these being the: co-alliance, star-alliance and value-alliance models as shown in Table 2-3.

Table 2-3 Co-alliance, star-alliance and value-alliance

Co-alliance	Star-alliance	Value-alliance
		

(Source: Burn et al., 2002)

The three models do not place emphasis on the levels, sequence or which one is good or bad but illustrates the main types of inter-organisational collaboration. In fact, they can exist in any business collaboration simultaneously. The electronics industrial value chain, for example, is a mixture of several types of business collaborations. In this sector, two sorts of cooperation original-equipment manufacturer/original-design manufacturer (OEM/ODM) are common (Sheffi, 2006). Companies based on OEM cooperation sell the product they produce under another firm's brand name, whereas an ODM uses its own designs which are then produced

by the OEM. A company can carry out both OEM and ODM operations simultaneously. These forms of business collaborations do not follow the rules of traditional alliances, in that OEM and ODM collaborations are more like a type of value-alliances, however, in these cases the suppliers fight for domination of the chain. Other possible forms of business collaborations are: strategic alliances, partnerships and network organisations (Choe, 2008). Inter-organisational collaborations tend to be hybrids of these different arrangements and these varying patterns demonstrate the inherent complexity of a business environment (Choe, 2008).

As noted above, 'companies interact with each other and develop relationships in order to exploit and develop their resources' (Turnball & Wilson, 1989, p.47). The importance of organisational relationships has been highlighted in several studies. The computer company Dell, in an interview for the Harvard Business Review (Magretta, 1998), pointed out the importance of business integration in enhancing the quality of customer service and improving problem solving outcomes. Kim and Michell (1999) investigated the organisational relationship network in Japan which has been deemed to have contributed to the success of Japanese firms. They found that close relationships lead to organisations sharing information, increasing investment on new projects and a reduction in the indirect and direct costs of products. Nielson (1998) described the concept of 'closeness' in organisational relationships by a causal model. 'Closeness is a component of the "atmosphere" of the relationship', and it brings about benefits for organisations by joint working and information sharing (Nielson, 1998, P.443).

However, in reality often such optimism would appear to be ill-founded. The collaborations between the personal computer (PC) company, Apple, and central processing unit (CPU) maker, Intel, was sensational in the PC industry (Edwards, 2006). However, the new relationship between Apple and Intel threatened Intel's old partners Dell and Microsoft. From the viewpoints of Dell and Microsoft, their previous closeness of relationship with Intel did not necessarily benefit their future business development, and it may have threatened their survival. Resource exchange

and knowledge sharing are seen as key motivators for one organisation cooperating with others. However, these varying levels of resources and knowledge between companies are usually the organisations' core competencies and revealing them may endanger their survival. This can lead firms to being suspicious of business collaboration and cause conflict between them when they work together.

Axelsson (1998, cited by Leminen, 2001a) explained the different needs between firms as the concept of a 'gap' which exists in organisational collaboration. Leminen (2001a; Leminen, 2001b) suggested that the perspective of a gap is similar to that of a conflict; however, a gap may exist when there is no conflict, whereas conflict always leads to a gap. The continuing flux between gaps and conflict make effective inter-organisational collaboration more crucial. The joint venture, the S-LCD, formed by the two electronic giants SONY in Japan and Samsung in South Korea (Frauenheim, 2004) is a typical case. In 2003, both companies agreed to share patents in order to speed up the development of basic technologies. Although the cross-licensing (Tanenaka & Layne, 2004) was aimed at avoiding unnecessary conflict, such as the waste of time in resolving disputes concerning infringement of patent rights, to date, it has not occurred and the companies are still serious competitors in the consumer-electronics industry. Employees in each firm have been reluctant to share their knowledge with those in the other, thus, obstructing any business collaboration and negative conflict has ensued. That is, the firms have been struggling to find a healthy balance between cooperation and competition.

As some elements of conflict are crucial to successful business collaborations, several researchers have studied the relationships between conflict management and business collaboration. In this regard, Cox (2004) discussed organisational conflict issues in business alignment. Reid et al. (2004) examined conflict in business-to-business sales interactions. Wong et al. (1999) proposed that the attitude of conflict management influenced organisational long-term relationships, i.e. conflict that is dealt with more openly will encourage organisational cooperation and contribute more to product quality (Amason et al., 1995; Wong et al., 1999). These studies have all highlighted the importance of conflict management in business collaborations.

However, the perspective of inter-organisational conflict in these studies appears to have been narrowed down to cooperative-competitive interaction, which only presents the organisational relationship in the extreme case and, as noted earlier, this categorisation is too simplistic (Thomas, 1976). There is a more complex range of options available for organisations' conflicting strategies towards others, such as the dual concern model (Blake & Mouton, 1964) and the five conflict-handling orientations (Thomas, 1976).

Building inter-organisational collaborations, to some extent, presents a paradoxical dilemma, in that current co-operators may become future competitors. Previous studies have highlighted the difficulty of the establishment of organisational relationships and the complexity of the business environment. Inter-organisational conflict is especially likely to occur when companies are aware of the business competition, although such competition does not necessarily result in conflict. The dynamics and complexity of the business environment means that inter-organisational conflict occurs in a unique pattern, one that is different from individual conflict and group conflict scenarios. In this study, conflict caused by business competition between organisations is termed business strategic conflict.

2.2.3 Cultural conflict

Now that business collaboration is proceeding across national and organisational boundaries, open-minded communication is desired and in this regard there is a long way to go to achieving this goal. Communication within organisations is usually realised by being based on a common perception and knowledge. However, when communication takes place not only within a single firm but also between different companies and countries, the issue becomes more difficult. Conflict occurs more easily in a multinational or multicultural environment because the languages, norms, personal styles and other relevant cultural features are different (Gorden, 1991).

National culture has been defined as a collective mental programming which distinguishes one nation from another (Hofstede, 1984). It has been highlighted as

one of the most difficult obstacles in organisation management (Hofstede, 1984; Swierczek & Onishi, 2002). Hofstede and Usunier (2003) explained further the meaning of national culture as:

> National culture is that component of our mental programming which we share with more of our compatriots as opposed to most other world citizens. Besides our national component, our cultural programs contain components associated with our profession, regional background, sex, age group and the organisations to which we belong. National cultural programming leads to patterns of thinking, feeling and acting that may differ from one party in an international negotiation to another. (Hofstede & Usunier, 2003, P.137)

'The most fundamental component of our national culture consists of values' (Hofstede & Usunier, 2003, P.137). These determine what people think and feel about certain issues, such as good and evil, beautiful and ugly, normal and abnormal (Hofstede & Usunier, 2003). Values are often unconscious and not explicitly expressed, as they are deeply rooted in people's interaction and embedded in their communication.

Linton stressed that 'a culture is the configuration of learned behaviour and results of behaviour whose component elements are shared and transmitted by the members of a particular society' (Linton, 1945, P.21). Kroeber and Kluckhohn analysed 160 definitions of culture and gave a summarised concept:

> Culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (that is historically derived and selected) ideas and especially their attached values; culture systems may, on the other hand, be considered as products of action, on the other as conditioned elements of future action (Kroeber & Kluckhohn, 1952, P.181).

This definition indicates that culture is produced by the past actions of a group and it contains 'a set of ideas and values', which are transmitted by symbols. Both 'thinking' and 'acting' are emphasised in this definition.

Culture has been defined extensively, as containing common: beliefs, values, thinking, feelings, symbols, meanings, norms and behaviour and, therefore, appears to 'cover everything but consequently nothing' (Alvesson, 2002). Ortner (1984) pointed out that culture has no fixed or common agreed definition, even in the field of anthropology. Each of the mentioned foci is important and worthy of attention, however, this study is not going to cover all of these aspects and, instead, concentrates on exploring the most significant determinant that influences inter-organisational communication, which is language.

Language is one of the most obvious ways in which cultures differ (Hill, 2002) and is central to communicating people's ideas, thinking and cerebrations (Guirdham, 1999). Language differences have a significant impact on communication. Brannen and Salk (2000) explained how language differences affect communication by studying the case of a German-Japanese joints venture.

> [As English is the only language available for the communicators, the German and the Japanese communicated in English.] When a Japanese or German was confused or needed help, they would confer with members in their same cultural group in their mother tongue……One German manager spoke this way of the negotiation outcome, 'The work language is English. But, during discussion, they would sometimes speak Japanese and I thought this was a good thing because you know your own language better and can understand better and can discuss things more precisely'(Brannen & Salk, 2000, P.474).

Different languages have semantic differences in the words and although any language can be translated to another language, interpreters are needed when proficiency is low (Usunier, 2003). However, when communication has to pass through a third person, 'heart-to-heart' talks are unlikely to take place (Hoon-Halbauer, 1999). In this vein, Hoon-Halbauer's case study (1999) indicated that only 30%-40% of the actual content of what is said is conveyed by communicators who speak different languages. Existing literatures have presented the view that the outcomes of communication are less favourable when it takes place in an inter-cultural environment, as compared with one that is intra-cultural (Usunier, 2003). Brett and Okumura (1998) showed that negotiations between Americans and

Japanese resulted in lower joint gain than those exclusively between Americans or Japanese.

Understanding the precise meanings is a crucial part of cross-cultural communication as these meanings often contain cultural connotations, which are beyond the one-to-one translations in words. Moreover, language refers to not only spoken language, but also to unspoken language. During communication, information in both spoken and unspoken language is conveyed between the parties. Hall (1976) identified two patterns of communication and termed them high-context and low-context communication. High-context communicators use contextual clues and non-verbal cues intensively to decode the information that is to be communicated, for example, the Japanese and Chinese languages exhibit high-context communication. People who use low-context communication, e.g. Britons and Americans, rely more on the precise words and explicit verbal content of the information being portrayed (Hall, 1976). When high-context and low-context communication styles are mixed, it can lead to awkward misunderstandings, which can then turn to conflict. That is, cultural differences emanating from diversity of language are potential causes of conflicting behaviour.

Conflict avoidance is prevalent in Asian countries (Leung et al., 2002; Ohbuchi & Takshashi, 1994), such as China and Japan, because of their relationship-oriented values (Chan, 1963; Hofstede, 1984; Leung, 1997; Leung et al., 2002; Morris et al., 1998), and because of their desire to maintain harmony (Tjosvold & Sun, 2002). Conflict avoidance has also been adopted in some western organisations (Dean et al., 1998; Folger & Skarlicki, 1998). However, many western organisations believe that conflict avoidance is counterproductive (De Dreu et al., 2000), in contrast to Chinese people who take the view that it is an appropriate way to develop lasting relationships (Friedman et al., 2006; Roloff & Ifert, 2000).

One study of Chinese-American different approaches to conflict (Friedman et al., 2006) indicated that there is a higher tendency for the former to be conflict-avoiding, whereas the latter is more likely to engage in tackling conflict. That is, Chinese

people emerged as believing that direct conflict would hurt relationships. This study also showed that Chinese people are more sensitive to hierarchy than Americans and thus they tend to avoid conflict with people in higher hierarchical positions than themselves. Morris et al.'s survey (1998) also revealed that culture differences lead to different conflict styles: 'Chinese managers rely more on an avoiding style because of the relatively high value on conformity and tradition. American managers rely more on a competing style because of their relatively high value on individual achievement' (P.729). Ohbuchi and Takahashi (1994) reported a similar pattern in their study about cultural styles in conflict management. They found that Japanese people used avoiding strategies to conflict 48% of the time, whereas Americans used avoiding attitudes 22% of the time. From the perspective of organisational management, if managers want to encourage open communication to resolve conflict, they need to ensure their cultures interact in such a way that any direct disagreements will not damage relationships (Friedman et al., 2006). Therefore, it is important that communicators understand the national culture and values of a country with which they are engaged in business, otherwise there can be miscommunication and conflict as a result.

CMC, as 'a process of human communication via computers, involving people, situated in a particular contexts, engaging in processes to shape media for a variety or purposes' (Ulijn & Lincke, 2004, P.112), has become an integral part of our lives at work (Kock, 2004) and has increased global communication and business opportunities (Ulijn & Lincke, 2004). Owing to the development of the universal Internet and the rise of inter-organisational collaborations, there has been an increasing use of electronic media for communication (Bazerman et al., 2000). In contrast to much traditional communication that has been carried out by face-to-face (FTF) meetings, email which does not provide many non-verbal cues, has become used in widespread way for dispersed communication (Usunier, 2003). Kersten et al.'s study (2002) found a number of cultural differences when investigating web-based communication between managers from Austria, Ecuador, Finland and

Switzerland. As a consequence, they concluded that electronic communication is not effective unless it is combined with FTF meetings.

Recently, researchers have begun to realise the significant effects of the use of modern forms of communication media on cultural conflict, and vice versa. Before considering the topic of communication media discussion, this researcher aims to gain a greater understanding about inter-organisational conflict and thus the first research question is developed according with this purpose.

RQ1: What are the elements that lead to conflict in inter-organisational collaborations?

2.3 Virtual communication environment

A shift from a production-based to knowledge-based working environment is continuing (Townsend et al., 1998). Companies have found that the way they previously paid attention to product efficiency was fine that, however, has proved insufficient regarding the contemporary global business environment. That is, nowadays the business strategy for companies at the: international, national and local levels, focuses on how they can strengthen their business models in a productive way through improved exploitation of technology-enabled communication (Best, 2001). When communication takes place through electronic media, understanding how the existence of conflict can influence the communication media selection is important, and so too is comprehending how the conflict is conveyed, expressed and shaped by the selected media.

Nowadays, under severe organisational competition and economic pressures, companies desire new organisational forms in order to shed excess cost and to improve the efficiency of communication with their suppliers, customers and competitors (Chan, 1992; Howard & Squire, 2007; Reardon & Hasty, 1996; Whitehead, 1986). As a result, more and more firms, especially those that are large and geographically dispersed are choosing to use CMC (Watson-Manheim & Belanger, 2007).

There are various forms of CMC media available, and several media selection theorists have investigated why and how different communication media are selected (e.g. Daft & Lengel, 1986; Fulk, 1993; Rice et al., 1994; Trevino et al., 1987). Most of the previous researchers in this field have studied one communication medium or have compared two different media: mainly FTF meetings versus other electronic medium (Watson-Manheim & Belanger, 2007; Webster & Trevino, 1995). However, employees often use various communication media simultaneously, rather than solely traditional media (e.g. FTF meetings and telephone calls) or electronic media (e.g. email and teleconferencing), to collaborate with colleagues who are geographically dispersed. A virtual communication environment employing both traditional and electronic media exists commonly in business settings. However, little research has explored distinct communication behaviour in the combined use of communication media. This study focuses on the virtual communication environment, which has been defined as a 'communication platform' (Schultze & Orlikowski, 2001) comprising: email, audio-conferencing, video-conferencing, telephone and less-frequently, FTF meetings.

2.3.1 The different electronic communication media

There are a number of traditional and electronic communication tools which have been applied to coordinate networks. The common tools, as listed in Figure 2-5 next page, are classified by the features of synchronous (same time) and asynchronous (different time) interaction and by geographical commonality (same place) and dispersion (different places) (Szcwczak and Khosrowpour, 1996, cited by Bal & Gundry, 1999). However, because work place dispersion is a common phenomenon, the tools used for 'different places' communication are more prevalent.

	Same Time	Different Time
Same Place	**Face to Face Meeting** ● Electronic copy boards ● Portable computer ● Portable organiser ● Files on disc or tape ● Document	**Teams in Place** ● Team room tools
Different Places	**Cross-Distance** ● Audio conferencing ● Video conferencing ● Interactive screen sharing ● Shared CAD or DATA models ● Electronic 'chat' forums ● Decision Support tools ● Telephone	**On going Co-ordination** ● Voice mail ● Electronic mail ● Project managers/scheduler ● Workflow ● Facsimile ● Computer Conferencing

(Source: Bal & Gundry, 1999)

Figure 2-5 Common tools for coordinating collaborative work

FTF communication is a common form of social interaction in which people attend in person to complete joint tasks, and it is perceived as the best communication medium (Poole et al., 1992). By contrast, as shown in Table 2-4, electronic communications exhibits different features to FTF conversations. Clark and Brennan (1991) argued that there are six structured features to FTF meetings which are: co-presence, visibility, audibility, co-temporality, simultaneity and sequentiality. Co-presence allows people to look at what the others are doing in the same surroundings. Visibility refers to the fact that people are able to see the others, even though they are not working in the same place. Audibility allows people to hear the others' voices, so that sound and intonation changes can be recognised. Co-temporality is the feature that people's speech and other utterances can be received immediately, are as they are being produced. Simultaneity allows all members to express and receive messages at the same time. Sequentiality is the characteristic that people are involved in a continuous conversation and they cannot get out of sequence. Further, all members in FTF meetings are linked together without time lags. In contrast to FTF communication, CMC does not exhibit all of the above features.

Apart from FTF meetings, a number of communication media are often available to people in business. Telephone, audio-conferencing, video-conferencing and email,

each representing different levels of media 'richness' (Daft & Lengel, 1986) are chosen for further discussion here. Table 2-4 shows a summary of the structured features of the most common forms of media taken from previous research (Clark & Brennan, 1991; Friedman & Currall, 2003).

Table 2-4 Structural features of communication media

Medium	Co-presence	Visibility	Audibility	Co-temporality	Simultaneity	Sequentiality	Reviewability	Revisability
FTF	V	V	V	V	V	V		
Telephone			V	V	V	V		
Audio-conferencing			V	V	V	V		
Video-conferencing		V	V	V	V	V		
Email							V	V

V: The medium is provided with the feature

Compared with the FTF meetings, telephone communication loses only the features of co-presence and visibility, and hence its usage grew sharply when it was invented in 1876. No communication tool has achieved the same universality since its invention. Audio-conferencing has similar functions to the telephone; the only difference being the number of participants. Telephone conversation is based on one-to-one interaction, and audio-conferencing is often seen as a many-to-many communication tool. Video-conferencing is a medium which keeps most of the features of FTF conversations, losing only co-presence (Friedman & Currall, 2003). It has been viewed as a rich communication medium, and it has the capabilities of giving immediate feedback and allowing for interactive communication (Kydd & Ferry, 1994; Leonard et al., 1998; Markus, 1994). However, the appropriateness of video-conferencing being used for business meetings and other tasks needs to be critically assessed. For instance, it is much more useful for routine and well-structured meetings, rather than ad hoc purpose discussions (Panteli & Dawson, 2001). Moreover, the audio and video characteristics of this technology, so far, have not proved themselves to performing effectively in the business environment.

Email retains none of the above features (Friedman & Currall, 2003). That is, one cannot see the others' faces, cannot hear their voices and cannot have an immediate response from the receivers. However, it has become the dominant tool of electronic communication (Lee, 1994; Panteli, 2002; Panteli & Fineman, 2005; Usunier, 2003; Ziv, 1996), and this is surprising as it is the form of electronic communication furthest away from FTF meetings, in terms of its properties. However, Friedman and Currall (2003) pointed out that the two key features of email, namely reviewability and revisability, are only available in this form of communication. That is, email offers the opportunity of recording all sent and received messages, so that they can be reviewed again and again. The revisability feature allows people to check over and revise the content of emails before sending them out. These two outstanding characteristics of email are the key reasons why this has become the main form of communication in today's business environment (Watson-Manheim & Belanger, 2007).

Different media are selected for different purposes. 'Understanding how and why specific media are used in organisations is central to our ability to prescribe and predict organisational arrangements and outcomes in today's turbulent world' (Markus, 1994, P.502).

2.3.2 Media selection theories

Several theories have been suggested to explain the phenomenon of communication media selection. Two key theories regarding this are: information of media richness theory and social influence theory (Carlson & Davis, 1998; Kock, 2004; Watson-Manheim & Belanger, 2007).

The following passage by Daft and Lengel (1986) on information richness theory describes its main characteristics:

> Information richness is defined as the ability of information to change understanding within a time interval….Communication media vary in the capacity to process rich information. In order of decreasing richness, the media classification are (1) face-to-face, (2) telephone, (3) personal

> documents such as letters or memos, (4) impersonal written documents, and (5) numeric documents. The reasons for richness differences include the medium's capacity for immediate feedback, the number of cues and channels utilized, personalization, and language variety. Face to face is the richest medium because it provides immediate feedback so that interpretation can be checked. Face-to-face also provides multiple cues via body language and tone of voice, and message content is expressed in natural language. Rich media facilitate equivocality reduction by enabling managers to overcome different frames or references and by providing the capacity to process complex, subjective messages. Media of low richness process fewer cues and restrict feedback, and are less appropriate for resolving equivocal issues. (Daft & Lengel, 1986, P.560)

Information richness theory identifies rich and lean media by their objective properties and the invariant characteristics of the media themselves. According to this perspective, an FTF meeting is the richest medium and a numeric document is the leanest. The theory explains that the different attributes of communication lead to choices of media depending on the level of information richness required (Daft & Lengel, 1986). For instance, managers choose higher information richness media for equivocal communication and lean media are selected for that with less equivocal content (Daft & Lengel, 1986; Daft & Trevino, 1987; Russ et al., 1990). The information richness theory has been extended to channel expansion as proposed by Carlson and Zmud (1999). In this treatment, the relationship between quality of communication and the attributes of the media is considered. Te'eni (2001) reviewed the relevant studies and divided the impact of communication on organisations into that which is action-oriented and that which is relationship-oriented (Table 2-5). Although information richness theorists (or channel expansion theorists) have placed most emphasis on the objective characteristics of communication media, in Te'eni's review, he claimed that organisations cannot exist without social communication.

Table 2-5 Studies regarding information richness theory

Action-oriented Impact	Relationship-oriented Impact
• Multiple cues can improve but also hinder understanding (Dennis & Kinney, 1998) • Higher channel capacity can speed but also slow down communication (Chappanis, 1988; Sproull & Kiesler, 1992) • Higher capacity reduces explicit control (Kraut et al., 1998) • Video conferencing produces more awareness and conversational fluency than voice alone (Tang & Isaacs, 1992), particularly in larger groups (Daly-Jones et al., 1998) • In comparison to audio-only, video has no effect on mutual understanding (Gale, 1990) or some improvement but less than FTF, when it is high quality (Doherty-Sneddon et al., 1997)	• Mixed results on whether multiple cues seem less or more friendly (Fulk & Collins-Jarvis, 2000; Walther, 1992, , 1995). • Low capacity channels reduce social cues (Sproull & Kiesler, 1992) but not if communicators sense a social identity with the communicating parties (Lea & Spears, 1991; Spears et al., 1990) • Video vs. FTF shows no effect on initial trust (Fish et al., 1993)

(Source: Te'eni, 2001)

Communication is not just about information interchange but also about the way information is communicated (Carlson & Davis, 1998). These studies listed in Table 2-5 present inconsistent results with regards to the impact of communication media. These inconsistent results also indicate that the information richness theory offers limited explanation for media selection and, consequently, the theory has been criticised by several researchers. Some scholars have argued that the characteristics which influence the choice of communication media should consider social activities. Communicators possess different understandings of the capability and potentials of a particular communication medium based on their prior experience, not only with the communication technology itself but also with the communication partners, messaging topics and their organisational context (Carlson & Zmud, 1999). For example, email is seen as a low-richness medium (Kiesler et al., 1984; Rice & Love, 1987), but it can improve information gathering and information dissemination strategies (Carlson & Davis, 1998) and by so doing increase the richness of the communication from the users' point of view. Moreover, situational determinants (Fulk et al., 1990; Trevino et al., 1987; Watson-Manheim & Belanger, 2007), like organisational norms and work environment influence the choice of media and contextual factors (Carlson & Zmud, 1999; Carlson & Davis, 1998; Lee, 1994), such

as the ‘urgency’ and ‘importance’ of a communication, can also significantly affect media selection. These are all important elements meriting further investigation.

As a consequence, social interaction theories were introduced to explain the interaction between social activities and communication media selection. They have focused on discussing the role of social actors in the process of media selection (Fulk et al., 1987; Steinfeld & Fulk, 1986; Watson-Manheim & Belanger, 2007; Yoo & Alavi, 2001). Social influences can affect the choice of communication media. For example, peer group pressure amongst groups of people can determine the type of media adopted for communication within a group. Several studies in connection with social influence theory have provided significant insights into the phenomenon of communication media selection, as listed in Table 2-6.

Table 2-6 Summary of organisational communication theories

Theory	Focus	Key Proposition
Symbolic interactionism model	Geographic distribution, social environment	Contextual factors such as physical separation might constrain the choice of media available, making it necessary to use media that may not be the most appropriate for a given communication interaction. The choice of a medium may be also be driven by its symbolic value within a given social context (Trevino et al., 1990).
Social influence model	Social environment	Media use behaviour is influenced by a variety of factors and is subject to social influence. Co-workers influence each other's media perceptions directly by discussing media and indirectly by making judgments about and interpreting different actions and events in the organizations in connection with the use of different communication media (Fulk et al., 1990)
Network theory	Social environment, social information-processing schemas	Communication media users actively co-construct meanings of messages they receive. Not all communication is necessarily pre-planned or has predictable outcomes; it will always be influenced by the social context of communication (Contractor & Eisenberg, 1990)
Adaptive structuration theory	Technology features, social environment, social processes, social information-processing schemas	Communication technologies have two aspects: the 'spirit', or the intent of the technology in promoting certain objectives and attitudes, such as democratic decision making, and the specific structural features designed to implement the spirit, such as anonymity in group decision-support systems. Structural features, although designed to promote the spirit are independent of the spirit, and their use by different groups may vary considerably (Poole & DeSanctis, 1990)
Gains and losses model	Communication medium technology features, collaborative tasks	For many group tasks, gains outweigh losses when computers are used to support communication in task oriented groups. For example, more ideas per unit of time (e.g., per hour) are generated in a meeting supported by a group decision-support system than an equivalent face-to-face meeting, because the system allows group members to contribute ideas without having to share 'air time' (Nunamaker et al., 1991)
Communication genres model	Technology features, social processes	Communication genres in organizations – such as the memo, the report and the meeting – are viewed as social institutions that both shape and are shaped by individuals' communication behaviour. A genre may encapsulate the communication medium used and also expand into other media, like the use of memos in emails (Yates, 1984)
Relationship development model	Social environment, social information-processing schemas	CMC media users, as users of other media, are driven to develop social relationships. Even though computer-based communication media have inherent limitations, users can adapt to them and effectively develop normal interpersonal relations, usually over a longer period of time than face-to-face or through face-to-face-like media (Walther, 1992, , 1996)

(Adapted from Kock, 2004)

Table 2-6 Summary of organisational communication theories (cont.)

Theory	Focus	Key Proposition
Social construction of reality model	Social environment, social information-processing schemas	Recipients of messages are active producers of meaning. In interacting with media such as e-mail, users transform data into information they find meaningful, based on their existing mental schemas. Users engage in a social construction of reality by joining a communication medium as 'coprocessors' (Lee, 1994)
Compensatory adaptation model	Communication medium, collaborative tasks	Better group task outcomes are possible with the use of 'lean' media like email as group members adapt their behaviour toward technology in a compensatory way. Users of 'lean' media generally tend to make more elaborate and better-quality verbal contributions in electronic meetings than they would in face-to-face meetings (Kock, 1998, , 2001)
Task-technology fit theory	Technology features, collaborative tasks	The type of task and the characteristics of a CMC technology should present a high level of fit to enhance group performance. There are five main task types: simple tasks, problem tasks, decision tasks, judgement tasks, and fuzzy tasks. CMC tools are classified according to three key dimensions: communication support, process structuring, and information processing (Zigurs & Buckland, 1998)
Channel expansion theory	Communication medium, social information-processing schemas	Certain experiences of media users are important in shaping their media richness perceptions, namely experience with the medium, experience with the messaging topic, experience with the organizational context, and experience with communication co-participants. Through these experiences users develop associated social information-processing schema based that can more effectively encode and decode 'rich' messages (Carlson & Zmud, 1999)
Cognitive-affective model	Coherent framework of communication process	The cognitive-affective model is an integrated model based on existing research of how people communicate. It contains three key factors: (1) inputs to the communication process (task, sender-receiver distance, and values and norms of communication with a particular emphasis on inter-cultural communication); (2) a cognitive-affective process of communication; and (3) the communication impact on action and relationship. (Te'eni, 2001, P.251)
Psychobiological model	Media naturalness	The psychobiological model argues that the face-to-face medium is the one likely to lead to the least cognitive effort during communication, which implies that a super-rich virtual reality based medium will also lead to increased cognitive effort, most likely because of information overload (Kock, 2004, P.340)

(Adapted from Kock, 2004)

From Table 2-6, it can be seen that a number of theories have been put forward to describe how and why people choose a medium for communication. However, 'the dichotomy between "rational" and "social" influences seems artificial and perhaps unnecessary' (Rice et al., 1994). Thus, both the objective characteristics of media which information richness theorists focus on, and the effect of social actors on media selection that social influence theorists emphasize, are reasonable explanatory factors. More importantly, the capabilities and appropriateness of use of a communication medium in inter-organisational communication need to be better understood. The choice of communication media in previous research has, on the whole, ignored the aspect of inter-organisational conflict, although the technologies to address conflict issues (Zigurs & Buckland, 1998) and seek conflict resolution between companies (Watson-Manheim & Belanger, 2007) have been mentioned in some studies. Notwithstanding this, the understanding of how critically inter-organisational interaction affects communication medium selection has very been limited. Therefore, the second research question of this study aims to explore the situation of when there is conflict in an inter-organisational setting, how it affects the choice of media selected for communication.

RQ2: How does the existence of conflict influence communication media selection?

2.3.3 Characteristics of virtual communication

This researcher proposes that conflict influences media selection and in turn is influenced by the selected media and therefore, conflict is an important component in the media selection process. Moreover, it is essential to understand why and how a particular communication medium is chosen when there is inter-organisational conflict. Further, exploring how conflict is transformed by the choice of communication media is important for comprehending collaborations between organisations.

The choice of communication media affects what people communicate and how they communicate. Whilst the increasing organisational use of CMC has been investigated in previous research, the emphasis has often been on the use of the CMC itself (Fish et al., 1993; Kiesler et al., 1984; Lee, 1994; Markus, 1994) or comparison between a specific CMC and FTF interaction (Doherty-Sneddon et al., 1997; Walther, 1995). Little of the research so far has placed emphasis on the use of CMC in combination with the employees' existing media communication methods. Yates and Orlikowski's studies (Orlikowski & Yates, 1994; Yates & Orlikowski, 1992) are exceptions to this. Yates and Orlikowski (1992) found the phenomena of 'communicative genres' which they defined as a socially recognised type of communication action (e.g. memos, meetings and expense forms), which are characterised by having a socially communicative purpose and possessing common aspects of form. Moreover, personnel in a organisation rarely rely on a single genre for communication and use multiple different and interacting genres over time (Orlikowski & Yates, 1994). Nevertheless, notwithstanding the fact they have made a substantial contribution to the understanding of organisational communication practices, Yates and Orlikowski (Orlikowski & Yates, 1994; Yates & Orlikowski, 1992) have considered communication action (behaviour) from a mainly general standpoint.

This study investigates the communication behaviour with regard to 'inter-organisational conflict' and the significance of conflict in organisational management has been considered above. The discussion below begins by describing the characteristics of virtual communication and then illustrates the principles of the theoretical models for studying the fundamental principles of conflict behaviour and orientations.

In reality, most organisations' use of virtual communication involves a mixture of electronic media and traditional media to connect to other organisations; that is, they rarely rely on a single communication medium. The use of traditional and electronic communication media complement each other and, thus, their combined attributes warrant further discussion. This study refers to 'virtuality' as a 'communication

platform' after Schultze and Orlikowski (2001). This metaphor of communication platform views virtual organising as an architectural aspect, whereby the architecture of the traditional organisation is represented as a building, and the virtual organisation's architecture is viewed as a platform (Schultze & Orlikowski, 2001, P.54). The virtual communication platform in this study is constructed of: email, audio-conferencing, video-conferencing, telephone and increasingly irregular FTF meetings, which represent different levels of information richness.

Communication that takes place in a virtual environment is a double-edged sword. On the one hand, electronic applications improve communication effectiveness, whereas on the other hand, the special pattern of communication behaviour can increase misunderstandings and confusions which potentially lead to conflict. Electronic communication operating across space, time, cultural and organisational borders, through webs of communication technologies has been seen as an effective integration (Prasad & Akhilesh, 2002) bringing people who are physically dispersed together. According to its advocates, the electronic technologies have a positive impact on improving communication effectiveness, increasing flexibility, reducing the need for travel, and making communications more efficient by crossing boundaries of time and space (Bal & Gundry, 1999; Culnam & Markus, 1987; Markus, 1994).

However, virtual communication brings about potential problems and pitfalls (Maznevski & Chudoba, 2000). For instance, 'the meaning and implication upon human activity are neglected' (Katsorchi-Hayes & Dunning-Lewis, 2006, P.1). Email communication, as a typical example, reinforces the effectiveness of communication but also increases misunderstanding, as the lack of visible social cues imposes high understanding cost (Friedman & Currall, 2003). Moreover, email's key feature of being based on writing can easily be misread and misunderstood (Mann & Stewart, 2000).

Bal and Gundry's investigation (1999) on virtual teaming summarised several important benefits and concerns about the virtual communication environment. The

most important benefits were found to be time saving from travelling and the fact that electronic communication tools have the ability to pull extra expertise quickly into a meeting. However, the issues which companies most worried about, with regards to the virtual communication tools, were the: lack of physical pressure, loss in richness of social interaction, loss of social contact, requirement for IT expertise, concerns about the security of information and the availability of in-house data in the right format (Bal & Gundry, 1999).

Shin (2005) identified the four characteristics of virtual dimensions, as spatial, temporal, cultural and organisational dispersions, each leading to different types of conflict (See Table 2-7).

Table 2-7 Sources of conflict associated with four virtuality dimensions

Virtuality Dimensions	Sources of Conflict
Spatial dispersion	Task, role, responsibility ambiguity
Temporal dispersion	Task, role, responsibility ambiguity
Organisational dispersion	Weak identity, low group cohesiveness
Cultural dispersion	Cultural differences

(Source: Shin, 2005)

Regarding spatial and temporal dispersions, people working in a virtual environment have fewer opportunities to support each other directly and communicate about task, role and responsibility, and ambiguities concerning job function and responsibility can be a source of conflict. Another virtuality dimension is organisational dispersion where the team members working for different organisations exhibit weak social identity and low group cohesiveness, which has the potential for conflict to develop. Finally, with regard to cultural dispersion, the same behaviour may be interpreted differently by people from different cultures (Gudykunst & Nishida, 1984; Morsbach, 1973; Sano & Yamaguchi, 1999). That is, when a virtual communication environment includes people who have: different personalities, customs, languages and communication styles, misunderstandings regarding cultural differences can easily arise.

Communication within organisations is realised based on the assumption of common perceptions and knowledge. However, when communication transcends national and organisational boundaries, it is harder to establish common goals. Conflict and misunderstanding caused by different uses of language, varying local customs, diverse social regimes, different working styles and other national and organisational idiosyncrasies which can impact critically on inter-organisational business collaborations. Such special cultural phenomena have been identified as the most difficult obstacles for inter-organisational collaborations, especially those that transcend national boundaries (Hofstede, 1984; Swierczek & Onishi, 2002).

The third research question of this study aims to investigate how the inter-organisational conflict is transformed through the use of virtual communication.

RQ3: How is conflict expressed and transformed in a virtual communication environment?

In this study, the focus is on the adoption of virtual communication in globally distributed cross-organisational engineering teams that work on high-tech product development. Collaborative engineering tasks have been extensively been internationalized and dispersed (Blanc & Sierra, 1999), nevertheless, the development of effective communication technologies for the pervasive globalisation of technological activities has not yet reached an advanced state. In this context, one of the key challenges for cross-organisational engineering product development relates to the effective communication of complex task-oriented technological issues in a virtual communication environment. Moreover, clear understanding the CMC process, for both researchers and practitioners, could make the difference between effective and ineffective communication or productive and unproductive task outcomes (Dennis et al., 2008; Kock, 1998; Trevino et al., 1990). In particular regarding this study, it is considered important to understand the process as to how high-complexity projects are discussed and communicated among the participants in the virtual communication environment.

2.4 Conceptual framework of conflict in virtual communication

Previous studies on media selection have provided good information regarding each choice of medium, but, as mentioned earlier, little research has been paid to the combined use of communication media. This study investigates email, teleconferencing and FTF meetings, each representing a different level of richness as described above, and remains open to any other effective communication tools that emerge during the course of this research.

Moreover, Pondy (1967, P.306) pointed out that 'the organization is not a closed system…The development of each episode is determined by a complex combination of the effects of preceding episodes and the environment milieu'. Conflict is a dynamic process (Pondy, 1967; Thomas, 1976), and the competitive business environment is not static, but always changing, so conflict between firms is transformed as time elapses. Consequently, the framework, as set out in Table 2-8 below, considers the course of inter-organisational conflict over time. This framework contributes to management practice regarding the dynamic process in a project life cycle which is one of the determinants that influences the selection of communication media (Zack, 1993).

Table 2-8 Framework of conflict in inter-organisational collaborations

Phases of On-going Process	Early Stage	Middle Stage	Final Stage
Business Strategic Conflict	High/Low	Low	High/Low
Cultural Conflict	High	Moderate	Low
Communication Media Preference	Email/Telephone/FTF	Telephone/Teleconferencing/Email	Email/FTF

* The high/moderate/low in the cells means the levels of conflict.

In the early stages of the project life cycle, business strategic conflict can be high or low depending on the position in the market that different firms have targeted, and the orientation which the firms have been working toward. In situations where firms are competitors in the industry, the cooperative activities will start with high business

strategic conflict. Such high business strategic conflict may hinder firms in their willingness to share knowledge with any partners. The case of SONY and Samsung's joint project addressed earlier (section 2.2.1) is a good example, whereby the relationship between these two companies in the consumer electronics industry has been competitive rather than cooperative. Disputes in the negotiations regarding the sharing of patent rights, take a long time to be resolved before a project starts as cultural conflict in the early stage of a business relationship can be high. In inter-organisational collaborations, firms from different countries are often grouped within virtual networks. The virtual team members in these scenarios are regularly people who have to have multiple language skills, understand different customs and communication styles and be able to work in different regimes. However, even if such a wide range of experience exists amongst the work force, the same words and expressions may imply different meanings, cross culturally. For instance, the meaning of 'silence' usually expresses harmony and respect in Japan, but it is not accorded the same meaning in western cultures (Panteli & Fineman, 2005). That is to say, both verbal and non-verbal expressions hold the potential for conflict because of such cultural differences. During the early stage of a business relationship, members are not familiar with each other and are not used to their co-workers' working styles, and this can result in a high level of cultural conflict. Moreover, during this period, low levels of familiarity in inter-organisational collaborations tend to lead to defensive communication behaviour and, thus, FTF communication is preferred (Watson-Manheim & Belanger, 2007). However, intensive FTF communication may cause people to become assertive and quickly to lay their cards on the table, which can be interpreted as aggressive behaviour and result in conflict. To avoid this, email and telephone conversations are often used before FTF meetings, so that information can be communicated in a more careful way and thus negotiations can get off to a good start.

In the middle stage of the framework, business strategic conflict is presumed to be low and stable, because a compromise will be reached if the participants desire that the collaboration be sustained. At this stage, a 'win-win' situation may not be

apparent in an organisational collaboration, as the relationship has been developed in unequal circumstances (Cox, 2004). However, when firms understand the nature of their priorities, they may accept some 'win-lose' outcomes (compromise orientation) for short time periods, when the long term outcome is projected to be a 'win-win' situation. In addition, during the middle stage, the profit and outcome of the collaboration are not in evidence, so the firms involved need to work in a cooperative way. Team members' communication becomes more task-oriented during the middle phase and, thus, their interaction relies more heavily on less equivocal problems that can be dealt with through CMC. Moreover, the telephone is useful for quick questions or when an immediate response is needed (Kydd & Ferry, 1994; Leonard et al., 1998; Markus, 1994). FTF meetings also provide non-verbal social cues, such as body language, facial expressions and tone of voice (Daft & Lengel, 1986), but they can be costly when the participants come from different countries and have to travel long distances. Under these circumstances, FTF communications cannot be held frequently. Video-conferencing simulating FTF interaction can be a useful communication alternative, particularly for structured meetings dealing with routine, well-defined and non-controversial issues (Panteli & Dawson, 2001). However, the technology is not an appropriate medium for all phases of projects and the most efficient way will be email. This is, because, it has the capability of improving information gathering and dissemination strategy (Carlson & Davis, 1998). In the middle stage, with team members' discussion flowing back and forth quite rapidly, email allows them to work efficiently (Hacker et al., 1998). It is especially important in teamwork situations when the members are dispersed throughout different countries and time zones (Bindloss, 1998; Pendharkar & Young, 2004).

When team members become more familiar with one another during the final phase, this increasing familiarity will gradually result in low cultural conflict. It is assumed that CMC is preferred when cultural conflict is low (Zack, 1993). However, business strategic conflict will become more intensive at this stage. The intention of building an inter-organisational relationship is to develop an exchange activity or a trade-off between profits and sacrifices under specific conditions (Walter & Ritter, 2003;

Wilson, 1995). When the concrete products are nearly finished, torts issues will arise. However, the scenario can be avoided through consensus and agreement, and FTF discussion will be the most appropriate form of communication because physical interaction is important when people are dealing with complex protracted business issues.

The framework is still conceptual and is developed based on previous literature. In fact, as will become apparent, the results of data analysis did not entirely support this framework, but it did provide a useful guideline for carrying out the fieldwork of this study.

2.5 Chapter summary

The concept of conflict has been discussed extensively. Scholars have explored: its causes, for example, incompatible wishes/desires (Boulding, 1963), frustrations (Thomas, 1976), sharp disagreements (Pruitt & Rubin, 1986) and task/relationship/process conflicts (Jehn, 1997; Jehn & Mannix, 2001); the process, such as the conflict episode (Pondy, 1967) and the conflict process model (Thomas, 1976; Thomas, 1992); the effects, e.g. productive/destructive conflicts (Deutsch, 1973) and conflict escalation (Rubin et al., 1994). Furthermore, communication has been highlighted regarding conflict management in previous research (e.g. Lewicki et al., 2003; Usunier, 2003) and is of particular relevance to this study. The interaction of two or more parties engaged in conflict, at the inter-personal level (e.g. Pondy, 1967; e.g. Thoman & Pondy, 1977), inter-group level (e.g. Appelbaum et al., 1998; De Dreu & Van Vianen, 2001; Jehn & Mannix, 2001) and inter-organisation level (e.g. Cox, 2004; Wong et al., 1999), has been studied in some detail. However, in spite of the significant contributions of previous conflict research, there is still a lack of literature that has specifically concentrated on inter-organisational conflict. This study aims to redress this by focussing on business strategic conflict and cultural conflict between different organisations in different countries.

Moreover, because the Internet is prevalent in communication across organisational and national boundaries, opportunities of inter-organisational collaborations have

been enhanced in recent years. In contrast to traditional communication which was mainly carried out through FTF meetings, CMC (especially email) has led to less non-verbal interaction. However, despite this limitation CMC has been taken up widely, particularly by companies that are large and/or geographically dispersed. Researchers have increasingly come to recognise that there is a strong relationship between conflict and electronic communication (e.g. Byron, 2008; Friedman & Currall, 2003; Kersten et al., 2002; Ulijn & Lincke, 2004; Usunier, 2003), but studies into this phenomenon are still rare. Therefore, a conceptual framework (Table 2-8) has been proposed to explain the relationship between conflict and electronic communication.

Various communication media selection theories, such as information richness theory (e.g. Daft & Lengel, 1986) and social influence theory (e.g. Fulk, 1993; Fulk et al., 1990; Lee, 1994; Markus, 1994) have offered explanations as to why and how a communication medium is selected for different purposes. However, inter-organisational communication rarely relies only on traditional communication channels (e.g. telephone, fax and FTF meeting) or just on electronic communication media (e.g. email, teleconferencing and voice mail). In reality, a combination of traditional modes and CMC is the common form of communication between entities (Orlikowski & Yates, 1994; Watson-Manheim & Belanger, 2007; Yates & Orlikowski, 1992). This study focuses on a virtual communication platform, one that is often constructed of email, teleconferencing, telephone and FTF meetings and remains opens to any other emerging communication tools. The next chapter will present and justify the research methodology.

Chapter 3: Research methodology

The chapter starts with a brief consideration of research paradigms (section 3.1) and research design (section 3.2). A multiple-case study approach is adopted as a result of this discussion, as it is deemed the most appropriate for carrying out this research project (section 3.3). The next section discusses the primary data collection method, participant observation, which is employed as a main approach for gathering data in this research (section 3.4). Participant observation is a blended technique in which the data come from a variety of sources, and this study used: (1) daily logs recorded while this researcher observed the research objects' daily routines, including both formal and informal events and activities; (2) interview records and notes based on an unstructured interview design; (3) documentation, such as relevant technology manuals. Following a discussion on the methods of data collection, the method of data analysis is presented, with regards to how the data was: analysed, categorised, interpreted, and summarised in relation to theory generalisation (section 3.5). Finally, the need for interpretative research in information systems (IS) study has been highlighted by several scholars in the field and the last section contains a consideration of how this research will contribute to this area.

3.1 Research paradigm

The term paradigm is in widespread use in social science studies (e.g. Guba, 1985; Guba & Lincoln, 1994; Kuhn, 1970; Mertens, 1998; Ritzer, 1975), and it has been defined as 'a cluster of belief and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, and how result should be interpreted' (Bryman & Bell, 2003, P.23). To put it more succinctly, it is a basic set of beliefs that guide human actions (Guba, 1990, P.17). These beliefs have also been called: philosophical assumptions, epistemologies and ontologies (Crotty, 1998), alternative knowledge stances (Walsham, 1995), and broadly conceived research methodologies (Creswell, 2007). In general, six concepts are adopted when carrying out qualitative research, these being: a stance toward the

reality (ontology), how the researcher knows what she/he knows (epistemology), the role of values in the research (axiology), the techniques for data collection and analysis (method) adopted in the process (methodology) and the language of the research (rhetoric) (Creswell, 2007; Guba & Lincoln, 1988), These are summarised in Table 3-1 below.

Table 3-1 Research paradigms with implications for practice

Paradigm	Description
Ontology	The nature of reality
Epistemology	The relationship between the researcher and that being researched
Axiology	The role of values in inquiry
Rhetoric	The language used in research
Methodology	The process of research
Method	Individual techniques for data collection and analysis

(Source: Creswell, 2007; Guba & Lincoln, 1988)

3.2 Research paradigms and design

This section describes two major philosophical concepts, epistemology and ontology, which underlie the consideration of the research design for this study. By gaining an understanding of these research paradigms, the researcher is able to identify which paradigm(s) should be adopted for the research design and the methods to be employed in data collection.

3.2.1 Epistemology and ontology

The epistemological questions refer to the nature of the relationship between the knower and what can be known (Guba & Lincoln, 1994). In other words, 'an epistemological issue concerns the questions of what is (or should be) regarded as acceptable knowledge in a discipline' (Bryman & Bell, 2003, P.13). The central issue, in this context, is whether the real world can be and should be studied according to these principles and procedures. Positivists argue that the social world exists externally and that its properties should be measured through objective methods (Easterby-Smith et al., 2002) and this perspective comes under natural science

epistemology. Another approach within the epistemological frame is interpretivism which 'requires a different logic of research procedure, one that reflects the distinctiveness of humans as against the natural order' (Bryman & Bell, 2003, P.15). Weber's expressed his view of social science as that 'science which attempts the interpretive understanding of social action in order to arrive at a causal explanation of its course and effects' (Weber, 1947, P.88). In this definition, the 'subjective interpretation of action' is of central concern (Parkin, 2002, P.18).

In terms of ontology, the question is what the form and nature of reality is (Guba & Lincoln, 1994) or, an alternative explanation has been offered as 'whether social entities can be and should be considered objective entities that have a reality external to social actors (objectivism), or whether they can be and should be considered social constructions built up from the perceptions and actions of social actors (constructivism)' (Bryman & Bell, 2003, P.19). That is, objectivism asserts that social phenomena have an existence that is independent of social actors, whereas by contrast supporters of constructivism assert that the social phenomena are continually being created by social actors (Bryman & Bell, 2003). The constructivist approach resonates with the interpretivist emphasis on the world of experience as it is lived, felt and undergone by social actors (Schwandt, 1994, P.125).

3.2.2 Qualitative and quantitative research

In general, research methodological issues are divided into qualitative and quantitative research. However, the status of this distinction remains ambiguous, because both qualitative and quantitative research are often considered and conducted simultaneously by researchers (Bryman & Bell, 2003), and this division has been criticised as being no longer useful or even simply as being 'false' (Layder, 1993). Nevertheless, the qualitative/quantitative distinction represents a useful means of classifying different methods of business research (Bryman & Bell, 2003). Quantitative methods are used for measuring and counting phenomena and qualitative methods are more descriptive in character (McQueen & Knussen, 2002; Miles & Huberman, 1994). Bryman and Bell (2003) further explained the differences

between qualitative and quantitative research, with the former usually placing emphasis on words in the collection and analysis of data and being inductive, interpretivist (epistemological view) and constructivist (ontological view) for the purpose of the generation of theory. By contrast, quantitative research focuses on quantification in the collected and analysed data, by incorporating the practices of the natural scientific model and entails an objectivist conception when testing theory (see Table 3-2).

Table 3-2 Quantitative and qualitative research strategies

	Quantitative	**Qualitative**
Epistemological orientation	Natural science model, in particular positivism	Interpretivism
Ontological orientation	Objectivism	Constructivism

(Source: Bryman & Bell, 2003)

This research aimed at exploring and explaining the development and the course of inter-organisational conflict in the virtual context, where participants interpret their social world by their actions/interactions and thus objective methods were not considered to be appropriate. In other words, a qualitative research strategy was considered to fit with the aims of this research and is therefore adopted.

Denzin and Lincoln (2005) offered the following comprehensive definition of qualitative study:

> Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. (Denzin & Lincoln, 2005, P.3)

This definition contains important concepts that are intrinsic to qualitative research, including the fact that it is interpretive, i.e. it is interested in eliciting meaning and that it is concerned with effects, i.e. what causes the world to be transformed. Further,

Creswell (2007) provided a definition focusing on the design of research and the use of distinct approaches to inquiry e.g. ethnography and narrative, as follows:

> Qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning individuals or group ascribe to a social or human problem. To study this problem, qualitative researchers use an emerging qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and the data analysis that is inductive and establishes patterns or themes. The final written report or presentation includes the voices of participants, the reflexivity of the researcher, and a complex description and interpretation of the problem, and it extends the literature or signals a call for action. (Creswell, 2007, P.37)

This definition stresses the process of qualitative research in connection with natural settings, data collection and data analysis as being an applicable research methodology. Building on this definition, the next sections describe the methods of data collection and analysis in the field as applied in this study.

3.2.3 Exploratory, descriptive and explanatory strategies

Miles and Huberman (1994) pointed out the difficulty and importance of adopting systematic research strategies, whereby:

> Looking at a situation, any researcher wants to know clearly what is going on and how things are proceeding – and usually wants as well to understand and explain coherently why things occur as they do. This innocent formulation can be embroidered endlessly, which we do not propose to do. We can, however, define some terms and make some useful distinctions. (Miles & Huberman, 1994, P.90)

Therefore, research strategies are needed and these can be classified in terms of their purposes (Robson, 1993) which most often involve exploration, description and explanation (Creswell, 2007). Moreover, a study may be concerned with more than one purpose and possibly all three (Robson, 1993). The main purposes of enquiry relating to an exploratory strategy address: ‘what is happening; to seek new insights; to ask questions and to assess phenomena in a new light’ (Robson, 1993, P.82), whereas description aims to ‘portray an accurate profile of persons, events or

situations' (Robson, 1993, P.82), and explanatory strategy 'seeks an explanation of a situation or problem, usually in the form of causal relationships' (Robson, 1993, P.82). Miles and Huberman argued further that an analytical progression should be acknowledged when establishing research strategies, in that: 'qualitative studies are often mounted to explore a new area and to build or emerge a theory about it' (Miles & Huberman, 1994, P.90).

In this study the intention is to explore the nature of inter-organisational conflict in the virtual context, describe the complicated phenomena into components for better understanding, and to explain the relation between inter-organisational conflict and virtual communications in which there is still a gap in the knowledge. With this aim in mind, a framework to assist the explanation of inter-organisational conflict in virtual communications was established. Moreover, taking into account the above discussion, exploratory, descriptive and explanatory strategies were all adopted for this study.

3.3 Research approach – Multiple-case study

To explore, describe and explain the nature of inter-organisational conflict in the virtual communication environment are both purposes and strategies of this research. In order to study the phenomenon of conflict in the virtual context and gain rich data, a multiple-case study was selected as the research approach. The following sections discuss the details of the adoption and application of this approach for this thesis.

3.3.1 Adoption of a multiple-case study

Case studies can be employed as exploratory, descriptive and explanatory strategies (Yin, 1981) which have been described as follows:

> An exploratory case study (whether based on single or multiple cases) is aimed at defining the questions and hypotheses of a subsequent study…… A descriptive case study presents a complete description of a phenomenon within its context. An explanatory case study presents bearing on cause-effect relationships- explaining how events happened. (Yin, 2003b, p.5)

Moreover, the research strategy design depends on three pivotal factors: the nature of the research questions, the requirement for control of behavioural events and whether it focuses on contemporary events (Yin, 2003a). Based on the these considerations, a case study was considered as being an appropriate research strategy for this study because 'case studies are the preferred strategy when "how" and "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context '(Yin, 2003a, P.1).

A case study is a strategy for carrying out research which involves an investigation of a contemporary phenomenon within its real life context, using multiple sources of evidence (Robson, 2002; Yin, 2003b). Similarly, Gillham (2000) described a case study as: 'a unit of human activity embedded in the real world, which can only be studied or understood in context, which exists in here and now and that merges in what its context' (Gillham, 2000, P.1). Robson (2002) highlighted several important elements that are desirable when conducting a case study:

- a *strategy*, i.e. a stance or approach, rather than a method such as observation or interview;
- concerned with *research*, taken in a broad sense and including, for example, evaluation;
- *empirical* in the sense of relying on the collection of evidence about what is going on;
- about the *particular*: a study of that specific case (the issue of what kind of generalization is possible from the case, and of how this might be done, will concern us greatly);
- focused on a *phenomenon* in context, typically in situations where the boundary between the phenomenon and its context is not clear; and
- Undertaken using *multiple methods* of evidence or data collection.

(Robson, 2002, P.179)

That is, this gives a clear account of the key considerations when carrying out case studies, by describing the procedures that should be followed. Although several similar procedures have been developed (e.g. Creswell, 2007; Stake, 2006; Yin, 2003b), this researcher mainly relied on Robson's approach for conducting the case-studies. What follows is a discussion on the case studies applied in this research according to Robson's suggestions.

In qualitative case studies, researchers can investigate a bounded system (single case study) or several bounded systems (multiple-case study) over time (Creswell, 2007). Case studies can be distinguished by their size, such as whether the case involves: one individual, a group, a programme or an activity, and they can be classified according to their intended purpose: single instrumental case study, multiple-case study and the intrinsic case study (Creswell, 2007; Stake, 2006). In a single instrumental case study, researchers focus on a particular issue and then select one case to illustrate the issue. However, with the purpose of increasing the validity generalisation, researchers often choose several cases as representatives of the issue being studied, that is multiple-case study. The third type of case study design, an intrinsic case study, is one in which the emphasis is on the case itself because the case presents an unusual or unique situation (Creswell, 2007). Overall, the evidence from a multiple-case study is often considered more compelling (Yin, 2003b, P.46) and thus it is regarded as being more robust (Herriott & Firestone, 1983). Therefore, this researcher conducted a multiple-case study in order to obtain extensive resources from the cases.

3.3.2 Research and theory

When a case study approach is adopted, the role of theory is very important. That is, because it is impossible for everything of relevance to be reported, a theoretical proposition acts as a guide for data collection and analysis. Accepting this requirement, this multiple-case study was carried out based on the conceptual framework presented in the literature review (Table 2-8, Chapter 2). The reason for selecting a multiple-case study for this research was not only for the purpose of gaining more compelling and robust data than with single case study, but also because it was considered to be highly relevant to the purpose of this research. That is, it was aimed at investigating the nature of conflict in the virtual environment, a concept that is difficult to quantify in objective terms, and thus the multiple-case study approach with its comparative feature allowed for a more clear picture of the different conflict levels to be established, i.e. whether they were high, moderate or

low. The findings of De Dreu et al.'s (1999) study regarding conflict and its performance support this arrangement. They posited that an analysis of conflict as a state between organisations would benefit from a comparison of companies not experiencing conflict or experiencing low levels with those involved in high conflict situations. Moreover, in their work they stressed that studies of conflict need to take into account its intensity, that is, whether it is: low, moderate, or intense, and its frequency, which refers to whether it occurs: rarely, sometimes, or very often. The latter point regarding conflict frequency is extremely difficult to quantify, in terms of exact numbers, because, for instance the researcher cannot record simultaneous conflict situations going on in different scenarios. So for the purpose of collecting valid data for this research, the intensity of conflict was adopted as the indicator of conflict level.

3.3.3 Comparative design

Yin (2003b) has suggested that the design of a multiple-case study should use the logic of replication, whereby the researchers replicate the procedure of each single case. However, it is difficult for qualitative researchers to generalise one case to another because the contexts of each case are hardly ever being the same (Creswell, 2007). The aim of the research was to observe unexpected and unpredictable aspects of conflict and thus it was important to build flexibility into the procedure to capture this. Moreover, when comparative design is undertaken for multiple-case study, cases can be selected on the basis of their representing extreme types (Bryman, 2004; Pettigrew & Whipp, 1991), for example, the unsuccessful and successful firms regarding operating systems were the cases selected to be compared in Pettigrew and Whipp's study (1991).

In this study, two key elements of business strategic conflict and cultural conflict were examined in the inter-organisational collaborations, whereby the cases for comparison that were selected were made up of: (1) organisational collaborations experiencing high/low business strategic conflict in virtual communications, and (2)

organisational collaborations encountering high/low cultural conflict through virtual communications (see Figure 3-1).

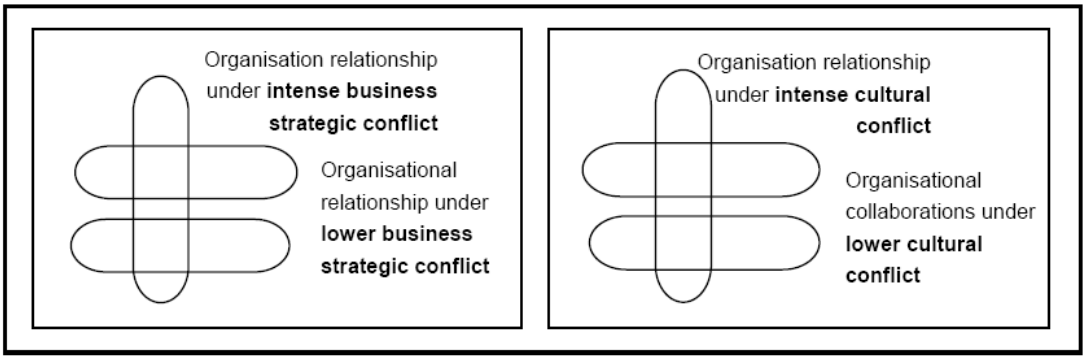
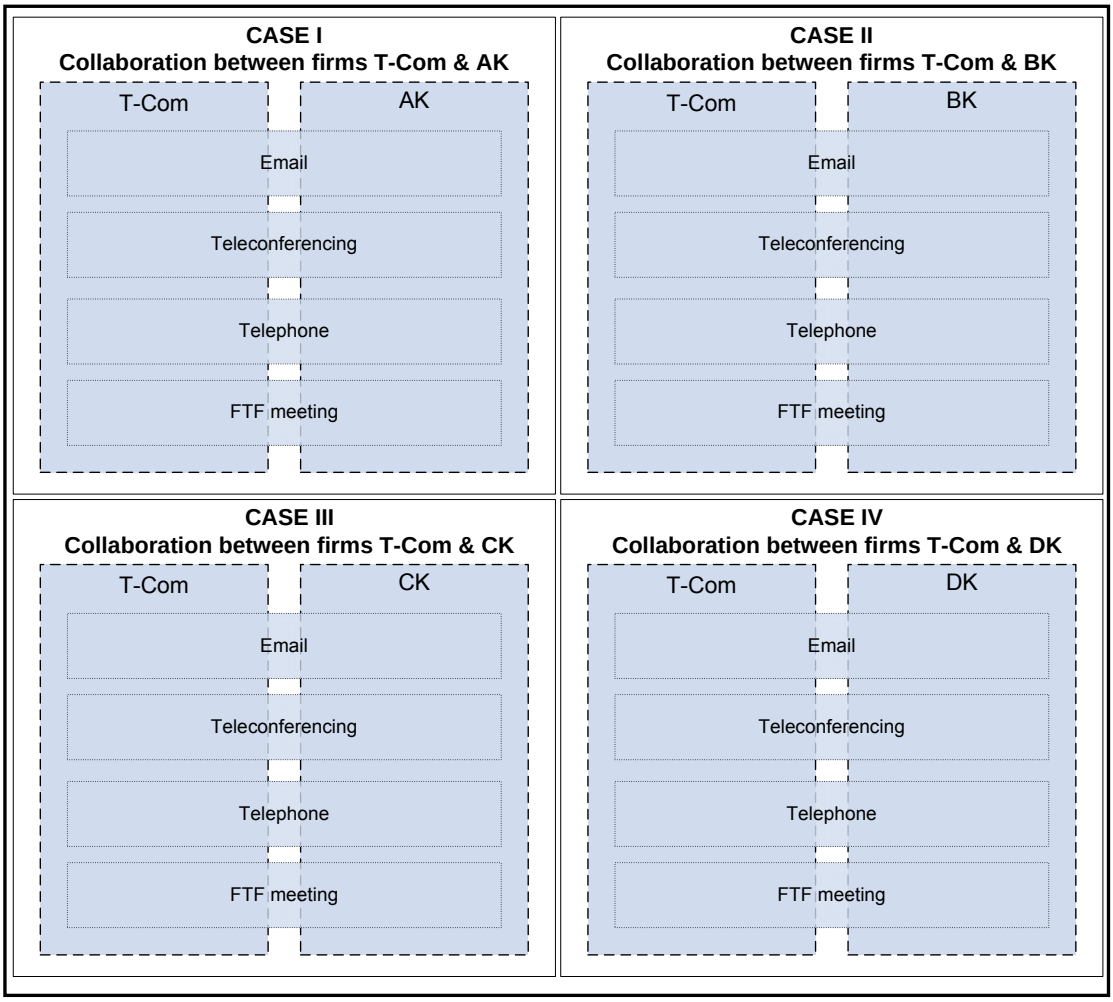


Figure 3-1 Case comparison

Nevertheless, it should be noted that, as mentioned in Chapter 2, even though business strategic conflict and cultural conflict were the main focal points for this study, this researcher remained open-minded about any relevant elements regarding inter-organisational conflict in the virtual context that could emerge during the fieldwork. Any such new emergent inter-organisational conflict may have exhibited different patterns but the strategy of case comparison would, nevertheless, still hold.

3.3.4 Unit of analysis

Robson (2002) identified a number of different types of case studies: individual case study, set of individual case studies, community study, social group study, studies of organisations and institutions and studies of events, roles and relationships. The lattermost, namely studies of relationships, is primarily used in this research because the main focus is on inter-organisational collaboration that consists of interactions between two or more organisations. Hence, the arrangement of business collaboration between two companies is the unit of analysis in this study (see Figure 3-2).



* T-Com, AK, BK, CK and DK are pseudonyms of the firms in this multiple-case study. Background information regarding the cases is described in Chapter 4.

Figure 3-2 Unit of analysis

The types of case study can be classified as a holistic analysis of the entire cases or an embedded analysis of a specific aspect of the cases (Yin, 2003b). As this study especially looks at virtual communication, which comprises: email, teleconferencing (i.e. audio-conferencing and video-conferencing), telephone and FTF meetings (see Chapter 2, literature review), the selected media for communication is the specific aspect in these cases.

Moreover, given that the research objects were widely distributed in terms of place and time, and it was not possible for this researcher to collect data from different companies simultaneously. Hence, data was collected from members of one

company (namely T-Com in Figure 3-2) and from the organisational collaborations between this company and the four firms with which it was collaborating (details about data collection are discussed in section 3.4).

Nevertheless, it should be pointed out that the unit of analysis can be at a different level to that of the data collection. For instance, if the case-study is carried out at the organisational level, the unit of analysis is the organisation although the researchers may rely heavily on information from individuals (Yin, 2003b). In other words, the data collection may be from both individuals, e.g. interviews with employees in a company and organisations, e.g. business policies of an organisation, but the outcomes are expressed in terms of the different organisations. In this study, a set of organisational collaboration between pairs of companies has been defined as the unit of analysis, whereas the actual behaviour of interest to this researcher was carried out by individuals who represented their organisations and who were the sources of data collection.

3.3.5 Theory generalisation

The main argument in favour of the multiple-case study approach is that it improves theory building (Bryman, 2004). That is, by comparing multiple cases, researchers are in a better position to establish the situations in which a theory can be tested (Yin, 2003b). Although this study is not aimed at testing theory, the beneficial effect of undertaking a multiple-case study for establishing theory still holds true.

The term theory in this research initially referred to the framework 2-8, as discussed in section 3.3.2, and was adopted for guiding the research process. Subsequently, once the data collection was completed, theory represented a form of map that explained the story about events happening in the field and the attempts to elicit generalised concepts from these (Miles & Huberman, 1994). In other words, based on the initial conceptual framework presented in Table 2-8, a more comprehensive framework was established after the gathering of the evidence from the fieldwork site.

Nevertheless, the question about the purpose of any theory established from the research needs to be considered before carrying out the fieldwork. In general, researchers in natural science see theory as providing explanations, predictions and as being testable (Popper, 1980). A similar view is found in social science area in that Doty and Glick (1994) suggested that the minimal definition of a theory is that it must meet three primary criteria: constructs must be identified, relationships among these constructs must be specified and these relationships must be able to be tested. Further, Gregor (2006) proposed five types of theory, which are type I: theory for analysing, type II: theory for explaining, type III: theory for predicting, type IV: theory for explaining and predicting and type V: theory for design and action, for information system research with regards to the primary goals of building theory (Table 3-3).

Table 3-3 A taxonomy of theory types in information systems research

Theory Types	Distinguishing Attributes
I. Analysis	Say 'what is'. The theory does not extend beyond analysis and description. No causal relationships among phenomena are specified and no predictions are made.
II. Explanation	Say 'what is', 'how', 'why', 'when', 'where'. The theory provides explanations but does not aim to predict with any precision. There are not testable propositions.
III. Prediction	Says 'what is' and 'what will be'. The theory provides predictions and has testable propositions but does not have well-developed justificatory causal explanations
IV. Explanation and prediction	Says 'what is', 'how', 'why', 'when', 'where' and 'what will be'. Provides predictions and has both testable propositions and causal explanations.
V. Design and action	Says 'how to do something' The theory gives explicit prescriptions, e.g. methods, techniques, principles of form and function) for constructing an artefact.

(Source: Gregor, 2006)

Theory development should depend on the nature of the problem that is to be resolved in the research and the research questions of interest (Gregor, 2006). As this study is aimed at exploring and explaining the nature of inter-organisational conflict in the virtual environment, a framework for both describing and explaining the phenomenon is established based on the multiple evidence emerged from the collected data. Further, by means of case comparison, the framework provides in-

depth understanding from explaining to predicting how conflict is transformed in the inter-organisational virtual communication setting, namely type IV theory in Gregor's classification.

3.4 Method of data collection – Participant observation

In qualitative research, 'all researchers in all disciplines are concerned with evidence and theory' (Gillham, 2000, P.12). The importance of theory has been addressed in the previous section, and this section discusses the methods of data collection which aimed at gathering multiple sources of evidence. Recognising that conflict is a sensitive issue in any organisational setting, and thus employees may be unwilling to talk about it, the method of data collection that was considered to be the most appropriate for this study was participant observation, which allowed this researcher to collect rich data in a direct way (McCall & Simmons, 1969). Moreover, distortion of the results can be reduced to a minimum through direct interaction with research objects (Kluchkohn, 1940).

3.4.1 Definition of participant observation

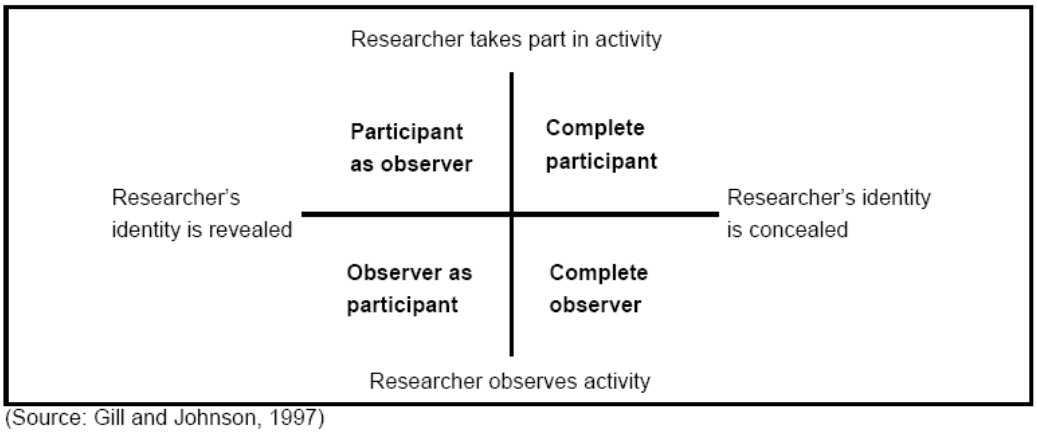
Participant observation is where 'the researcher attempts to participate fully in the lives and activities of subjects and thus becomes a member of their group, organisation or community. This enables the researcher to share their experiences by not merely observing what is happening but also feeling it' (Gill & Johnson, 1997, P.113). It is a process in which the researcher's participation and presence in a social situation is maintained for the purpose of scientific investigation (Schwartz & Schwartz, 1995). Whyte (1979) defined participant observation as a research technique that requires researchers to participate in the research objects' activities through observation over an extended period of time. Put simply, participant observation is a method by which researchers become involved in a particular field and observe social activities in connection with the subject of the study. The purpose of this method is 'to obtain data about behaviour through direct contact and in terms of specific situations in which the distortion that results from the investigator's being

an outside agent is reduced to a minimum' (Kluchkohn, 1940, P.331). Therefore, this method has been used extensively to obtain data in attempts to get to the root of 'what is happening' and 'what is going on' in a wide range of social settings (Saunders et al., 2000).

Delbridge and Kirkpatrick (1994, P.37) pointed out that participant observation implies a research strategy of 'immersion in the research setting, with the objective of sharing in people's lives while attempting to learn their symbolic world'. This statement highlights two key features of conducting this method: firstly, researchers deeply immerse themselves in the research setting when they conduct participant observation, and secondly, one of the purposes of carrying out such a study is to learn the respondents' symbolic world. In this vein, Delbridge and Kirkpatrick (1994, P.39) asserted that 'in the social sciences, we cannot hope to adequately explain the behaviour of social actors unless we at least try to understand their meanings'. This highlights a vital difference between researchers adopting participant observation and those carrying out data collection by questionnaires 'where you [the researcher] probably will know little of the context in which the respondents' comments are set or the delicate nuances of meaning with which the respondents garnish their responses' (Saunders et al., 2000, P.219). That is, participant observers are often able to discover these delicate nuances of meaning (Saunders et al., 2000).

Several types of participant observation covering different roles for the researcher have been identified. Schwartz and Schwartz (1995) discussed the role of a participant observer by its function, which they divided into: passive observer and active observer. Passive observers keep themselves outside of the observed actions and are less involved with the research objects, whereas active observers engage in intensive interaction with the observed (Schwartz & Schwartz, 1995). Moreover, the position of the researcher can vary when carrying out participant observation in that she/he can be: a complete observer, observer as participant, participant as observer and complete participant, depending on the extent of her/his involvement (Gold, 1958). A similar division was offered by Nandhakumar and Jones (1997), in terms of passive observation and participant observation, where according to their definition

the former is similar to Gold's complete observer, and the latter covers the remaining three types. Gill and Johnson (1997) developed a four-fold categorisation (Figure 3-3) of the role a participant observer can use, which is also similar to Gold's classification. These are: complete participant, complete observer, observer as participant and participant as observer.



(Source: Gill and Johnson, 1997)

Figure 3-3 Typology of participant observation researcher roles

The type of the participant as observer was adopted for this study, as this researcher had the intention of developing a rich and deep understanding of an organisational phenomenon which needed much thorough observation. In this role, this researcher's identity and research subject were disclosed to the actors in the field and, thus, it was deemed appropriate for the social activities that happened in the research setting to be recorded in the form of a diary (termed as daily logs in this study).

3.4.2 Advantages and disadvantages of participant observation

Nevertheless, participant observation has distinct advantages and disadvantages. For example, proponents of the method have expressed the belief that it allows researchers to have direct contact with the research objects, and thus they are not restricted to static data and rigid procedures of data gathering, whereas critics consider that this method's feature of non-standardisation may cause difficulties when it comes to supporting the research propositions (McCall & Simmons, 1969).

McCall and Simmons (1969) proposed that there are two major reasons why the method should be championed.

> (1) …as being less likely than other methods to be biased, unreliable, or invalid because it provides more internal checks (of more direct nature) and is more responsive to the data than are the imposed systems of other methods.
> (2) …participant observation is not restricted to static cross-sectional data but allows real study of social processes and complex interdependencies in social systems…The data of participant observation is richer and more direct. (McCall & Simmons, 1969, P.2)

In addition, they pointed out that participant observation provides more flexibility regarding access to and observation of the actors in the research. This can be advantageous because those people being questioned during alternative research strategies may choose to refuse to answer sensitive questions in an interview and thus an opportunity may be lost. By contrast, in participant observation over a period of time, trust may become established, whereby those being observed eventually are prepared to respond to sensitive topics (McCall & Simmons, 1969).

Saunders et al., (2000) summarised the advantages and disadvantages of this method as follows.

Advantages of participant observation:

- It is good at explaining 'what is going on' in particular social situations.
- It heightens the researcher's awareness of significant social processes.
- It is particularly useful for researchers working within their own organisations.
- Some participant observation affords the opportunity for the research to experience 'for real' the emotions of those who are being researched.
- Virtually all data collected are useful.

Disadvantages of participant observation

- It can be very time consuming.
- It can pose difficult ethical dilemmas for the researcher.
- There can be high levels of role conflict for the researcher (e.g. 'colleague' versus researcher)
- The closeness of the researcher to the situation being observed can lead to significant observer bias.
- The participant observer role is a very demanding one to which not all researchers will be suited.

- Access to organisations may be difficult.
- Data recording is often very difficult for the researcher.

(Saunders et al., 2000, P. 229)

Participant observation has drawn criticism for its lack of a standardised procedure, which can lead to difficulties in collecting effective data. Moreover, the method has also been questioned as the confidential relationship that can develop between research objects and researchers that can result in biased interpretations of the observations. In order to avoid systematic distortions by these potential limitations and prevent the data collection lapsing into the researcher's personal biases, several researchers have offered some useful principles that researchers should be adopted when conducting participant observation (e.g. Dean et al., 1967; Nandahakumar & Jones, 1997; Nandhakumar & Jones, 2002; Schwartz & Schwartz, 1995; Strauss & Juliet, 1998). Based on their suggestions, the following sections discuss the process of undertaking participant observation in this study with the aim of maximising the advantages and minimising the disadvantages. The sections below contain several pseudonyms used in place of the names of companies and employees under study for the purpose of confidentiality, and more detailed background information regarding these firms is presented in Chapter 4.

3.4.3 Access to the field

Gaining entry to the field setting of interest is a significant challenge that most researchers have encountered no matter what their area of study. In particular, gaining access for participant observation is problematic because it involves the requirement of working interactively and intensively with the research objects. Dean et al. (1967) therefore suggested that field side contact with senior authority is preferable, as it allows for it easy access to the field of the objects, once permission to do so has been given.

In this vein, this researcher proceeded with negotiations in August 2006 with the top managers in T-Com (a pseudonym of a company in Taiwan) where she had worked for over three years as a project manager and was planning to carry out the fieldwork

for this research. These negotiations were aimed at ensuring that this company could offer cases that involved inter-organisational collaboration through virtual communication that would be suitable for this study. In practical terms, a meeting was arranged with the vice president of T-Com to obtain his consent to undertake the fieldwork in this company and with its collaborative organisations in East Asia. In fact, this was slightly different from the original aim in that this researcher had been intending to look for cases with regard to inter-organisational collaboration between Eastern and Western countries, as she was of the assumption that more cultural conflict could be observed in such situations. However, T-Com's vice president strongly believed that the cases he was offering for investigation would provide fruitful information in line with this researcher's needs. Indeed, the evidence that emerged from this multiple-case study has shown that the cultural issue in collaborations between East Asian countries presents idiosyncratic behaviours that previous studies have failed to identify or explore (the research findings are discussed in Chapter 5).

Nevertheless, this researcher continued to look for further possible cases to study and arranged another meeting, during the same visit to the company, with the senior manager in the Research & Development (R&D) department with this goal in mind. In this meeting, the senior manager also suggested that the same cases as the vice president had offered should be explored, even though he did not know the recommendations of the vice president from the previous meeting. Thus, the outcome of the second meeting, which lasted for six hours, reinforced this researcher's interest in studying the cases of business collaborations between T-Com and its Korean supplier organisations, numbering four in total. Moreover, the meeting with the R&D senior manager assisted this researcher in refining the data collection methods, with respect to both the quantity of data, e.g. how many joint projects T-Com and these supplier companies were co-working on, and whether they conducted CMC during their collaborations. In addition, from this meeting, information regarding the nature of each case of collaborations was provided, that is whether they were contract-based

alliances or collaborations for joint product development. This enabled this researcher to understand which documents she would need to collect and study.

After these meetings, this researcher stayed in T-Com for a week and had discussions with the managers in the four Korean supplier companies. These discussions were time-consuming but finally agreement was reached and permission granted to join their business collaborations. As they expressed their concern in the maintaining of confidentiality, the names of the companies, products and employees are expressed as pseudonyms throughout this thesis. These meetings were vital to the success of gaining access to the field of interest. This was particularly the case in the meeting with the T-Com senior manager, as he not only provided in-depth information about the complications of organisational collaboration in high-tech industries, but also gave potential sources for corroborating the research evidence. The purpose of the meeting was not to pre-test the research questions and so it was not transcribed. Nevertheless, it did provide important ideas for the research design, and afterwards this researcher was able to collect rich data based on the information that the R&D manager gave.

Owing to her researcher's past working experience in this company, she was offered a position of trust as an assistant to the senior manager in the R&D department, being assigned the job role of temporary engineer in T-Com. Her engineering background and experience in working in similar sectors allowed for her to play a significant role in the projects undertaken in the four cases and to capture rich team interactions which under other circumstances would have been extremely difficult.

3.4.4 Researchers' dual roles

In participant observation, the role of the observer is integrated into the field setting and, thus, concern has been raised that their dual role may lead to ethical problems. It has been argued that the researcher has to develop a close relationship with the research objects to capture the richness of data and the relationship can involve 'over rapport' (Miller, 1952). This can lead to the observed to create and produce data to

satisfy the researcher, or on the other hand, they may act and behave self-consciously, withholding and concealing evidence when they are aware of the goals of the research (Nandhakumar & Jones, 1997). However, Schwartz and Schwartz (1995) found that when those being observed become convinced that the researcher's intentions and attitudes towards them are genuine, atypical behaviour will diminish gradually. Moreover, this can also be overcome by ensuring that the research is carried for a prolonged period of time as it is difficult for the observed to maintain the stance of acting atypically (Ellis, 1995; Nandahakumar & Jones, 1997).

Indeed, as the identity and role of the researcher and the research topic were revealed to the participants prior to the fieldwork commencing, they were able to disguise their conflict behaviour in the initial stages of the research, and thus it was difficult to detect its existence in order to begin the data collection. However, after about the fourth week of the project when the participants had started to trust this researcher, they started to include her in all their email communications, invite her to meetings and behave more naturally. Moreover, with the researcher's role being a manager's assistant it allowed for her to have more opportunities to attend events and activities without barriers being put in her way (e.g. top management meetings). In fact, contrary to their being attempts to exclude her, what occurred was that some participants tried to influence the senior manager's decisions by going through her. In her dual role as participant and observer, she took care to manage carefully the opportunities and threats that arose during the research period. In particular, she refrained from becoming too intimate with objects of the study and made every precaution not to intentionally interfere with the content of the data collected.

3.4.5 Sources of data

Data triangulation (Patton, 1987) was applied in this study by using multiple sources of evidence which would minimise the degree of distortion and biases (Frankford-Nachmias & Nachmias, 1996), and this also reduced the risk of arriving at abnormal conclusions brought about by the bias of data that may have occurred from only employing a single source (Yin, 2003a). The use of data triangulation in this study

was not so as to prove or refute the suitability of the research methods and, in fact, was employed to allow for a combination of data sources, so as to enhance the efficacy of the overall data collection and thus help in reducing the limitations associated with each treatment. The data collection of this study included three sources: daily logs recorded by this researcher's everyday observations, interviews and relevant documents.

- Observation data recording

In participant observation studies, it is difficult to decide whether or not to immediately record events as they occur because it is hard to judge whether the issues are important or do not merit being logged. Obviously, it is not possible to record literally everything, however, Strauss (1964, P.73) advised 'it is a good principle to record more details than the researcher thinks he will need it'. Moreover, Nandhakumar and Jones (2002) argued that data recording is 'a process of retrospective sense-making' (P.333) as it may fade from researcher's memory with the lapse of time. Therefore, most experienced participant observers consider it to be important to make mental notes when events are taking place and then write these down when convenient (Strauss et al., 1964). In this context, for participant observers, daily logs (or field notes) are recommended, because it has been argued that this sequential recording of events on a regular basis allows for consistency in the data collection process (Bryman, 2004; Geer, 1964; Nandhakumar & Jones, 2002; Strauss et al., 1964).

During the fieldwork of this research, this researcher engaged in routine matters and events of relevance to the research concerning the four business collaborations. Both formal and informal social activities were attended and these included the following six events:

(1) FTF meetings

(2) Telephone discussion

(3) Audio- and video-conferencing meetings

(4) Email communication

(5) Product seminars

(6) Informal social activities

With regard to the timing of data recording, this researcher recorded what she saw, heard and felt after participating in any of the above events, and wrote a daily log at the end of every workday to summarise what had happened in the research setting on that day. However, initially as mentioned above, conflict behaviour was difficult to identify because the research objects' behaviour often disguised it, and she had not yet learnt the cues that indicated that conflict was present. Therefore, to facilitate an understanding of the conflict phenomenon, she recorded conversations in a narrative way in daily logs, which could be later coded for the data analysis. That is, by this process, conflict situations could be identified retrospectively, when they were better understood. In addition, because the patterns that were identified from the earlier logs could be coded (Miles & Huberman, 1994), the later observations during the research could become more theme focused.

- Interviews

An interview is a directed conversation (Lofland & Lofland, 1984) and was considered as an important source of data in this multiple-case study. The responses from participant observation and interviews can be complementary. In this respect, Trow (1957) put forward a metaphor for the joint function that the two can perform: they are like scalpels and forceps that are used for different functions and purposes but can be supportive to each other. Moreover, Denzin (1978) identified the advantage of using a combination of participant observation and interviewing as follows:

> In organizational studies, for example, it is extremely difficult to launch large-scale participant-observation studies when the participants are widely distributed by time and place. In such extractions participant observation may be adapted only to certain categories of persons, certain events, certain places or certain times. The interview method can then be employed to study those events that do not directly come under the eyes of the participant observer. (Denzin, 1978, P.303)

Further to this, participant observations and interviews were adopted in this study for different purposes. That is, participant observation was conducted in the field setting to see what was happening in real life, whereas an interviewing technique was adopted for gaining people's direct responses, namely, listening to what they said and what they thought, when questioned. For example, if this researcher's attention was drawn to observing specific behaviour when it happened, she might have missed the responses from the research objects with respect to the reasons for the behaviour's occurrence and, in such circumstances, interviews were useful. Further on this issue, participant observation allows for the possibility of comparing the object's description of an event with what is observed to have happened by researchers (Becker & Geer, 1957). In addition, an interview assists with the understanding of a respondent's verbal behaviour by means of their oral or written report (Frankford-Nachmias & Nachmias, 1996).

The major types of interviews are: structured, semi-structured and unstructured forms interviews, which are differentiated by the level of standardisation. That is, a structured interview involves asking all the interviewees the same list of questions and is suitable when the investigator already has some idea of what happens in the field that is under investigation. A semi-structured interview is conducted by setting a series of main questions and offering the possibility of alternating the sequence, in order to probe for more information. Last but not least, an unstructured interview incorporates several subject areas about which the interviewers wish to elicit responses from the interviewees. With this format, the interviewer is free to rephrase the questions for each respondent and also is permitted to change question order, as deemed appropriate. Moreover, in this form of interview it is permissible for the interviewers to participate in informal conversations. For those researchers newly arrived in the proposed research setting, it is the quickest method to gather basic information that assists the undertaking of the study.

For this study, unstructured interviews were carried out because they allowed for this researcher greater freedom to delve into areas that were brought up by the respondents through successive follow up questions (Rubin & Rubin, 1995).

Moreover, unstructured interviews taken in informal settings (e.g. ordinary chatting with employees in these cases) provide another form of access to those people who are unwilling to be formally interviewed or people who become anxious in such circumstances (Gillham, 2005). Further, over time, in normal informal discussion situations, people are more likely to give feedback and to provide useful information that the researcher needs without being asked (Gillham, 2005), and thus the data from this form of interview can provide an important supplement to that obtained from the participant observation.

In addition, a list of pre-designed topics was developed as a guide for proceeding with the unstructured interviews (Appendix A). Interviews following this guide were mainly with the key informants, that is, those people who had the greatest knowledge in relation to the research questions and others who were keen to provide useful information (Whyte, 1979). Dean et al.'s (1967) suggestion regarding the selection of key informants was followed in this study in that they included:

- Informants who are especially sensitive to the area of concern. Mostly, there are some people with formal or informal power or authority in groups. They may be supportive to the researcher for getting what he/she actually are concerned with.
- The more-willing-to- reveal informants. The most welcoming people may be more willing to talk and contribute more information. The information which they provide may be more fruitful than the interviewer expects.
- Critical events. Interviewing people involved in some critical event may give the researcher more direct information than the others seeing things from the outside. Their opinions, feelings and emotions about the social events are important sources.
- Expert persons in the field. Some people in organisations have their specific knowledge in different regions where they also may be closely in touch with those the researcher wants to know.

(Dean et al., 1967, P.274-304)

Interviews provide several distinctive advantages when carrying out research, as discussed above. However, selection of key informants can lead to another problem in that these people may mislead researchers by pointing their attention in the wrong direction. Thus, the researcher needs to be cautious when interpreting data and also

should ensure corroboration of the information attained by referring to different appropriate sources. Next, one such alternative source of data that was applied in this study is addressed, namely documentary data.

- Documentary data

The most significant use of documentary data is to corroborate evidence from other sources (Yin, 2003a). Whilst observational data from participating in social activities provide a good understanding of the research setting and interviewing people is expected to obtain answers from research objects directly, documentary data can provide specific details to corroborate the information from such observations and interviews (Yin, 2003b). Three types of documents (i.e. emails, meeting minutes and technology documents) as set out below, were used in this study to establish a comprehensive picture in connection with the research questions.

(1) Emails

Email, as mentioned earlier, is currently the dominant technique for communication, and it was an essential source in this research for studying virtual communication, providing plenty of information in relation to the research questions.

(2) Meeting minutes, including both teleconferencing meetings and FTF meetings

Minutes of meetings were helpful for describing specific events in details and they were also used for comparison with email communication, to establish the facts regarding a particular matter.

(3) Technology documents

The types of technology documents included: the companies' product specifications, evaluation reports and published technology magazines and they formed the basis for people co-working on the same projects. Based on these, rough design ideas could be transformed into concrete product specifications and unknown technical problems

could be clarified by the process of precise inspection failure analysis. Thus, the contents of the technology documents provided plenty of useful information.

3.4.6 Ending observations

The duration of a fieldwork study depends on both the availability of the researcher's time and the research objects' willingness to continue participating (Nandhakumar & Jones, 2002). In this multiple-case study, six months was the average working duration of a single project collaboration. Therefore, a deal was reached between this researcher and the selected companies that this fieldwork would be undertaken for six months, which in theory would allow her to participate throughout the duration of a complete project. In fact, the fieldwork took five months and during this time she was involved, to greater or lesser extent, in seventeen projects. For approximately ten of these she participated from their inception, and for the rest she became involved at a later stage (details are discussed in Chapter 4). Some joint projects had started earlier than originally scheduled so that she was not able to join them as they had already begun. Moreover, T-Com and its four supplier companies experienced different levels of conflict which led to some joint projects failing, thus they terminated earlier than planned and this researcher's involvement was no longer required.

3.4.7 Research commitment

Although participant observation is a method through which the researcher attempts to get close to objects by being involved in the research setting, this closeness may result in the researcher having a biased view too. That is, she/he may experience a process from her/his own view point rather than through reflecting and recording the context of research setting he/she is studying. Keeping a proper temporal or spatial distance is hence recommended so as to provide the researcher space for 'stepping back' for deliberate reflection on the assumptions and propositions of the investigation (Nandhakumar & Jones, 2002). Thus, the five-month fieldwork period in this study was divided into two phases. That is, after completing data gathering for

the first three months, the researcher discussed and reviewed her early analysis of the data with her supervisor so as to fine-tune her approach for the second phase. Moreover, as mentioned earlier in section 3.4.5, data triangulation was applied in the later stage of the data analysis for minimising the degree of distortion and biases (Frankford-Nachmias & Nachmias, 1996) and for reducing the risk of arriving at abnormal conclusions brought about by the biases in the data (Yin, 2003a). This two-phase staging of the fieldwork allowed for the temporal and spatial distance as recommended above and helped to minimise the researcher's bias. Moreover, by communicating the interim results with a third party, in this case the supervisor, biases that emerged from the early phase of data collection could be remedied.

3.5 Method of data analysis

Miles (1979) described qualitative data as an 'attractive nuisance'. Most qualitative analysis is done with descriptive words taking forms that include: serial questions, observations, interviews and documentary proofs (Wolcott, 1992), rather than numbers. Because of this, findings can be made more concrete, vivid and meaningful by organising the recorded words into incidents or stories (Miles & Huberman, 1994). With good qualitative data, researchers can get to the roots of events and understand which results and consequences are caused by which matters and then appropriate interpretations can be derived (Miles & Huberman, 1994). However, a profound problem encountered in qualitative data analysis is how to condense complicated contextual information into a format which describes the evidence and findings that emerged from the research setting in a way that the readers can understand and is convincing (Easterby-Smith et al., 2002). Moreover, the emphasis with qualitative analysis is always on the subjective interpretation of the findings, for which there is no agreed systematic procedure. According to Robson (2002) a systematic approach should be employed for such analysis, in order for it to be robust. In this context, several scholars (e.g. Miles & Huberman, 1994; Robson, 2002; Saunders et al., 2000; Stake, 2006) have suggested various ways for analysing such data, and the following discusses the methods of qualitative data analysis applied in this study.

3.5.1 Approach for data analysis

Crabtree and Miller (1992) presented a typology of qualitative data analysis: quasi-statistical methods, template approaches, editing approaches and immersion approaches. Robson (2002) argued that the template and editing approaches are useful, systematic approaches to qualitative data analysis, and he summarised the key features of these two:

> Template approaches:
>
> - Key codes are determined either on an a priori basis (e.g. derived from theory or research questions) or from an initial read of the data.
> - These codes then serve as a template (or 'bins') for data analysis; the template may be changed as analysis continues.
> - Text segments which are empirical evidence for template categories are identified.
> - Typified by matrix analysis, where descriptive summaries of the text segments are supplemented by matrices, network maps, flow charts and diagrams.
>
> Editing approaches:
>
> - More interpretive and flexible than the above.
> - No (or few) a prior codes.
> - Codes are based on the researcher's interpretation of the meanings or patterns in the texts.
> - Typified by grounded theory approaches.
>
> (Robson, 2002, P.458)

Template approaches were primarily adopted in this study, and thus, in the later chapters (Chapters 5 and 6), a template of data categories and a number of matrices derived from the collected data are used to display the research findings.

Furthermore, Miles and Huberman (1994) provided a sequential list of 'a fairly classic set of analytic moves' which entails:

- Affixing codes to a set of field notes drawn from observations or interviews
- Noting reflections or other remarks in the margins
- Sorting and sifting through these materials to identify similar phrases, relationships between variables, patterns, themes, distinct differences between subgroups, and common sequences

- Isolating these patterns and processes, commonalities and differences, and taking them out to the field in the next wave of data collection
- Gradually elaborating a small set of generalisations that cover the consistencies discerned in the database
- Confronting those generalizations with a formalized body of knowledge in the form of construct or theories

(Miles & Huberman, 1994, P.9)

In general, this approach, which provides an explanation for the sequential procedure of data analysis, is adopted in this study.

3.5.2 Implementation of data analysis

The course of data analysis essentially means transforming the nature of the data that researchers have collected in order to allow them to: 'comprehend and manage data, merge related data drawn from different transcripts and notes, identify key themes or patterns from them for further exploration, develop and/or test hypotheses based on these apparent patterns or relationships, and draw and verify conclusions' (Saunders et al., 2000, P. 382). The process of undertaking data analysis is like a 'ladder of abstraction' (Carley, 1993): the first step is to summarise and package the data, secondly, it is packaged and aggregated, and finally it is used to develop and test propositions to construct an explanatory framework. In this regard, Miles and Huberman (1994) also described this as 'analytic progression': from exploration, to description and on to explanation.

- From exploration to description

In the beginning stage of the observations for this study, the linkage between participants' actions and reactions was difficult to identify because it was not easily detected by the researcher and for various reasons, as discussed above, it could be disguised. Therefore, the research objects' behaviours were recorded in a narrative way by writing them in daily logs. Following initial observation, this researcher realised the importance of the connection between people's actions and reactions and

launched the stage of early data analysis in early August 2007 that is two months after the commencement of the project.

Data analysis can proceed either during or after data collection and in participant observation research situations, data collection and data analysis may be part of the same process (Saunders et al., 2000). In this study, data analysis activity and data collection were carried out simultaneously from an early stage of the fieldwork, and this enabled the focus to be more on the relevant themes during the later observations.

The early data analysis was directed towards 'coding incident to incident' (Charmaz, 2006) to explore the new elements which could supported or differed from the research questions. For instance, in the process of coding, this researcher gradually found that 'organisational process conflict' emerged as an important factor in the collaborations which was not identified until the data processing took place (details about organisational process conflict are discussed in Chapter 5). Subsequently, as patterns like this were identified they were coded (Miles & Huberman, 1994), so that the later observations could be more theme focused. Pattern coding also helped the researcher to group and sort the bulky qualitative data into more manageable concepts.

The coding was amended in total five times and the data analysed over a ten month period, from the middle stage of the data collection in early August 2007 until June 2008. The process of coding was iterative in that themes became more concrete in their depiction through each recoding exercise. The analysis was completed for each case separately and was ordered into the final categories which were used as templates for the detailed assessment of the evidence.

- From description to explanation

Furthermore, comparative analysis is a tactic for making contrast/comparisons which can lead to more conclusions (Miles & Huberman, 1994) and establish analytical distinctions (Glaser & Strauss, 1967), and therefore this method was applied in this study. By doing so, case-ordered effect matrices (Miles & Huberman, 1994) were

established for the purpose of describing and explaining what this researcher explored in this multiple-case study. That is, by comparing incident to incident, the similarities and differences between different circumstances surfaced.

Comparing the incidents from the different cases helped the researcher to elicit more insightful information of relevance to the context of this study and hence analyse the coded data more effectively, thereby crystallising the significance of data. That is, the data regarding the conversations using a specific medium in just one case could generate a helpful description of what was happening and, further, comparing the data of a number cases led to greater depth and richness with regards to the evidence. However, some of the collected data did not mirror the research perspectives, For example, early on in the study, the development of conflict was assumed to be dependent on the stages of product development, but the data did not support this perspective and this hindered the researcher, in that she kept searching for evidence to support this theory (see table 2-8), rather than allowing the evidence to emerge from the data collection. Eventually, the researcher came to realise, as Miles and Huberman (1994) had advised, that the main purpose of data analysis is to make analytic sense from a large amount of data rather than just finding proof for theoretical hypotheses. That is, allowing for the world to be seen through the research objects' understandings led to more remarkable insights that helped in making a greater contribution to the field, than was initially anticipated.

3.6 Interpretive research into IS, people and organisations

The advantages of approaching information systems (IS) from an interpretive or positivist position and the possible methods for combining these two have been widely discussed (Lee, 1991; Nandahakumar & Jones, 1997; Orlikowski & Baroudi, 1991; Snape & Spencer, 2003; Walsham, 1995). In the realm of IS, the research epistemology can be divided into three approaches: critical studies, positivist and interpretivist (Chua, 1986; Orlikowski & Baroudi, 1991). The intent of critical studies is to argue about and criticize current social systems under investigation. Positivist researchers believe that 'reality' exists, and they concentrate on finding the

reality, and thus their works tend towards testing hypotheses and predicting possible phenomena (Chua, 1986). On the other hand, under interpretive research approaches, the description of a phenomenon from the research objects' views is seen as a more important purpose than that of seeking facts. That is, interpretive researchers aim to understand the construct of some events, situations and phenomena (Orlikowski & Baroudi, 1991) by looking for interesting occurrences and/or repeated behaviours.

Orlikowski and Baroudi (1991) examined 155 IS research articles published from 1983 to 1988 and they showed that positivism was the leading approach in IS research, representing 96.8% of the field, whereas interpretive research made up only 3.2%. Nandhakumar and Jones (1997) reviewed the frequency of different data gathering methods through 197 IS journals during 1993-1996 and revealed that 160 studies in IS adopted a positivist approach, whereas there were only 37 interpretive papers. Orlikowski and Baroudi's (1991) claimed that IS research from a positivist stance has clearly been dominant, in terms of quantity, but its scope has been quite limited. Although these investigations were reported on over a decade ago, they are still relevant for highlighting the pressing for more interpretive research. Moreover, Walsham (1995) suggested that the construction of IS is largely concerned with human interpretation and, thus, the interpretive approach should be encouraged in future IS research, so as to gain an in depth understanding of the phenomenon. This present study conducting qualitative analysis with the emphasis on interpretation (Robson, 2002) is, therefore, expected to make a contribution to this field.

3.7 Chapter summary

'Qualitative case researchers orient to complexities connecting ordinary practice in natural habitats to the abstractions and concerns of diverse academic disciplines' (Stake, 1994, P.239). A case study can be a small step (Campbell, 1975) towards grand generalization although this is not always the aim when employing them in research projects (Yin, 2003b). Some scholars have called for letting the case 'tell its own story'. However, Stake argued that 'we cannot be sure that a case, telling its own story, will tell all or tell well – but the ethos of interpretive study, seeking out

meanings held by the people within the case, is strong'(Stake, 2000, P.441). In this study, a multiple-case study approach was applied by adopting participant observation and analysing the emergent data through the use of comparative methods. Subsequently, a framework was established which could be used to explain and predict phenomena regarding inter-organisational conflict in the virtual communication environment. The ways for presenting qualitative data vary. Rein and Schon (1977) suggested to start from telling a 'story' about a specific situation, and then to construct a 'map' to formalize the elements of the story. The next chapter sets out the background to the multiple-case study, by introducing the firms involved in business collaborations and the key participants.

Chapter 4: Case-studies

This chapter presents the background information for the inter-organisational setting involving the Taiwanese high-tech corporation T-Com (a pseudonym) where the data collection for this study took place and the four Korean supplier organisations AK, BK, CK and DK (pseudonyms) (section 4.1). The nature of the product development and project collaborations between the cases are presented (section 4.2 and 4.3) that include fourteen new projects and three authorised engineering changes to pre-existing projects between the cases (section 4.2 and 4.3). Also, in this section the background information, e.g. hierarchical position, gender and nationality of 33 key members who participated in the business collaborations are introduced. The use of various communication media amongst the four cases, the pseudonyms for which are given above, is listed in the final section (section 4.4).

The selected cases are all well-known companies in the market and some of the inter-organisational collaborations between these firms are still on-going and, therefore, case has been taken to ensure that any sensitive operational details have not been disclosed.

4.1 Descriptions of the organisations

The fieldwork for this study was primarily carried out in T-Com, a large high-tech corporation in Taiwan, and involved in four inter-organisational collaborations between T-Com and its four South Korean supplier companies, between June 2007 and October 2007. The headquarters of T-Com are located in Taipei (the capital of Taiwan), whilst the two main manufacturing factories are located in Hsinchu (an industrial city in northern Taiwan) and Suzhou (a city in southern China), and there is also a branch office in the USA. By October 2007, there were about 3000 employees working for the company, and the number was still increasing. T-Com manufactures and purchases components for in-house assembly of electronic display equipment. The company was established in 1994 and incorporates two sections:

OEM and ODM. Most of T-Com's customers were well-known worldwide providers of display units and include Apple, HP, SONY and Sharp. In 1996, with over 250% growth, it was selected as one of the top Common Wealth 1000 Companies in Taiwan. With strong R&D design and strict quality control, the company has received rewards for its special integrated audio technology design and its self-developed mechanical architecture by several display technology magazines. It has enjoyed the position of being the market leader in the personal computer (PC) display OEM industry for several years. However, the company was experiencing very narrow profit margins as the production of PC-related products became increasingly commoditised throughout the market. Being seriously squeezed on profits, T-Com decided to get out of the PC business and entered the household application industry, with the development and launch of its own brand product in 2005. In 2007, the company generated over US$ 2 billion in revenue and within two years of its launch, the brand became well respected in the USA.

However, T-Com's phenomenal success began to take its toll on the other companies in the market, as the intensive competition they brought made it extremely difficult for other firms to survive and some of them announced that they would have to exit from the sector. Such a situation would have been disastrous for T-Com because some of these competitors were also T-Com's suppliers, and with fewer material suppliers, T-Com could have found it difficult to acquire the necessary parts for its business. It is interesting that while T-Com's business was booming, the inter-organisational relationships with its competitors and also its suppliers became difficult and challenging.

Organisational collaboration in the display technology industry in Taiwan and South Korea, in which although the firms were cooperating, they had no common goals and contended fiercely for control of the supply chain, was chosen as the practical setting for this study. Four Korean supplier organisations, AK, BK, CK and DK, with different conditions of business strategic conflict and cultural conflict with regard to T-Com were selected because they were good examples of collaborations undergoing conflict. The four organisations chosen were not only the suppliers of T-Com, but

also its competitors in the market, and one requirement for their selection was that they had both cooperative and competitive interaction with this company. Table 4-1 shows the relationships between T-Com and the four supplier organisations, the details of which are explained below.

Table 4-1 Brief description of the relationships between T-Com and the supplier organisations

Cases	Participant organisations & locations	Cooperated product and supplier-buyer relationship	Languages used	Duration of business collaboration
T-Com/ AK	Headquarters in Seoul Branch office in Taipei	L-type PL Supplier-dominated market	English Mandarin	Project cooperation since January 2007
T-Com/ BK	Headquarters in Seoul Branch office in Taipei	L-type PL Supplier-dominated market	English Mandarin	Project cooperation since June 2005
T-Com/ CK	Headquarters in Seoul Branch office in Taipei	P-type PL Buyer-dominated market	English Mandarin	Project cooperation since June 2007
T-Com/ DK	Headquarters in Seoul	P-type PL Buyer-dominated market	English	Project cooperation since May 2006

AK, BK, CK and DK are all well-known companies in the display market and have their own manufacturing plants worldwide. This study focused on the interaction between their headquarters and T-Com, and also between their Taiwanese branch offices and T-Com. Most of them had established branch offices in Taipei, except for the DK, which had no office in Taiwan at all. However, the representatives in the Taipei branches were not restricted to their offices, but travel around South Korea, Taiwan, China and other countries, and therefore offices were not always essential for the companies to interact. Owing to their geographical dispersion, it was not possible for the representatives of these companies to hold FTF meetings frequently and, therefore, interaction had come to rely mainly on electronic communication tools.

The relationships between T-Com and the four supplier companies had been built around the purchasing of the key component PL (a pseudonym). A PL is a complicated assembled component with intricate technological design, and there were few companies in the world which had the capability of producing such a high-tech good. The L-type PL, which AK and BK supported, is the prevailing technology

in the industry. However, owing to the increasing demand for L-type technology in the market, they had been in short supply for several years, and buyer organisations had often been failing to purchase sufficient quantities. The imbalance of this supply-demand relationship had created a strong supplier-dominated situation as was the case in the dealings between T-Com/AK and T-Com/BK. However, L-type technology was not a perfect application for large-size displays because of some challenging technical bottle-necks. Consequently, another technology, the P-type PL, had emerged to fill the gap in large-size display development and made up for the shortfall in L-type PL supply. Although this technology had been used for large-size displays, it was still far from being the common display technology, as it exhibited some problems of vision which limit its use, particularly for commercial displays. Even though more recently P-type PL technology had improved, its suppliers CK and DK were still suffering from limited sales and continued to struggle to survive in the market. In particular, this was because L-type technology had become more stable for large-form displays and, as a result, T-Com dominated the P-type PL supply chain.

Business strategic conflict is considered to be strongly influenced by the industrial environment, as discussed in the literature review (Chapter 2). T-Com/AK and T-Com/BK, as the cases situated in the supplier-dominated market, were compared with T-Com/CK and T-Com/DK, which were in the buyer-dominated market. From the viewpoint of T-Com, collaborations with AK and BK held the potential for higher levels of business strategic conflict than those with CK and DK. Through identifying where high and low levels of conflict were occurring in these collaborations, this researcher observed how different communication media were chosen by the participants.

The difference in languages used for communication has caused further complications. Internal communications within the companies were in Mandarin (Taiwan) and Korean (Korea), whereas external contact between the firms was conducted mainly in English, although Mandarin was sometimes used. Conversations using a mixture of these languages were common in the cases for all four of the

supplier companies to T-Com. DK was the only company which had not set up a branch office in Taiwan and their employees co-working with T-Com could not speak Mandarin. Having no branch office, interaction between T-Com and DK's headquarters was more direct, however, communication relying on a single foreign language, namely English, for both parties had the potential for conflict to occur, because of misunderstandings.

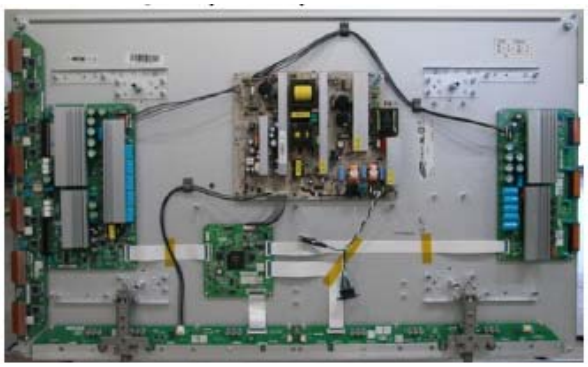
All four companies had not had a long-term business relationship with T-Com. Previously, T-Com teamed up with several Taiwanese supplier organisations which gave steady support and a sufficient number of PLs for over a decade. However, the long-lasting business relationship between the Taiwanese companies ended when these suppliers formed an alliance with a Japanese company, which was a rival to T-Com. Hence, T-Com was compelled to look for other collaborators, and this resulted in the cooperation between T-Com and these four Korean supplier firms. BK was the first of these four firms to establish business collaboration with T-Com and their business relationship started in 2005. Although formed over a relatively short period of time, the collaborative activity between T-Com and BK appeared to have been an effective business model, in that it has helped T-Com to enter the USA household application market successfully and has rescued BK from decreasing sales in PLs. The experience has inspired T-Com to look for ways to project this business model onto the other suppliers and, consequently, the collaborations with AK, CK and DK were built sequentially.

The bilateral buyer-supplier relationship is critical to organisational collaboration and competition (Tang et al., 2001). The four cases were selected because of their different collaborative and competitive interactions, which each exhibiting quite distinct features, as described in the next chapter (Chapter 5).

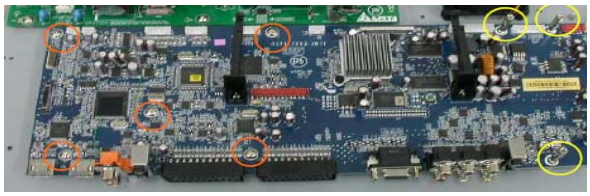
4.2 Product introduction

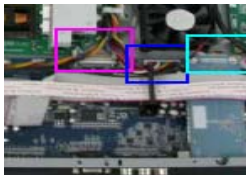
A PL is a key component of the whole complete product. The assembly of a PL is also complicated using intricate optical, mechanical and electronic technologies, all

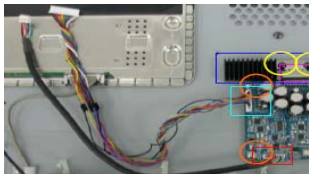
of which are relevant to T-Com's product development. Figure 4-1 briefly illustrates the product development showing how the PL and T-Com's product design were combined to form a completed display unit. The design structure varies depending on the different models and applications of these products, and Figure 4-1 illustrates part of the process of one product's assembly.



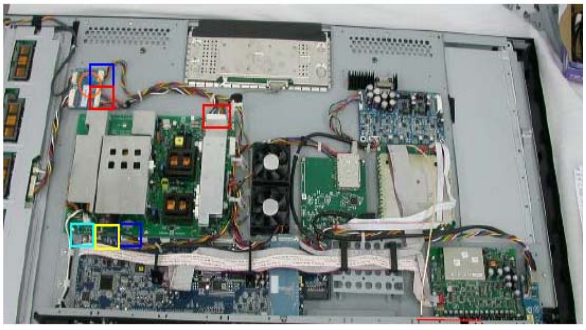
PL's back-side structure. Based on the structure, T-Com designs a metal shielding to cover and protect PL's printed circuit boards. All electronic circuit boards, circuit designs, cable arrangement, locations of securing tapes, labels, screws and other electronic and mechanical designs have to be specified within the PL.



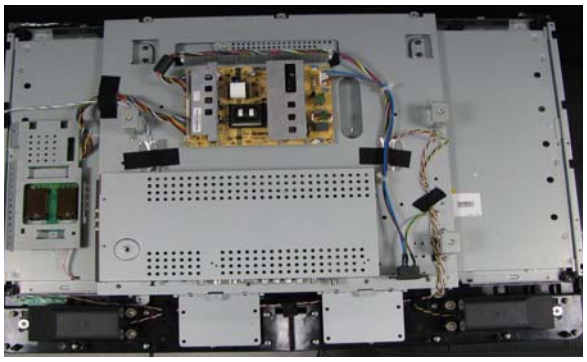




Examples of display electronic circuit design and cable connection with PL. All minor and major changes need to be quality controlled.



Early stage of display assembly. T-Com-designed printed circuit boards are built upon the metal shielding. The PL and T-Com display design are assembled with cable connections.



Late stage of display assembly. Exterior metal covers and plastic covers designed by T-Com are assembled with the PL which forms part of the total display unit.

Figure 4-1 Brief illustration of new project collaboration

All electronic circuit designs, mechanical designs, cable arrangements, locations of securing tapes, labels, screws etc in the PL had to be specified (See Figure 4-1). Any minor change to the PL would affect T-Com's structural design and, therefore, product specification and design had to be documented in detail. When T-Com conducted PL approvals, three main reports had to be prepared by the supplier organisations (details are described below):

(1) Customer Assurance Specification (CAS). The CAS was a document of around 40 pages, which defined product specification. It was a detailed account of product characteristics, dimensional results and optical/electronic/mechanical design specifications.

(2) Incoming Inspection Standard (IIS). The IIS showed the incoming inspection criteria, inspection method, cosmetic specification[1], reliability test results[2] and warranty.

(3) Restriction of Hazardous Substances Directive (RoHS[3]) declaration. This had the purpose of declaring that certain hazardous substances were not to being used in the process of producing the goods.

The content of these documents was highly technical and complex, and when people discussed matters regarding them it was easy for confusion to arise and it could even lead to conflict. A decade ago, people around the world arranged FTF meetings to identify and resolve technical problems. However, nowadays, communication no longer relies on frequent FTF meetings and the Internet has become ubiquitous so members can contact each other anywhere by CMC tools. Dealing with tangible

[1] The cosmetic specification defined the visible defects on the product's appearance, such as: bright/dark dot defects, foreign particles, scratches, and some other visible substances appearing on the display that did not affect the product's performance and function.
[2] The reliability test allowed the producer to test and solve any potential problems before they occurred. It helped producers to ensure the product was functioning successfully. The test methods were to place the product in test chambers which simulate the environmental conditions of extreme temperatures, humidity levels and altitude etc. The reliability test gave the producer quality assurance that the product was ready to be used and the product would withstand storage, operational and shipping conditions.
[3] The RoHS was adopted in February 2003 by the European Union. This directive restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment.

technical issues involving interactive discussions by virtual communication techniques is much more challenging than in FTF scenarios. In order to ensure that all critical issues were being addressed, a specification review summary (SRS) was introduced by T-Com, which took the form of a check list for communication between T-Com and the supplier organisations. The key specifications and specific requirements were listed in the SRS, which had a total about 64 key check items needing to be checked. Figure 4-2 shows an example of the SRS.

The sections below are a brief description of the five main sections in the SRS.

(1) Product specification: The section showed a list of key items of product dimensions, characteristics and specifications. Usually the information was from the CAS but sometimes there could be contradictions if the information was revised for product drawings and email discussions. This section was used to collect product specification from different resources in order to ensure the information provided by suppliers was correct.

(2) Cosmetic specification: This was defined in the IIS. However, T-Com usually negotiated for higher-quality cosmetic specification than suppliers were originally providing. In this section, the suppliers' specification and T-Com's requirements were compared and negotiated.

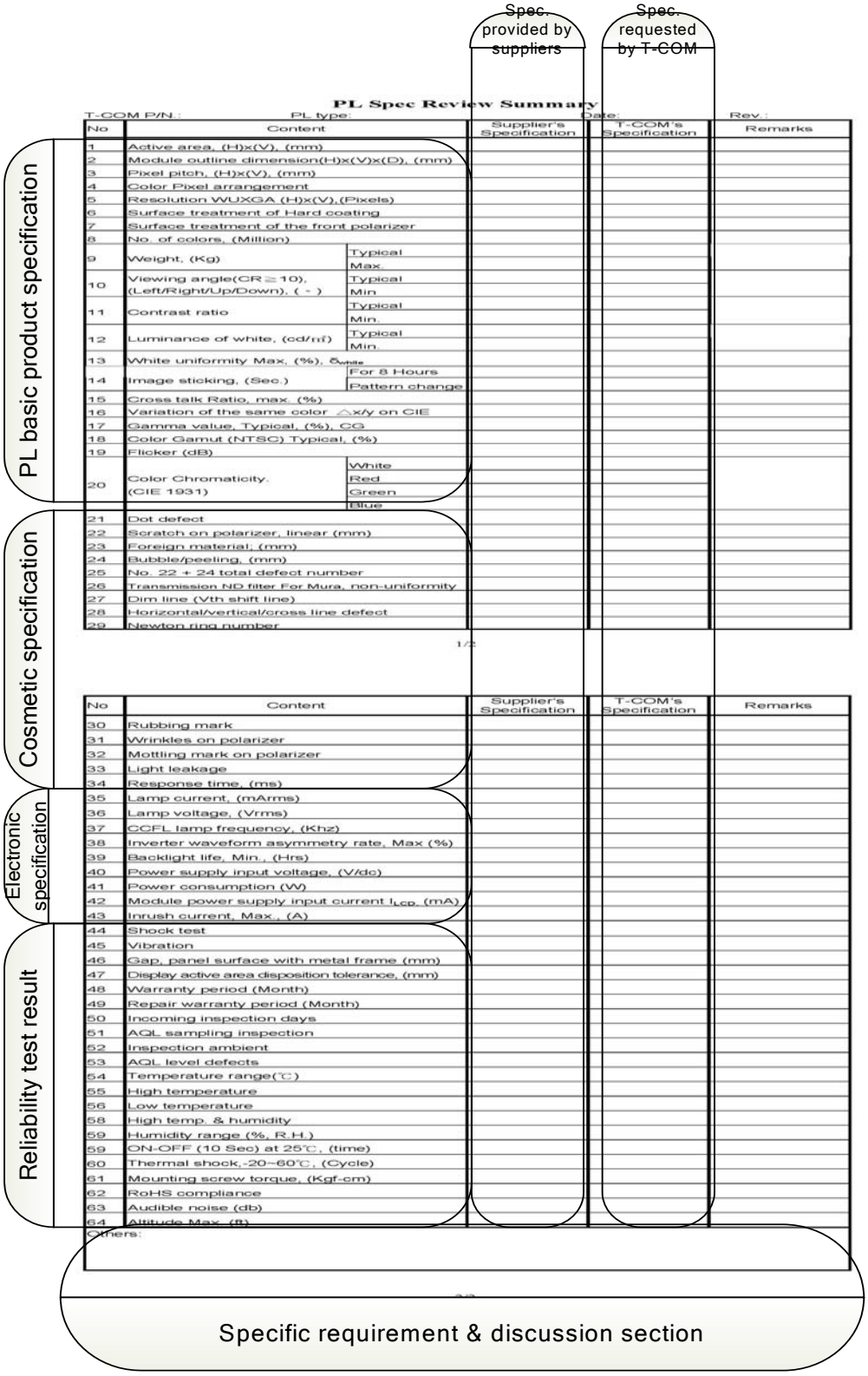
(3) Electronic specification: Most of the electronic specifications were reported in the CAS. T-Com sometimes required more information related to T-Com electronic circuit design and the evaluation process which had not been shown in the CAS; lamp and power supply's specifications are examples of this. According to T-Com's requirement, PL suppliers had to provide information by attaching appendices to the SRS.

(4) Reliability test results: This consisted of reliability test conditions and assessments provided by suppliers. However, every company could have specific test conditions which would lead to different results and there was the potential for

conflict owing to the diversity of test methods, especially when long-running discussions and negotiation were taking place.

(5) T-Com specific requirements: Any specific requirement of T-Com was showed in this section, which usually was related to uniformity issues. These details were neither defined in the CAS nor in the IIS. The indefinite measurement criteria were usually the subjects of endless debate and could cause conflict if no consensus was reached.

Product development with outsiders' knowledge brings fresh thinking (Hamm, 2006). The collaborations between T-Com and the four suppliers helped each other to break their old product-design habits. However, the invisible ties sometimes slowed down product development and these organisational bonds interfered with the companies' standard designs. In the four cases, it was particularly hard going to break a company's standard process in order to match another company, as each company's design had its unique characteristics which they had developed to give themselves the best competitive advantage.



No	Content		Supplier's Specification	T-COM's Specification	Remarks
1	Active area, (H)x(V), (mm)				
2	Module outline dimension(H)x(V)x(D), (mm)				
3	Pixel pitch, (H)x(V), (mm)				
4	Color Pixel arrangement				
5	Resolution WUXGA (H)x(V),(Pixels)				
6	Surface treatment of Hard coating				
7	Surface treatment of the front polarizer				
8	No. of colors, (Million)				
9	Weight, (Kg)	Typical			
		Max.			
10	Viewing angle(CR ≧ 10), (Left/Right/Up/Down), (°)	Typical			
		Min			
11	Contrast ratio	Typical			
		Min.			
12	Luminance of white, (cd/㎡)	Typical			
		Min.			
13	White uniformity Max. (%), δ_{White}				
14	Image sticking, (Sec.)	For 8 Hours			
		Pattern change			
15	Cross talk Ratio, max. (%)				
16	Variation of the same color △x/y on CIE				
17	Gamma value, Typical, (%), CG				
18	Color Gamut (NTSC) Typical, (%)				
19	Flicker (dB)				
20	Color Chromaticity. (CIE 1931)	White			
		Red			
		Green			
		Blue			
21	Dot defect				
22	Scratch on polarizer, linear (mm)				
23	Foreign material; (mm)				
24	Bubble/peeling, (mm)				
25	No. 22 + 24 total defect number				
26	Transmission ND filter For Mura, non-uniformity				
27	Dim line (Vth shift line)				
28	Horizontal/vertical/cross line defect				
29	Newton ring number				

1/2

No	Content	Supplier's Specification	T-COM's Specification	Remarks
30	Rubbing mark			
31	Wrinkles on polarizer			
32	Mottling mark on polarizer			
33	Light leakage			
34	Response time, (ms)			
35	Lamp current, (mArms)			
36	Lamp voltage, (Vrms)			
37	CCFL lamp frequency, (Khz)			
38	Inverter waveform asymmetry rate, Max (%)			
39	Backlight life, Min., (Hrs)			
40	Power supply input voltage, (V/dc)			
41	Power consumption (W)			
42	Module power supply input current I_{LCD}, (mA)			
43	Inrush current, Max., (A)			
44	Shock test			
45	Vibration			
46	Gap, panel surface with metal frame (mm)			
47	Display active area disposition tolerance, (mm)			
48	Warranty period (Month)			
49	Repair warranty period (Month)			
50	Incoming inspection days			
51	AQL sampling inspection			
52	Inspection ambient			
53	AQL level defects			
54	Temperature range(℃)			
55	High temperature			
56	Low temperature			
58	High temp. & humidity			
59	Humidity range (%, R.H.)			
59	ON-OFF (10 Sec) at 25℃, (time)			
60	Thermal shock,-20~60℃, (Cycle)			
61	Mounting screw torque, (Kgf-cm)			
62	RoHS compliance			
63	Audible noise (db)			
64	Altitude Max. (m)			
Others:				

Figure 4-2 An adapted example of a PL spec review summary

4.3 Description of the project collaborations

During the field study, the researcher joined T-Com headquarters as a temporary employee in the design quality assurance team (DQA) in charge of PL approval. The role of the DQA in the firm was to discuss and negotiate PL specification with the supplier organisations. The researcher was involved with seventeen projects for five months. Generally, there were twelve to twenty T-Com members involved in each project but the number of participants involved depended on the speciality of the projects and the specific requirements of the subject matter. Figures 4-3[4], 4-4, 4-5 and 4-6 introduce the seventeen cooperative projects including fourteen new projects and three authorised engineering changes on pre-existing projects. Detailed information of the participants in the four cased are shown in Appendix B.

T-Com's R&D and purchasing departments were divided into several teams according to the purpose of product application (e.g. desktop device or family entertainment) and the display technology (e.g. L-type or P-type technology). The DQA was the only team taking responsibility for PL specification approval across several teams.

[4] Descriptions of the abbreviations in the figures: field application engineering (FAE) department; customer service (CS) department. The number following after the project name is the size of the displays. For example, the new project #AK32 refers to a 32-inch display supplied by AK.

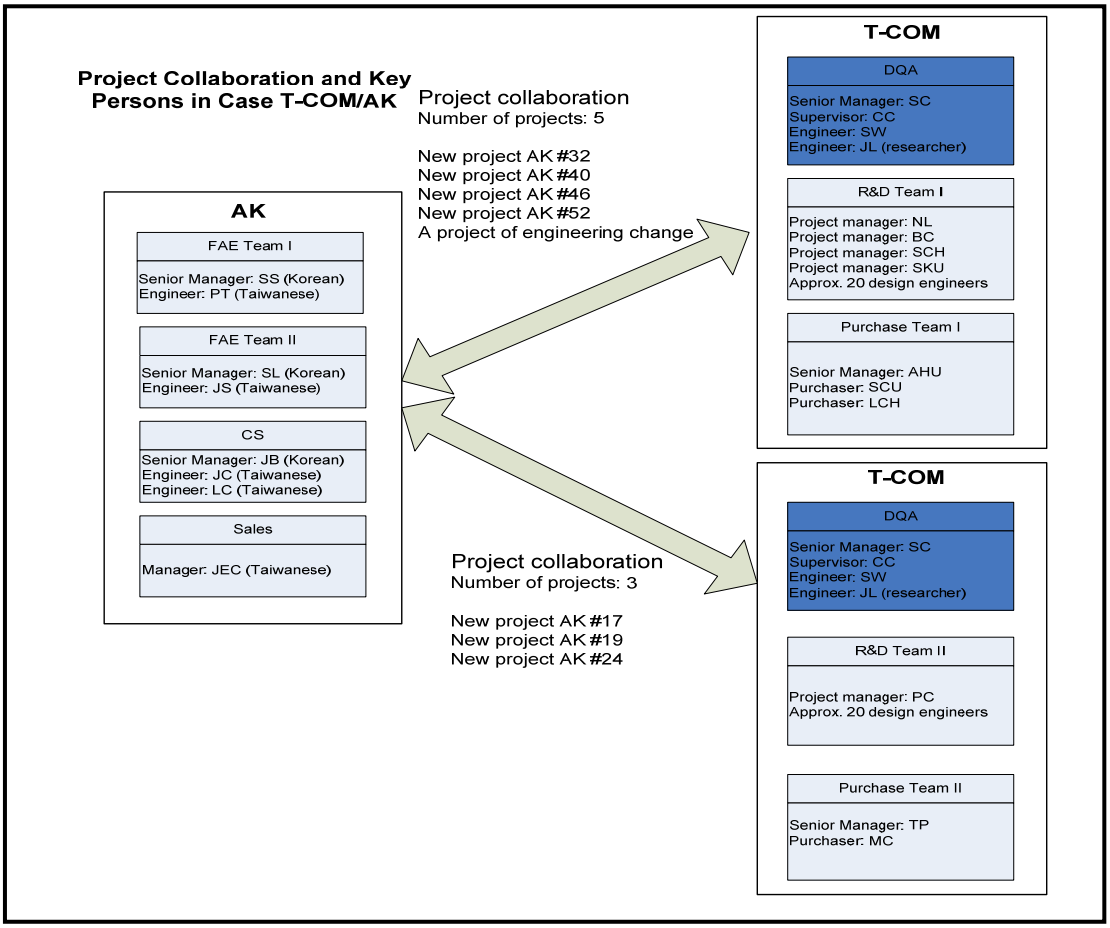


Figure 4-3 Project collaboration between T-Com and AK

AK supported two teams (Team I and Team II) in T-Com which were in charge of L-type displays on desktop devices and for family entertainment uses. There was no structural difference between AK/Team I and AK/Team II, the only two differences being the product designs and team members. The project collaboration consisted of about twenty-three key personnel from AK, T-Com Team I and Team II who oversaw seven new projects and one project of engineering change on pre-existing projects (Figure 4-3). It was difficult to gather all members for meetings as everyone was busy and did not always work in the office and lengthy email discussions with numerous carbon copy email receivers were the most common form of communication.

Both BK and AK supported Team I and Team II with L-type PLs and they collaborated on four new projects and two engineering changes on pre-existing

projects (Figure 4-4). The members in BK who co-worked with T-Com were few, two managers and two engineers only, but they supported T-Com with a number of engineers who are not shown on the list. Nevertheless, even though these engineers were not dedicated to supporting T-Com, they were brought in to email discussions for specific issues when their opinions were needed. Hence, T-Com members in some cases never met BK engineers and only included them for discussion in the emails. From the beginning to the end of the collaborated projects, the only information they had of each other through the emails was their names and the work they had undertaken. Although the involvement of these peripheral people was not intentionally planned, this was found to be a common practice and consequently people did not attempt to identify any further who these people were.

In the case of the L-type display collaboration, each project's only source of PL supply was from either AK or BK. As mentioned earlier, the L-type display market had faced the PL supply shortage for years so that it was almost impossible for any of the firms involved in this market to obtain the required amounts of screens without collaborating in some way. However, the situation for the P-type display was the complete opposite, in that T-Com had two sources of PL supply from CK and DK for the same sized product. The P-type display projects were few in T-Com and there were only two projects, with Team III being the only group in charge of this type of display. Although the support groups in CK and DK for T-Com were small, communication in these two cases had never been easy.

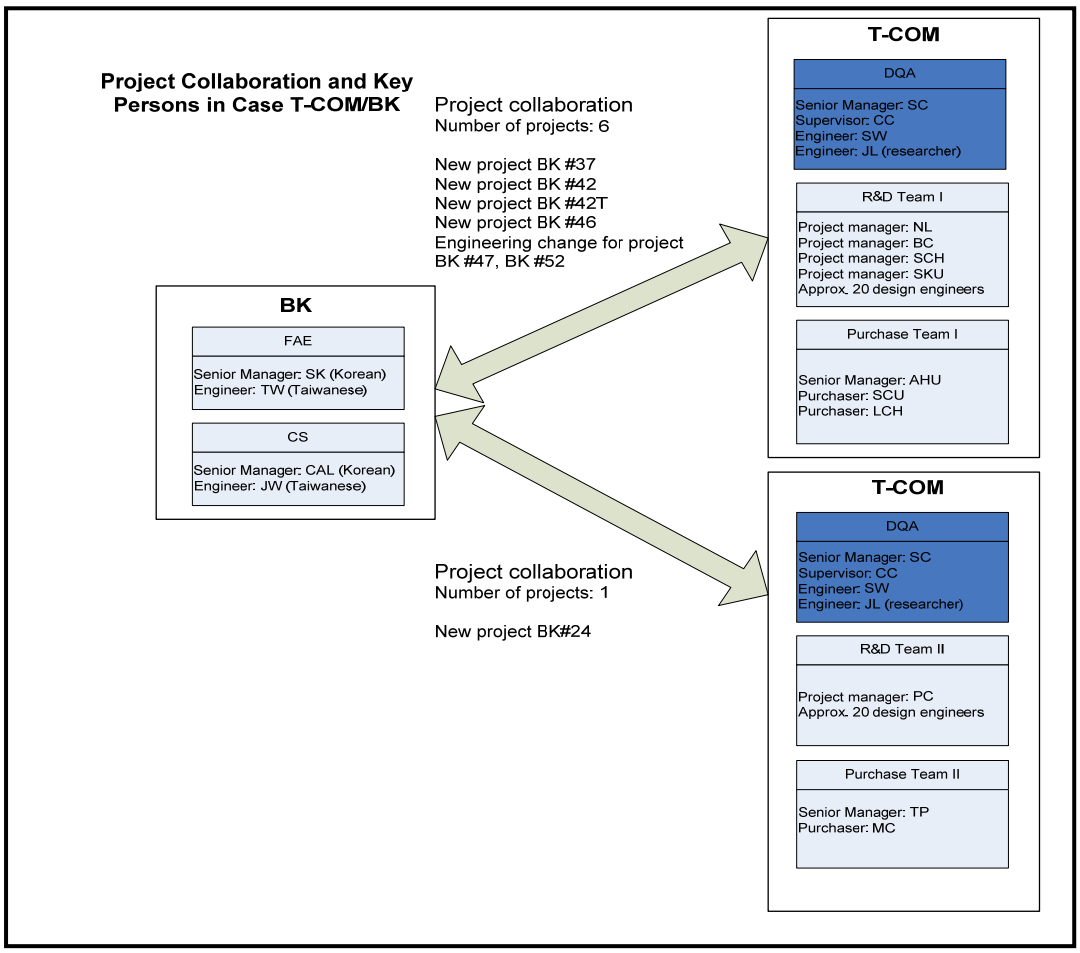


Figure 4-4 Project collaboration between T-Com and BK

In the case of CK, the senior manager in the CS department and the senior manager in the sales department both of whom were representatives of their company, dealt with all issues to do with the project collaboration (Figure 4-5). However, emails from CK usually included several unknown persons in the carbon copy section, who were never introduced to T-Com. These were engineers at the CK headquarters. Because these persons were never introduced to T-Com, T-Com members sometimes had scruples about what sort of rhetoric, tones and manners of writing they should use when replying to emails.

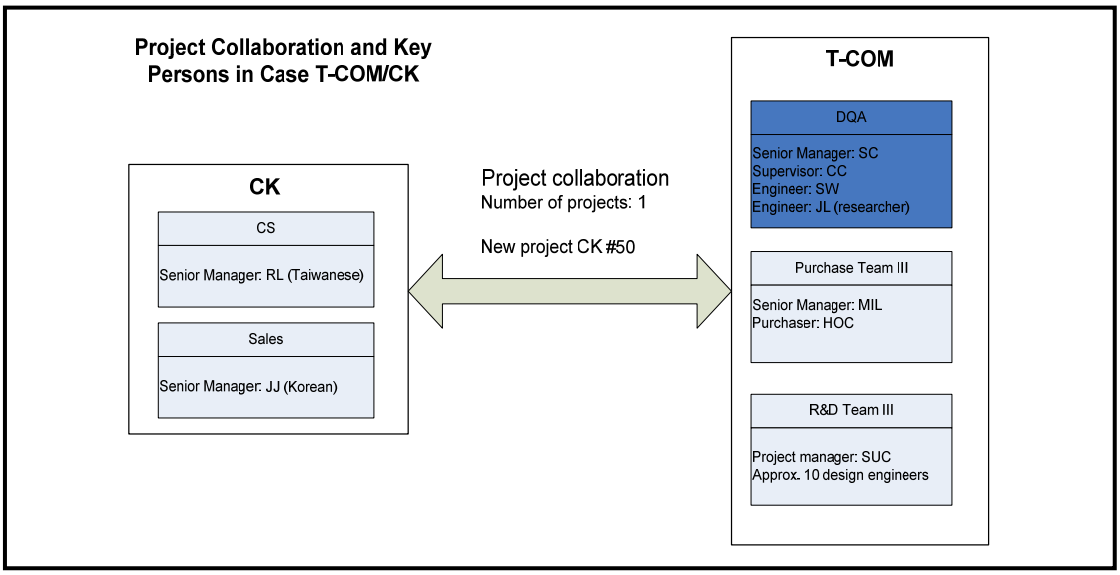


Figure 4-5 Project collaboration between T-Com and CK

DK was the only firm which did not have a branch office in Taiwan and was the only supplier that had no Taiwanese coordinator and no team member who could speak Mandarin. T-Com and DK co-worked only for one project and the participants in this project were fewer than with the other suppliers (see Figure 4-6). However, communication was complicated, in this case, because of the language difference.

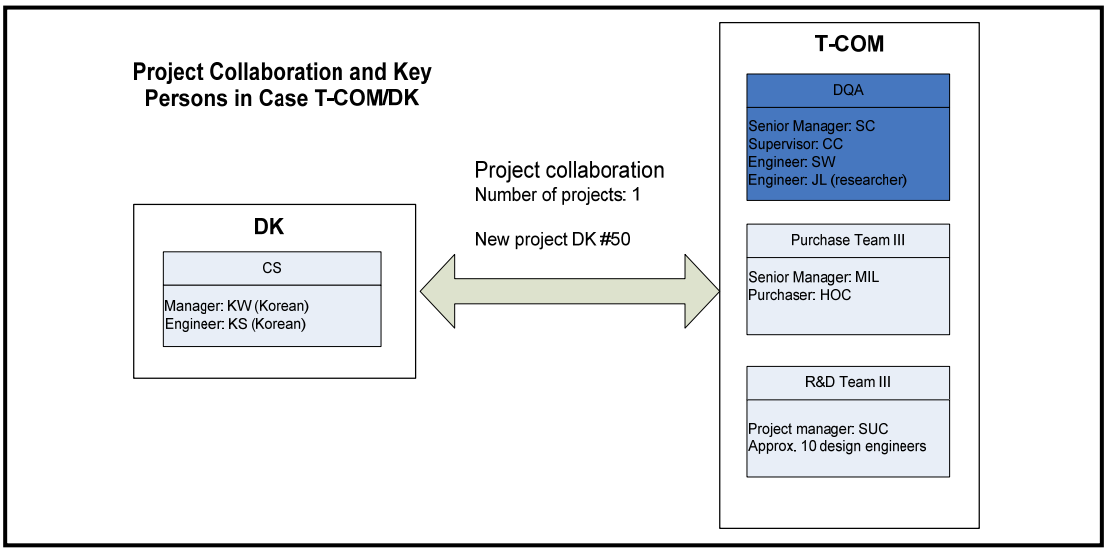


Figure 4-6 Project collaboration between T-Com and DK

Overall, the methods of business collaboration varied and each case showed distinct features. However, all of the four cases emerged being typical examples of inter-organisational business collaboration.

4.4 Use of communication media

To understand conflict phenomena in the virtual communication environment, the use of communication media is discussed here. Firstly, in this study, CMC and FTF meetings are presented separately for convenience and because they would appear to reflect obvious different attributes based on the various researched literatures. In fact, the classification is ambiguous. For example, telephone is neither CMC nor FTF, in that several CMC tools are provided with telephone-like functions but telephone is usually treated as a traditional communication medium. Secondly, CMC and FTF communication complement each other and neither pure CMC nor pure FTF communication commonly exists. In fact, they are nearly always mixed together to form a virtual communication platform.

CMC undertaken when there is awareness of conflict is taxing and requires both an understanding of conflict behaviour and sensible utilisation of the available communication tools. Selection of communication media is therefore an essential ingredient in this study. The participants' freedom in media selection in the four cases was not limited to particular media by those who granted permission for the research. That is, communication behaviour in both conventional FTF meetings and CMC were observed without any restrictions. This researcher initially focussed on the mixture of communication media including FTF meetings, email, telephone, audio-conferencing and video-conferencing as they represent different levels of media richness. However, email emerged as being the most frequently used form in the four cases for varying reasons, as discussed in Chapter 5.

Owing to the geographical dispersion in different cities and countries for these four cases, it was not possible to hold FTF meetings frequently. In fact, during the period of field study, a total eleven formal meetings were held: AK sent five persons on two

visits to T-Com, BK had nineteen persons on four visits, CK had twelve persons on four visits and there were two persons on one visit in T-Com/DK. Communication between the four cases relied heavily on email and telephone. However, telephone communication between T-Com and DK was relatively infrequent which was connected with the communicators' low confidence in foreign language speaking by the participants from both sides. Audio-conferencing and video-conferencing meetings are theoretically assumed to be communication tools with media richness but surprisingly, neither was used often during the course of the research. The attitude of media selection and communication behaviour with regard to inter-organisational conflict on the selected media will be discussed further in the next chapter (Chapter 5).

With regard to data collection, daily logs were recorded every working day along with observation on the research objects' formal and informal activities. In this regard, notes were taken from: conventional meetings, CMC including 1359 emails, a large number of telephone conversations, some involving the researcher and others not, and five audio-conferencing meetings. Table 4-2 provides an overview of the sources of data collection (see Appendix C for more details).

Table 4-2 Overview of data collection information

Case	FTF meeting	Video-conferencing	Audio-conferencing	Telephone communication	Email	Company documentation
T-Com/ AK	5 people on 2 visits	None	5	Frequent	310	8 new projects 1 engineering change
T-Com/ BK	19 people on 4 visits	None	None	Frequent	190	7 new projects 2 engineering changes
T-Com/ CK	12 people on 4 visits	None	None	Frequent	224	1 new project
T-Com/ DK	2 people on 1 visit	None	None	Relative infrequent	210	1 new project
Total	**11 visits**		**5**	**Frequent**	**1359**	**17 new projects 3 engineering changes**

4.5 Chapter summary

The chapter has provided the background information for the case-studies including the: products involved, nature of the joint projects, key participants and the use of communication media in the four cases during the five months of data collection. The next chapter will present the research findings from the data analysis.

Chapter 5: Brief description of data analysis & research findings

The data analysis is guided by three questions: What are the factors which lead to conflict in inter-organisational collaboration? How does the existence of conflict influence communication media selection? How is conflict conveyed and transformed in a virtual communication environment? In this chapter, a brief description of the data analysis and research findings, in relation to these research questions that were set out in the literature review chapter is given (section 5.1), in the context of the three main themes: the existence of inter-organisational conflict (section 5.2), characteristics of communication media (section 5.3) and the transformation of conflict by given the selected media (section 5.4).

As explained in Chapter 2, business strategic conflict and cultural conflict have been indentified as important factors affecting inter-organisational collaborations. However, potential conflict arising from ambiguous and different understandings regarding organisational processes for collaborating companies has not been addressed previously, and in this chapter the occurrence of such organisational process conflict is revealed. Subsequently, the following chapters present the detailed data analysis and research findings on the subjects of organisational process conflict (Chapter 6), business strategic conflict (Chapter 7) and cultural conflict (Chapter 8) in the virtual communication environment respectively.

5.1 Category of analysed data

The data analysis is presented through the three major themes identified from the coding exercise, which include: the sources of conflict, the use of communication media and the communication behaviour that correspond with each of the three main research questions (Table 5-1). The details of the three major themes as mentioned above are discussed in the following sections.

Table 5-1 Categories derived from the data analysis

Category		Description
Sources of Conflict	● Organisational Process Conflict	Divergence of Group Goals
		Ambiguity of Organisational Process
		Time Pressure / Bustling working norm
		Intricate technology issues
	● Business Strategic Conflict	Marketing Competition
		Bargaining Power
		Business Policy
	● Cultural Conflict (National & Organisational Cultures)	Organisational Culture / Working Style
		Verbal Language
		Non-verbal Language
		Organisational hierarchy
		Lack of Authority
		Gender
Use of communication media	● FTF meeting	Use and selection of FTF.
	● Video-conferencing	No video-conferencing was used in any of the cases during the fieldwork
	● Audio-conferencing	Use and selection of audio-conferencing.
	● Telephone	Use and selection of telephone.
	● Email	Use and selection of email.
	● Instant Messenger	Attitude towards selecting an Instant Messenger (ex. MSN, yahoo messenger and Skype)
	● Others	Use of other of CMC, such as web-based communication combined multiple functions.
Communication behaviour	● Competitive	Domination or contending
	● Collaborative	Integration or problem solving
	● Sharing	Compromise
	● Avoidant	Neglect, inaction or withdrawing
	● Accommodative	Appeasement or yielding

In addition, the use of NVivo was adopted throughout the data coding process. The use of this software assisted the researcher in organising and managing the large bulky of qualitative data. Nevertheless, the data collected from the fieldwork contained a substantial number of pictorial images (e.g. photographs of technology phenomena) and the NVivo's text-based techniques were not able to give assist the data coding regarding these. Therefore, it became necessary to consistently clarify

the data recording in NVivo by referring back to the paper documents throughout the process of data analysis. After ten months of data analysis, as explained in Chapter 3, the template of data category (Table 5-1) was obtained

5.2 Existence of inter-organisational conflict in the case-studies

In an inter-organisational context, business strategic conflict always exists and its influence can be successful or detrimental to business collaborations. In addition, cultural conflict is seen as one of the most difficult obstacles in inter-organisational communication that transcend national boundaries. Moreover, the results of the fieldwork in this study show that different organisational processes between different firms, which are often incompatible, can lead to tensions in collaborations. In addition, ambiguous interpretation of such processes for the parties involved can also hinder affective communication, and this can make the participants sceptical about the joint working arrangement and subsequently lead to conflict. The differences in the organisational processes in the cases for this research, involving highly intricate technology issues that were often difficult to resolve effectively, meant that conflict could occur easily. It was also found that organisational process conflict exists at a different level to business strategic conflict and cultural conflict in firms. That is, conflict regarding process is something which can be dealt with and resolved after communication and negotiation. In contrast, business strategic and cultural conflict are often deeply and latently rooted in employees' perspectives, and they are determined by complex business-environment relations (e.g. contemporary market status and verbal/nonverbal language) beyond the organisational systems. Each category identified in Table 5-1 is addressed by examining the detailed evidence for the four cases, in relation to: organisational process conflict, business strategic conflict and cultural conflict, in sections 5.2, 5.3 and 5.4 below, respectively.

5.3 Research findings about the characteristics of communication media

Among the various choices of communication media available, only email and the telephone (especially email) were widespread in their use and the other techniques at

people's disposal were resorted to only occasionally. That is, it was observed that in all the cases in this study, the virtual communication environment consisted of a combination of email and telephone, supplemented by a few audio-conferencing meetings and some FTF discussions. Email was employed as a group discussion platform in the four cases, because it allowed for information to be disseminated simultaneously and its feature of asynchronous interaction meant that communication was not restricted by time or place. This form of communication was enhanced in many cases by the attachment of detailed files, pictures, etc. The types of communication media available to employees are constantly developing, and it was found during the fieldwork that new technologies such as instant messenger (e.g. MSN and Skype) had begun to be used in the business environment. Moreover, AK had developed a web-based communication system in which the function of instant messenger was included for connecting up colleagues who were working on different sites. However, it should be noted that only a limited amount of observed data from using these tools was collected, as it was difficult to do so, being usually concerned with private conversations. Nevertheless, in two of the interviews, the respondents expressed positive opinions with regards to using these media. Media selection will be discussed in greater detail in the sections addressing the different forms of conflict below.

5.4 Fieldwork evidence regarding the transformation of conflict by selected media

Although there were many types of communication media available, email was the most prevalent tool used during the research period. However, it emerged in the field work that this was not considered ideal for all communication purposes. For example, when information with verbal and non-verbal meanings was conveyed by written-based communication, misunderstandings could easily occur (see discussion in sections 5.2 to 5.4, below). Despite this, with its inherent characteristics of reviewability and revisability, it has been deemed the favourite communication tool in today's business environment (Lee, 1994; Panteli, 2002; Panteli & Fineman, 2005; Usunier, 2003; Ziv, 1996). One extra property of email that was found in this

research was that of recordability, in that people could offer previous communication as evidence of their having already completed tasks. The significance of this, in the context of conflict, will become apparent in the sections below.

Apart from the above findings, a conceptual framework (Table 2-8) drawing from the large body of literature on: conflict, inter-organisational business and CMC, was initially developed. However, the assumption in this framework that the transformation of conflict is affected by the different stages of the project life cycle did not emerge as being important in the investigated cases. That is, during the five months of fieldwork, there was no indication that there is a strong relationship between the level of conflict and the project life cycle and, in fact, inter-organisational conflict could happen at anytime during the collaborations.

5.5 Chapter summary

The description above has given a brief introduction to the research findings that were elicited from the analysed data and these are now discussed in much greater detail in the following chapters.

Chapter 6: Organisational process conflict in virtual communication

The organisational process conflict that emerged in these case-studies has been addressed in Chapter 5. In this chapter, after identifying the nature of organisational process conflict in inter-organisational collaboration (section 6.1), the findings from the research regarding the selection of communication media in attempting to resolve process differences are presented (section 6.2). Subsequently, the ways in which process conflict is shaped by the selected media are investigated by examination of the evidence (section 6.3 and section 6.4).

6.1 Occurrence of organisational process conflict in the case-studies

In the literature review (Chapter 2), conflict about diverse business strategies and cultures was assumed to be a critical element for inter-organisational business collaborations to succeed. However, another source of conflict in business collaborations that was not covered in the literature review, emerged from the analysis of the data, this being conflict in organisational processes. These organisational processes, which include: organisational regime, work flow and work standards, are defined identified and discussed here, in relation to the research findings.

According to T-Com's work flow regime, the DQA department had to resolve all controversial technical issues before the purchasing department could place orders. Thus, time pressure was a challenge for DQA's quality management, especially regarding specification approval. Furthermore, T-Com was clearly in a dilemma as to whether evaluation standards or the marketing schedule should take priority. However, the DQA manager, being mindful of quality management, insisted that T-Com's PL evaluation standard should take precedence. Specification sheets and SRSs (see Chapter 4) took on the role of a contract of quality agreement between T-Com and their supplier organisations, and thus discussions and negotiations regarding specifications might take several months to complete. If the T-Com

management acceded to its DQA's requirements, there was a risk of it missing a market opportunity, which would have a detrimental impact on sales. In contrast to the DQA's view, the purchasing team insisted that the marketing schedule was more important and so they argued that the existing evaluation standard should be adjusted to meet market demand. Hence, the pressure to change the evaluation standard was not caused by the requirements of quality management, but was determined by the deadlines of the marketing schedule, which risked impacting on quality control. This debate had been ongoing in the company, and the conversation recorded below in a T-Com weekly management meeting was a typical example.

> [Weekly management meeting, quoted from the daily log 01/08/2007]
> Purchase manager: …If you (DQA senior manager) can't approve the PL spec. by this Friday, we're going to lose 15K PLs supply. The supplier is going to allocate the quantity to the other customers. It will affect our selling of the product next season quite seriously.
> DQA manager: Are you threatening me? Is it my fault to insist on our evaluation standard? I know the schedule is important but the spec. sheets the supplier has provided have lots of mistakes. Wrong spec. would delay the schedule too and will cause more problems. I can't sign it as acceptable without the supplier's clarification. If we don't control the quality well, it will cause lots of customer complaints after our products are sold in the market. It will damage our company's reputation. Are you going to take the responsibility?
> Purchase manager: No components, no sale. Don't have to wait for customer complaints. We will face business damage because we have nothing to sell in the market. Can you take the responsibility?

In T-Com, the evaluation process was a quality assurance standard which regulated how the product was to be examined and tested before it was sold to the market. It had been in use for a long period of time, but now it was being challenged from a number of quarters, for being too strict. However, there were two major issues that needed to be considered if the process was to be changed. Firstly, what was an acceptable level of change to the quality control? Secondly, negotiations with supplier organisations leading to process misunderstandings and/or ambiguities may have caused ill feeling between the parties involved. There were generally 60-70 checking items in the current standards, as mentioned earlier (see chapter 4), and each one had a strict test condition. Which specification could be amended, which

must remain unchanged, and how should test conditions be adapted, were all difficult questions for consideration. T-Com's DQA senior manager pointed out that an ambiguously understood process leads to difficulty and complexity in collaborations.

> [Interview with T-Com's DQA senior manager 13/09/2007]
> Q (the researcher): How do you decide which evaluation standards could be loosened and which ones must remain unchanged?
> A (T-Com's DQA senior manager): Case by case… For example, standard spec. of audible noise is 35db but it used to have a greater tolerance of 50db. The supplier couldn't improve the noise condition better than 50db and we were forced to accept the spec. at that time, otherwise we would suffer a large PL shortage. But it doesn't mean that 50db can be applied on the other projects. Changing spec. is always controversial. Some people may challenge why it's not 40db, or why it's not 45db? Why it was revised to 60db last time but 50db this time?…You can't satisfy everyone, but all the changed specs. you can see now are the best results after negotiating with suppliers and these results vary depending on the conditions at that time. The process of negotiation is time consuming and working through a long negotiation is awful…Next time when the noise becomes an issue again, you have to go through the same ordeal again.

With a more structured process, there would be less ambiguity in the interpretations of the organisational processes and, hence, less provocation for conflict situations to arise. However, when the evaluation standard is challenged and given less importance, this disrupts the work flow, as when no agreed standards dealing with the specifications between a number of supplier organisations leads to difficulties. Conflict, in general, develops in times when the organisational process is in flux and, during these times when firms are trying to agree common procedures, process ambiguity offers the potential for conflict. In the context of this research, it was found that a similar course of events can occur in the inter-organisational collaborations, and this is addressed in detail below.

> [Quoted from the daily log 27/08/2007]
> A purchaser at T-Com's purchasing department challenged the evaluation standard and said, 'I have doubt that the strict evaluation standard is necessary. Some suppliers used to say to me that T-Com's standard was too high to reach. The same PL was sold to company A, for example, with no problem at all, but our company never seems to be happy with their products.'

> [Interview with the T-Com's DQA senior manager 13/09/2007]
> The T-Com's DQA senior manager defended the PL evaluation standard, 'Specification discussion generally takes us from a few days to several months. Why is there such a big difference being between a few days and several months? For example, negotiations with AK for a uniformity issue have taken us several months and AK still doesn't agree with our requirement, but, BK is agreeable. After several discussions, BK can meet our standard and they also promised that the standard will be also applied to the other BK branded PLs in the future. Why some suppliers can meet our standard completely but some can't? The key is whether the supplier is supportive or not, the key is whether the purchaser chooses a capable supplier.'

The following sub-sections present and categorise the main process differences that emerged in the four cases of this research.

6.1.1 Organisational process conflict in the T-Com/AK collaboration

Both T-Com and AK have been equipped with strong design and quality assurance standards, which have enabled them to become reputable companies. This section lists the controversial subjects about organisational process differences between the two firms, which appeared most frequently in their discussions:

- Cosmetic specification

The cosmetic specification was used to categorise the potentially contested problematic phenomena on display unit appearance, such as dot defects, scratches, foreign particles and other substances affecting the physical appearance. These phenomena were not directly related to product performance and function and were contained in the IIS (see chapter 4). The PLs produced by AK were graded into four levels, according to the quality of cosmetic specification, which has not defined been officially but has been an open secret in the industry.

T-Com and AK were operating different measurement methods, definitions and standards, on the cosmetic specification which led to difficult negotiations for the two parties. Most of the objects defined in the cosmetic specification were visible phenomena, such as scratches on the screen. Some could be seen by customers when

the products were exhibited in shops, but those blemishes which were more difficult to notice with the naked eye were graded as a being of a higher quality. Because the cosmetic specification could affect customers' purchasing behaviour, it became a tactic that AK used to their own advantage by keeping the higher grade PLs for their own sales, so as to surpass those of T-Com (more details will be described in section 5.3 on business strategic conflict below). The negotiations regarding cosmetic specification between T-Com and AK were not just about the specification itself, but, more critically, about business competition. This controversy over cosmetic specification provided this researcher with numerous opportunities for observing conflict development in a wider context.

- Altitude testing

Testing for high altitude involves a manufacturer simulating the effects of atmospheric pressure on the product in a high altitudinal environment. This is important for products which may have to be delivered by air or may be sold to end users who live at high altitudes. Not every company in the industry performs this test. However, T-Com insisted that this test was necessary contrary to the view of AK and the former's requirement for test results regarding this factor sometimes led to arguments.

> [Quoted from the daily log 29/08/2007]
> T-Com insists that altitude testing needs to be done. 'If the suppliers do not take the test, how can they ensure that the products would be functional when they are sold to people who live at high altitudes?', said by T-Com's DQA senior manager.
> (……)
> AK's CS manager said, 'All materials we use on the product have been passed through strict altitude tests. I don't understand why you (T-Com) want us to do it again. It is costly and time-consuming. Also, our product has been sold around the world for decades. I have never heard any customer complain about functional problems due to high altitude'.

T-Com's main concern was about the product's applicability in a high altitude environment which was the reason for insisting on this test. AK contended that the product would be functional at high altitude based on all the test reports of the

individual components and on their past experience. Although both parties had a valid point, the issue was essentially about product cost.

- Document reference number

According to T-Com's document management process, all official documents regarding product specification had to be given a unique reference number. In AK's case, the same reference number was often used for different versions of a document, and this caused difficulties regarding document management for T-Com. From the point of view of AK, they could not understand why T-Com was unhappy that they had modified documents especially for T-Com, even if these did not match T-Com's document management. From their point of view, T-Com did not appreciate that they would be asking for privileged treatment in this respect and thus continued to complain.

> [Interview with the T-Com's DQA senior manager 13/09/2007]
> If AK is qualified by the International Organizations for Standardisation (ISO), they should understand that every document needs to have a unique reference number. A duplicate document reference number is never allowed for in the ISO process. I don't care if they don't want to manage their documents well, but their poor document management affects our system badly.

> [Quoted from the daily log 29/08/2007]
> AK CS manager explained about the document reference numbers. He said, 'every document in our company is allocated a reference number which never overlaps with the others. However, the spec. which you (T-Com) request often surpasses our standard so we have to prepare documents especially for you. The problem occurs because it is not allowed for the same product to have two document reference numbers in our management system, i.e. one for you and another for the other customers. We could modify the document to the specific version because of your request but we can't change the whole system. I can't understand why the other customers can accept the documents without any problems, but you always request more. Even though we do more for you than for the other customers, you always want more'.

The disagreement about the document reference numbers had been ongoing between the two firms throughout the period of the research. Although it was a minor issue in the whole process of specification approval, it was time consuming for both parties.

- Product model name

The issue of the product model name was related to the classification of the cosmetic specification but T-Com and AK had different approaches to this which gave rise to potential conflict. The same product with different levels of cosmetic quality was treated as different products in T-Com. By contrast, in AK, the cosmetic specification was never related to the product model name.

> [Quoted from the daily log 03/08/2007]
> Q (the researcher): Will it cause you any problem if AK uses one product model name on the same product with a different cosmetic classification?
> A (DQA Senior Manager): A very big problem. For example, if X-grade product is intended for sale to Retailer A and Y-grade product is for sale to Retailer B, how can our manufacturer differentiate them with the same product name? Once different levels of cosmetic products are mixed, our company might be charged with costly compensation claims by the retailers.

Examination of the cosmetic specification was usually nearly the last stage of the product manufacturing process and was not seen as critical to the whole process of PL production in AK. However, cosmetic specification inspection was the first stage in the T-Com's manufacturing process, and the product name was used as the index in T-Com's manufacturing operations system. Thus, any mistake regarding the PL's identification would cause serious problems for T-Com's computer automated production lines.

6.1.2 Organisational process conflict in the T-Com/BK collaboration

As previously mentioned, the SRS was based on T-Com's quality assurance standard. Some items that were not stipulated in the normal standard evaluation process of the four supplier companies were extra demands in T-Com's SRS and would need further discussion to reach agreement. There were several controversial issues related to the evaluation process which remained unresolved in the T-Com/BK collaboration. Although these two companies had collaborated for more than ten projects, the high temperature/humidity test criteria and uniformity measurement methods were still under negotiation.

- High temperature/humidity test criteria

Temperature change is one of the most common types of stresses that a display product may experience. The high temperature test is a process in which a product is placed in a high temperature chamber for several hours and thus its failure or reliability can be analysed before mass production. The high humidity test allows a product maker to see how their product performs and stores in high humidity conditions and is regarded as important because excess moisture can cause damage to an electronic product by either corrosion or oxidation. T-Com employees were of the opinion that it was necessary to test a product's reliability under the conditions of high temperature and high humidity simultaneously so as to meet the requirements found in areas in the world which experience these conditions, such as South America and South-East Asia. However, BK conducted their high temperature and high humidity tests separately, as they believed that simultaneous high temperature and high humidity tests were costly and very damaging to the products. They also suggested that humans cannot survive in critical conditions for long, and so, it was not necessary to test the display units with these two conditions combined. Resolving these differences may still take some time although both T-Com's and BK's viewpoints are understandable.

- Uniformity measurement methods

Most display makers have standard evaluation processes for every test and measurement. However, the uniformity measurement, which refers to the process used for checking whether any abnormal colour blocks appear on the display, is an exception. That is, no general standard is operated in the industry and, more problematically in some companies, there is no such standard at all. Moreover, the uniformity issue is actually an irregular phenomenon in that some companies consider it to be crucial, whereas others don't understand why these companies are so concerned about it. Thus, negotiations about the level of acceptable uniformity and the methods of uniformity measurement remain unresolved in the industry.

These difficulties were occurring in all four cases of this research, but the most contentious were observed in the T-Com/BK collaboration.

6.1.3 Organisational process conflict in the T-Com/CK collaboration

With P-type technology, prolonged display fixed patterns can create a permanent ghost-like image of these patterns and this is due to a weakness in P-type technology, called burn-in damage. P-type displays exhibit another similar phenomenon called 'image sticking' (also known as 'image retention'[5]), in that when a group of pixels are displayed within a high brightness background, over time, a ghost image (some name it as burn-in damage) appears on the screen, and this could result in abnormal uniformity[6]. Moreover, after the display power is switched off, the ghost image may take a lengthy time to disappear.

Owing to the characteristics of P-type technology, the uniformity measurement method has become a controversial issue. The opinions from T-Com and CK were all disputable: (1) T-Com's current measurement method could damage the displays permanently and hence such destructive testing was costly. So therefore, was it necessary to operate the strict measurement method on P-type displays when it was common knowledge that these were not recommended for use over long periods of time? (2) Should the uniformity measurement method be used for testing the image sticking phenomenon? (3) Could the L-type display measurement be applied to the P-type? In sum, even today, there is still no common standard for measuring the burn-in damage/image sticking in the industry. Therefore, the question that emerges is: How a consensus could be reached when CK's measurement method could be totally different from that operating in T-Com?

[5] There is no common definition of image sticking and image retention in the industry. This study adopts the definition used in T-Com in which image sticking and image retention were treated the same because they are considered by this researcher to be down to the same problem.

[6] Burn-in damage, image sticking or image retention can produce abnormal uniformity, but they are not the only cause of this problem. These three issues are highlighted here because they occurred most frequently in these cases.

This single technical issue led to 151 email discussions between the two parties. Even the top management in CK R&D department made an official visit to T-Com, solely regarding this issue. A compromise was made in the form of a temporary resolution, to allow the project to move on. However, controversy about the measurement method still remained.

6.1.4 Organisational process conflict in the T-Com/DK collaboration

DK, another P-type PL provider, had experienced the same problem as CK, regarding the uniformity measurement method, and the phenomenon of image sticking as explained above regarding the T-Com/CK case had also been an issue for CK. Besides the uniformity measurement method, there had been controversies regarding the process of engineering change notice (ECN) and production change notice (PCN) authorisations, which occurred between T-Com and DK quite frequently.

ECNs and PCNs are documents which record a detailed description of a change on a design, including the reasons for the change. In a typical product development system, both the specification and assembly of the material objects may be amended, in order to compensate for design errors that emerge during engineering development. The ECN is commonly used for design change before the functionality of the design is concluded. When the product design is complete and ready for mass production, all change notice document in the stage of mass production are re-named PCNs. The ECNs and PCNs are normally raised and issued by the supplier-side and official permission is given by the buyer-side, after which they are called authorised ECNs and authorised PCNs.

The ECN and PCN authorisation process was not a problem regarding T-Com and DK's joint working practice. However, the increasing frequency of ECNs and PCNs issued by DK had been raised as a concern by T-Com and in their view, a mature product, in general, should not be changed or amended too frequently, as re-testing for the changes affects both the product cost and the development schedule. On the

other hand, DK had argued in favour of the importance of 'speed-to-market' and entertained the belief that this was an effective way to start mass production, provided the quality was acceptable and any minor amendments could be made when necessary. However, under such an approach, ECNs and PCNs were issued frequently and hence the friction was increased between DK and T-Com.

However, T-Com had expressed their suspicion that DK's frequent use of ECNs and PCNs were being made for cost cutting reasons at their end. That is, they were of the belief that changes made by DK could be to save money but the saving would not be recorded as the reason for change on the PCN and ECN, and hence DK would be the only one to benefit. From their point of view, T-Com expected DK to reduce the selling price if the change was accurately recorded as a cost saving on the relevant documents. From this, it can be surmised that the activities surrounding completion of accurate ECNs and PCNs, could be a mask to disguise real business matters.

6.2 The shift from FTF meetings to email communications

When organisations cooperate together, organisational process divergence is often the main conflict source, and it has emerged in this research as being the major reason that personnel in the four cases from the different firms needed to be brought together. In general, people worked individually and independently, with regards to their technology designs and specialisations. However, when people in the same company, but from different departments have to come together to find consensus on potentially conflicting processes, compromise is of the essence. This is even more imperative when process negotiations are inter-organisational because additional elements come into play, such as two or more companies have different business perceptions. Regarding all four cases for this research, from the above, it can be seen that conflict had arisen owing to process differences in the business collaborations.

An FTF meeting is used when equivocality is high (Daft & Lengel, 1986). In this multiple-case study, eleven formal FTF meetings took place at T-Com during the five months of the fieldwork. Most of these meetings were held for the purpose of

evaluation standard discussions in connection with complex technology issues and some of the meetings were aimed at improving personal relations (see Table 6-1). It stands to reason that for the purposes of complex communications and relationship improvements, alternative electronic communication tools may be inappropriate.

The dependence on FTF meetings could be argued as being inherent to high-technology industrial collaborations. That is, in these types of industry, the multifaceted subject matter can often be too complex to explain clearly through electronic forms of communication and, therefore, FTF meetings are preferable. Meeting #1 and Meeting #4 in Table 6-1 present effective examples of these situations. Both of the meetings were initiated by T-Com. The report on meeting #1 (Table 6-1) had the aim of demonstrating abnormal uniformity phenomena that were impractical to capture by camera. The report on Meeting #4 (Table 6-1) presents the discussion regarding click noise, which was too quiet to be recorded and conveyed by electronic means. In sum, in certain circumstances in the collaborations, FTF meetings provided a direct and effective way for discussing technical phenomena and for clarifying issues that were difficult to describe by other methods. Moreover, meetings were sometimes held after lengthy email and telephone discussions. The conversations presented below consist of quotes from different events which indicate the communicators' deep dependence on FTF meetings and their high expectation that such meetings would benefit their discussions.

> [Quoted from daily logs]
> T-Com's Purchasing Manager: Why don't you hold a meeting to sort it out? It is more efficient!!
> T-Com's DQA senior manager: (.....) call for a meeting to get the issues done quickly!!
> BK CS manager: The report is well-written but I still don't understand it clearly. Shall we have a meeting to discuss more details?
> CK CS senior manager: Could you arrange a meeting with SC so that we could sort out the issue a.s.a.p?

Although there is no guarantee that discussion through FTF meetings can lead to a positive outcome, it would appear that participants in these case-studies had high expectations regarding this communication method. Table 6-1 shows that the results

of two of the meetings (Meetings #1 and #2) remained pending, and five (Meetings #3, #4, #5, #8 and #10) were finalised with the immediate results of requiring subsequent reports or document preparation. Within an FTF meeting, speakers and listeners share a considerable amount of signals regarding the content of conversations (Chafe & Danielewicz, 1987; Yates, 1984), which improves efficiency of communication even though the outcome is not always that which was expected. Speakers are able to sense the impact of what they are saying on listeners, and the latter can respond with their understanding of what is being discussed, immediately and thus, information is exchanged and conveyed quickly and efficiently. This perhaps explains why the participants still had great expectations and hopes regarding FTF meetings, regardless of the meetings' actual outcomes.

Table 6-1 FTF meetings in the case-studies

Case	No.	Date/Venue	Subject	Outcome	Duration	Attendance
T-Com/AK (5 persons from AK in 2 meetings)	1	24/08/2007 T-Com HQ	1. Project AK #52 Technical issue - Abnormal colour blocks on the screen - Low-uniformity phenomenon	Pending	1.5 hours	AK: LC, PT, RS T-Com: SC, SW, JL, AC
	2	30/08/2007 T-Com HQ	2. Project AK #52 Technical issue - Abnormal colour blocks on the screen - Low-uniformity phenomenon General document management - Product model name - Document reference number	Pending	3 hours	AK: SS, PT T-Com: SC[7], JL, SW, SCH, SKU
T-Com/BK (19 persons from BK in 4 meetings)	3	02/06/2007 T-Com HQ	3. Project BK #37 High temperature and humidity test	BK to provide testing result in a week	1 hour	BK: SK, TW T-Com: SC, CC, JL
	4	25/07/2007 T-Com HQ	4. Project BK #46 Technical issue - customer complaint for click noise	BK to provide analysis report in 3 days	2hour	BK: SK, TW T-Com: SC, CC, JL, NL
	5	06/08/2007 T-Com Hsinchu factory	5. Project BK #47, #52 cable/connector incompatibility	BK to provide resolution in a week	8 hours	BK: JW +11 engineers from BK HQ T-Com: SC, SW, JL + 5 product engineers
	6	11/09/07 T-Com HQ	6. BK to introduce new FAE HL join T-Com/BK projects	N/A	0.5 hour	BK: SK, TW, HL T-Com: SC, CC, SW, JL, NL
T-Com/CK (12 persons from CK in 4 meetings)	7	22/08/07 T-Com HQ	7. CK engineer came to support Project CK #50 design issue	N/A	1 hour	CK: RL + JHL(engineer in DK HQ) T-Com: SC, SW, JL
	8	13/09/07 T-Com HQ	8. Project CK #50 Image sticking guarantee letter	CK to provide the other versions of agreement for image sticking issue	2 hours	CK: JJ, RL, NN T-Com: SC, SW, JL, MIL, HOC
	9	14/09/07 T-Com HQ	9. Project CK #50 Image sticking guarantee letter (Preparation for meeting next week)	N/A	1 hour	CK: RL T-Com: SW
	10	19/09/07 T-Com HQ	10. Project CK #50 Image sticking guarantee letter	Guarantee letter would not be needed but re-discuss it again after having six months customer complaint records.	2 hours	CK: JJ+ RL+ NN + YW, DC, CJH (top managers in CK) T-Com: SC, SW, JL, MIL, HOC
T-Com/DK (2 persons from DK in 1 meeting)	11	10/09/07 T-Com HQ	11. ECN on pre-existing product DK to officially introduce KS to T-Com team members	DK to provide more documents for T-Com ECN approval. The approval could be done in 10 days after receiving the documents.	1 hour	DK: KW, KS T-Com: SW, JL

[7] SC only attended this meeting for five minutes. The details are described in the Table 6-4 the section of T-Com/AK event (4).

FTF contact may improve personal relationships among collaborators, which can be influential in avoiding the development of organisational process conflict. Meeting #6 and Meeting #11 (Table 6-1) were specifically used for the official introduction of new team members, with the aim of improving relationships. However, these new members joined the project collaboration at a late stage and so there is no direct evidence to show the benefit of these two FTF meetings in enhancing team relationships. However, positive comments regarding official visits were given by the participants.

> [Quoted from the daily log 11/09/2007]
> NL (T-Com project manager): Actually, official introductions for new members are not necessary, but it shows that BK is more willing and sincere to strengthen our relationships. (……) it would never happen with AK.

> [Quoted from the daily log 11/09/2007]
> HL (BK FAE engineer): After the meeting, I have a more concrete image of your office and the people whom I am working with and that makes me feel more confident.

> [Quoted from the daily log 10/09/2007]
> I (the researcher) reported to SC about the meeting with DK today. SC was glad that DK made a special journey to T-Com. He believed that the benefits of the meeting on organisational relationships are more important than the ECN itself.

> [Quoted from the daily log 10/09/2007]
> KW (DK CS manager): It's very nice to have a meeting with you guys. We've been co-working for a long time but we have never met each other until today. Thank you for your support and please do give KS strong support as you gave me before.

Apart from the signs of relationship improvement in the two meetings, a favourite example of an FTF meeting's impact is shown in the evidence from Meeting #2 (Table 6-1). This shows how an FTF meeting can critically influence the development of organisational process conflict. That is, when the researcher worked in T-Com, she originally disliked talking with AK's FAE senior manager, however, during this meeting, her impression was entirely changed.

> [Quoted from the daily log 10/08/2007]
> I made a phone call to SS to explain the criteria I had sent him by email. He was not happy with my explanation for the reason why T-Com insisted on the criteria. He interrupted me speaking, saying 'You know what! We have never provided any other customers with the criteria you said, uh~ If you are not satisfied with the criteria I gave you, uh~, I can do nothing……' The expletive 'uh' following his sentences sounded really impolite in my culture. I was unhappy after talking with him.
>
> [Quoted from the daily log 30/08/2007]
> After the meeting, SW told me that SS didn't behave as badly as he did when talking on the phone. I agreed with him. I had a different feeling about SS after the meeting. When we spoke on the phone, his speaking sounded tough and impatient. However, in the meeting today, I didn't feel that bad because he always smiled when he was speaking. (……) 'Looking at him is better than just listening to him', SW said.
> SC joined the meeting for just five minutes. When SC walked into the meeting room, SS suddenly stood up and came to shake hands with SC. I could see that SC's noticeable anger faded, although he still looked unhappy and complained a lot about AK's system in the meeting…

After the meeting, the specification for project #52, which had been debated for a month, was conditionally approved and SS made a phone call to T-Com's DQA to express appreciation.

It appeared that FTF meetings were the most preferable communication tool for technology and process issue discussions, as this comment shows:

> [Interview with T-Com's DQA supervisor 19/10/2007]
> If any one of the four companies could set up a team in our office like MM company has done, that would be great! Things can be done quickly and easily! But it's not possible, is it?!

To clarify what is written here, the MM company by establishing this new base was able to have regular FTF meetings. The above example also indicates a phenomenon that FTF meetings may be the most preferable medium for complicated discussions but it was not possible to have them frequently because of workplace dispersions. Some of T-Com's supplier companies set up a group of team members in T-Com's office for effective co-working but not all of them were able to do so as it was costly to support these members' living expenses.

Therefore, the frequency of FTF meetings was low compared with the magnitude of email and telephone communication. The use of media has shifted substantially from FTF meetings to email, for as Markus (1994) suggested email can be used for complex communications and thus FTF meetings may not always be preferable. However, more specifically, this researcher from the evidence presented above would argue that media selection has been compelled to shift to email, because workplaces have become geographically dispersed. Moreover, in high-technology industries, email has emerged as being the next best choice because these industries often need to discuss highly technical details, and this would be the best way to do this.

Here is one of the examples from the research that shows that email communication is useful for discussions about technology issues.

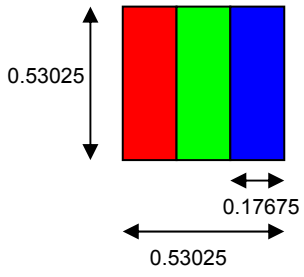
[Quoted from the daily log 16/08/2007]

I called SS (AK's FAE senior manager) to explain that the pixel pitch information that they provided was wrong. SS was angry and grumbling, 'Your request is ridiculous. The spec has been issued to the other customers, they are all happy with it. Only your company is not satisfied… OK! OK! I will change to whatever you want. You are customer. The customer is always right.' Then I received an email from K (AK engineer) with the revised spec. attached. The pixel pitch was revised but it was still wrong. I called K and explained that what he had written on the spec was actually 'sub-pixel pitch', not 'pixel pitch'. I doubted that he really understood the mistake in the spec description. After the phone conversation, I sent this email to K to explain the formula of the resolution and a picture to illustrate the pixel pitch.

Dear K

The active area of this PL is 1018.08 x 572.67 (mm). If the pixel pitch is 0.17675x0.17675, the resolution must be 5760x3240. (1018.08/0.17675=5760, 572.67/0.17675= 3240)

This spec is incredible. I haven't heard any PL supplier can make such a high grade of PL. Are you sure that the spec is right?



> After a few seconds, I received K's email saying that he apologised about the incorrect information 'I didn't understand your concern till I read your email. I am sorry and I will correct the spec immediately.' At last, the spec was corrected.

One AK engineer described the usefulness of email discussions when an FTF meeting could not be held promptly from another viewpoint:

> [Quoted from the daily log 10/08/2007]
> So far, we can't give you the solutions for the issues…I can't hold a meeting now because our engineers are working in different offices and some are on business trips. I need some time to collect their thoughts and think of the solutions…… As soon as I have solutions, I will write you an email with analysis reports. It will be the same as having a meeting. If we need further discussion, we could arrange a meeting then.

The above implies that if an FTF meeting was not possible then a video-conference would not be the next best medium either, i.e. there was a preference for email. In theory, video-conferencing is the medium which has a similar capability to FTF meetings, in that it uses audio and video telecommunications to bring people in different places together to simulate the latter. This can take the form of a simple private conversation between two persons or a large meeting for a group. However, the extension from a one to one exchange to an official group meeting though video-conferencing has not proved to be effective, because the bustling working norm makes it difficult for people to gather together at the same time.

With regard to the use of email, as mentioned in the literature review chapter, it changes the pattern of communication by making it widely distributed and flexible. In addition, because of their characteristic of simultaneous information sharing, emails reach the receivers almost immediately. Furthermore, its feature of asynchronous communication allows for the receivers to read and reply anytime and anywhere. However, in reality, things are not so simple, as discussing tangible technology issues by written-based communication has its difficulties and limitations. People nowadays rely heavily on email for discussing conflicting organisational processes that can lead to further conflict. The following sections present the

challenges of email communication behaviour by addressing the issues of semantics in text and image representation.

6.3 Multi-party email communication chaos

A traditional meeting is defined as two or more people coming together for the purpose of discussing predetermined topics. FTF meetings take place in a visible meeting room but this form of a concrete place and physical interaction are gradually disappearing as communications become worldwide. Email provides an access for people 'meeting' from anywhere and it has almost all the conditions of conventional meetings, in that it provides a cyber-space where information can be disseminated and shared with a number of people simultaneously. Thus, participants hold discussions on topics of interest to them. Although it does not bring people together physically and it is based upon asynchronous interaction, the tool brings team members closer by allowing them to stay in contact when physically separated.

The research findings revealed that email had replaced FTF meetings as the most important (not always the most preferable) communication tool for technology and organisational process discussions and almost every email communication, which substituted for FTF meetings, included two or more receivers. In the four cases of this research, email was mainly employed as a multi-party discussion platform rather than for personal contact. However, multi-party interaction through written communication easily causes misunderstandings and confusions and the biggest problems arise from asynchronous multi-party discussions. In the past, personnel tended to be confined to their offices which were the main places for interaction. Nowadays, by contrast, team members rely on email for almost all office work discussions, in order to get work done faster and more efficiently. When a number of people are engaged in an email discussion, information is exchanged asynchronously and the time lapse can lead to confusion, complaint and the laying of blame. The protracted email discussion between T-Com and AK about PL specification approval is one such example. There were actually a total of 33 emails with four attached documents sent back and forth to discuss ten controversial technology issues. Six

people from five departments which were: T-Com's purchase department, T-Com's DQA, AK's FAE, AK's CS and AK's sales department were all involved in the discussion. The lengthy email content and the versions of attachments were kept up-to-date every day, which made the technology issue discussion even more difficult to understand. For instance, while AK's CS was working on SRS version D, AK's FAE had already updated information on a new version E and emailed it to T-Com. Moreover, the two departments provided different mechanical drawings, which seriously affected T-Com's mechanical design and other engineers working on the project were very confused about information that was lacking in clarity. At the same time, AK's sales department did not understand the details of the technology issues but were still pushing T-Com's DQA for specification approval. After dealing with one problem after another, participants' impatience and anxiety escalated into conflict.

[Email from T-Com to AK 15/08/2007]

Dear JB

The files you attached with that last email were all old versions which were updated by SS a long time ago. Please see the attached file (SRS ver.E) and update the information about the IIS into this file.

As far as I know, you've got most of the data we need from HQ since 31 Jul. I can't understand why you haven't been able to provide this data to us in the last two weeks. Please speed it up.

Dear SS and JB

Could you co-work closer to clarify the contradiction of the chassis gap spec? Why do you have different drawings for the same product?

JL

[Email from T-Com to AK 15/08/2007]

Dear JEC

Please help with your internal co-working. We've spent much effort communicating with your FAE and CS in order to bring all your info. and docs. together. The business schedule is our concern for sure. I believe the above request about the spec is quite reasonable. You should have prepared your documents ready before sending them to customers, shouldn't you?

We've been trying very hard to review your spec as quickly as we can. If you could correct the spec, we could approve your spec by today. This is now in your hands, Thanks!

Best regards,

SC

Asynchronous email communication among a number of people can easily confuse information and result in conflict. For example, T-Com's factory was dealing with a click noise issue, which caused many complaints from the USA market. According to T-Com's USA branch office, customers complained that a click sound was heard when the display was turned on. Because the volume of the noise was too low to be recorded and thus hard to express in electron form, a written description was the only information T-Com Taiwan received from T-Com USA. Without waiting for the problematic display units to be returned from the USA, the engineers at T-Com Taiwan informed BK Taiwan, the PL supplier that they had to investigate the problem immediately. BK's headquarters in Seoul also arranged a group of their audio design engineers to study this issue and extensive information was discussed and exchanged by email between the three offices. After a week, an analysis report with resolutions was produced by BK. However, it was titled 'Humming Noise Analysis Report', and the report did not refer to the click noise but another noise which was totally different. Table 6-2 provides more examples to show how much confusion and misunderstanding may occur in a group email discussion (Events #1, #2 and #3).

As can be seen from the above examples, a number of email's communication difficulties have yet to be resolved. Moreover, these communication difficulties can be further complicated when they are influenced by senior authorities in organisations, as was found in the fieldwork. That is, competition between powerful managers in the different departments/companies emerged as having the potential to disrupt multi-party email discussion. In this context, the evidence shows that when senior figures became involved in such discussions the stakes were raised somewhat because their subordinates tended to group around them, and this led to power blocs with a greater likelihood of conflict occurring. Event #4 (Table 6-2) is presented as an example of when conflict arises as a result of authority overlapping. T-Com's DQA and CK's CS in the Taiwan branch office were discussing a quality guarantee letter, regarding a quality issue. At the same time, it appeared that T-Com's factory was dealing with the same issue with CK's headquarters through another document,

which was entitled the ‘Quality Agreement’. Inadvertently, the emails from CK’s headquarters were delivered to T-Com’s DQA who were confused when they read these emails. Whilst T-Com’s DQA was considering the content of the quality agreement, which they were not happy with and hence were preparing a revised agreement, everybody involved received another email from the T-Com factory authorising acceptance of the quality agreement, with these few words: ‘accept it from SAM (the leader of T-Com manufactory)’, thus pulling rank over the DQA. This is a good example of where the overlap of organisational authority interrupts the course of events, and leads to the group email communications becoming even more complicated because the people involved are unclear as to who has the decision making powers.

People working in the commercial sector require speed and efficiency, and firms in the market demand anytime and anywhere support that dictates the way an organisation operates. Fast communication is essential for immediate problem solving in the workplace and graphic expression to support written-based communication provides both a quick and informative means for this type of problem solving.

Table 6-2 Conflict in multi-party email discussion

Event	Content
(1) Engineering change – incompatible information provided by AK FAE and CS	[Email from T-Com to AK 28/06/2007] Dear LC and SS **Thank you for both of your reports. However, I am confused with the reports issued by you both.** 1. SS has explained the brightness is 500 nits. The CAS which we dealt with before also confirms this to be the same. Why did you change the information to 450nits in the report suddenly? 2. Colour temperature you both provided are different. LC's is different from CAS which SS provided. I don't understand why an assembly line change causes the optical spec. change? 3. The issue dates on the cover pages of your report are different. Which one is correct? Which one is the latest? (……) Best regards, SC --- [Email from T-Com to AK 28/06/2007] Dear SC **Sorry for the confusion.** SS is in Korea now. LC is out of office at the moment. The assembly line change doesn't affect the product itself. Only the document caused this confusion. Please approve the ECN or we can't provide your company with enough products for next month. (……) JEC --- [Email from T-Com to AK 28/06/2007] Dear JEC We would like to help but I am sorry we can't make an approval with the wrong document. **Both of LC's and SS's reports have several mistakes. Which one do you want us to sign?** I would like to believe they're just typing mistakes. If so, please ask LC to correct it. This is the most efficient way. JL --- [Email from AK to T-Com 28/06/2007] Dear JL **Sorry to make you confused.** I modified the ECN as attached. If it's ok, please could you approve the ECN ASAP. Best, LC
(2) Project AK#40 - different drawings for same product from AK's FAE and CS	[Email from T-Com to AK 15/08/2007] Dear SS and JB Could you co-work closer to clarify the contradiction in the chassis gap spec? Why do you have **different drawings for the same product**? Best regards, SC --- [Email from AK to T-Com 15/08/2007] Dear SC I am really sorry for the confusion. I attach the spec. herewith. Best regards, JB

Table 6-2 Conflict in multi-party email discussion (cont.)

Event	Content
(3) Project AK#52 spec. – contradiction of PL lifetime specification from AK	[Email from T-Com's DQA to T-Com's project manager 21/08/2007] Dear SCH The spec. you attached shows that **PL lifetime is 50,000 hrs**. Could you please let me know where you obtained this data? The spec. I've got is **PL lifetime as 35,000hrs**….. Best regards, SC [Email from T-Com's project manager to T-Com's DQA 21/08/2007] Dear SC I had discussed with AK about guaranteeing that the project #52 PL lifetime has to be 50,000 hours (minimum). I attach the spec. for you with this email which I got from AK. SCH [Email from T-Com's DQA to T-Com's project manager 21/08/2007] Dear SCH **The spec. that I've got shows the PL lifetime as 35,000 hours (minimum) but yours shows 50,000 hours (typical)**. The two version nos. and issue dates for the spec. are exactly same. Could you let me know which one is correct…… Best regards, SC [Email from T-Com's project manager to T-Com's DQA 21/08/2007] Dear SC I will check with AK again about the panel lifetime and keep you informed. SCH
(4) Project CK#50 - Quality guarantee letter	[Email from T-Com to AK 11/09/2007] Dear SAM (the leader of T-Com factory) and SW The attachment is DK's idea about the **Quality Agreement**. Please let me know your thought after reviewing it. JHC (CK CS senior manager) [Email from T-Com to AK 11/09/2007] Dear Richard **accept it from SAM** SAM [Quoted from the daily log 11/09/2007] SC received the emails when he was on a business trip in China. I got a phone call from SC almost at the same time as when I received the emails. SC was upset that SAM suddenly interfered with the guarantee letter discussion and he got even angry that SAM accepted the draft of the **guarantee letter**. He had already found many mistakes in the letter and he said **he would definitely reject the letter**. He wanted me instead of SW to deal with the issue…… [Email from T-Com to AK 12/09/2007] Dear Richard and JHC Many thanks for your continued support. If my understanding is right, the attachment was provided for the **image sticking issue,** regarding the discussion between RL and SW. If we are actually talking about the same thing, please see our comments below…… JL [Email from CK to T-Com 12/09/2007] Dear JL, thank you for your reply. In the case of **image retention**, I would like to let you know about the history. We thought that this issue was almost concluded after discussion between RL & SW. But, a further issue was raised by T-Com which confused the situation…… JHC

6.4 Graphic aspects of email communication

The transformation from physical FTF meetings to email is typical of the way in which many contemporary businesses have evolved their communication practice. However, companies usually do not have the option of dispensing with tangible office facilities entirely, as in the four cases of this research. Hence, they need to adjust the management of their work to encompass a mixture of tangible technological phenomena and virtual communication. Email is not merely a text-based method of communication but can involve alternative descriptive applications. For example, graphic-, audio- and video- applications may be contained and/or attached to support written email discussions, thus making it a multi-functional text-based communication tool.

Event #1 (Table 6-3) gives an account of a cable/connector incompatibility issue, whereby on T-Com's assembly lines some PLs were displaying abnormal pictures and unfortunately this problem was not happening with any predictable frequency. Hence, the randomness of this phenomenon made it difficult to be recorded and re-produced. After a week of fault finding, T-Com's engineers deduced that the problem was due to the incompatibility of the cable/connector between the cable provided by T-Com and the connector fitted to BK's PL. However, if they proceeded any further by undertaking time consuming analysis, the assembly lines would still need to continue with a risk of affecting quality control. Thus, T-Com's engineers instructed T-Com's DQA and BK to study the problem simultaneously. Yang (the manager of the quality control department in T-Com) sent an email to T-Com's DQA and BK, regarding this problem. However, none of the members in T-Com's DQA and BK had seen the abnormal display in person, and because the phenomenon was so difficult to explain and present clearly, no one understood the exact problem from Yang's email. Days later, a more complete analysis report was issued by FC (an engineer from the component's department) which provided clearer information but it was still difficult to understand all the details of the matter. Therefore, BK finally decided to arrange a business trip to T-Com to deal with the issue. Table 6-3 presents

more examples illustrating how the features of the graphic aspects regarding email communication can be problematic. It should be noted that the difficulties, in this respect, are not necessarily caused by the incompetency of the communicator and, in fact, are more often down to the image limitations of the medium.

Table 6-3 Email communication through various electronic means

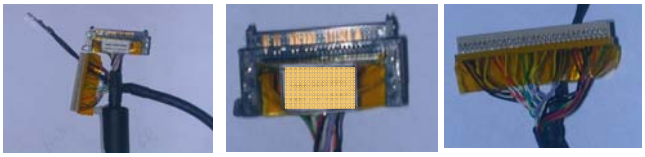
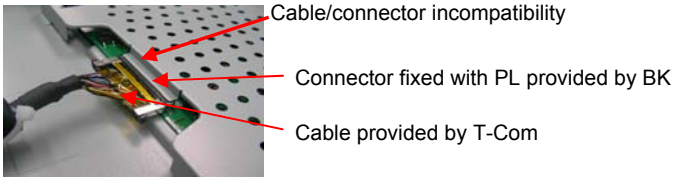
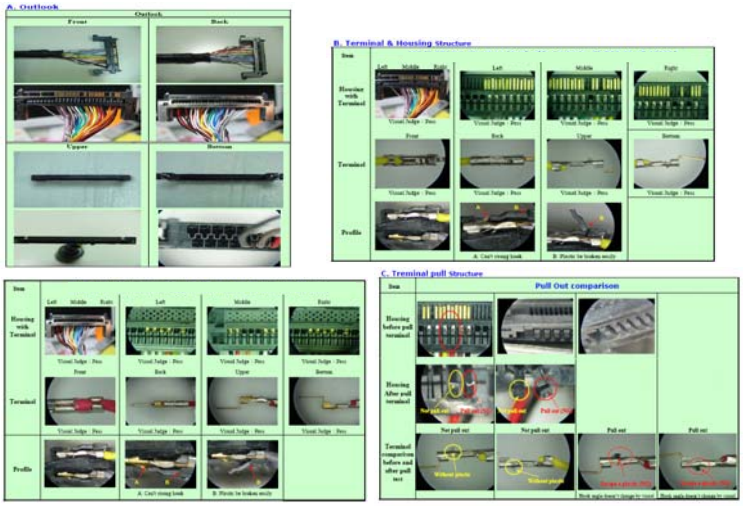
Event	Content
(1) BK technology issue discussion – cable/connector incompatibility (cont.)	[Email from T-Com manufactory to T-Com's DQA16/07/2007] Hi all, please see the attached photos. This is the cable which has caused the incompatibility issue.  Best wishes, Yang (manager in the quality control department in T-Com manufactory) [Quoted from the daily log 16/07/2007] … Based on the three photos which Yang sent me, I couldn't understand what the problem of cable disconnection was. I made a phone call to Yang asking for more details. Yang answered and said '(……) **the email was from my engineer and I couldn't understand it either.** I was about to call you, see whether you can understand it or not'. (……) There were about 15 receivers enclosed within the email's copy section. I found a product engineer who might know the issue and made a phone call to him. He tried to explain the phenomenon the disconnection caused but it's not very helpful for me to understand the problems of the cables. He said, '……**it's very difficult to explain it by email. I would post you some problematic samples of the cable and we could discuss it after you see the samples**.' (Note: After all that, I took a picture of my own to give you a better understanding.)  Cable/connector incompatibility Connector fixed with PL provided by BK Cable provided by T-Com [Email from T-Com to BK 03/08/2007] Dear all Please see the attached analysis report for the cable/connector incompatibility issue. (Note: This was originally a 10-page report. This example only shows part of the report.)  Best regards, FC

Table 6-3 Email communication with multi-electronic forms (cont.)

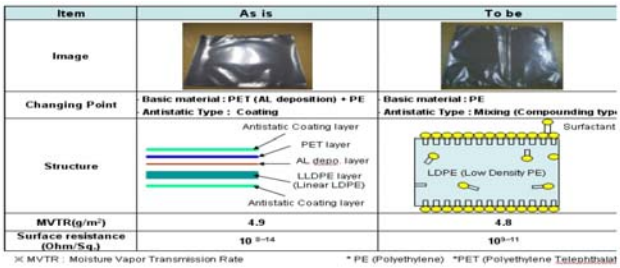
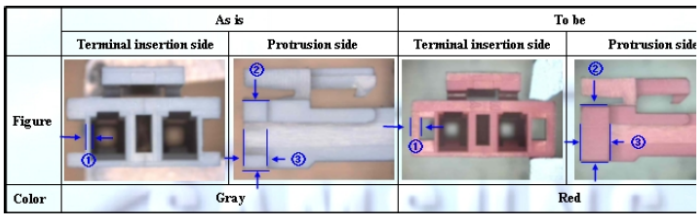
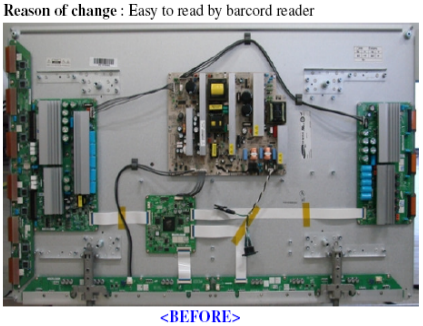
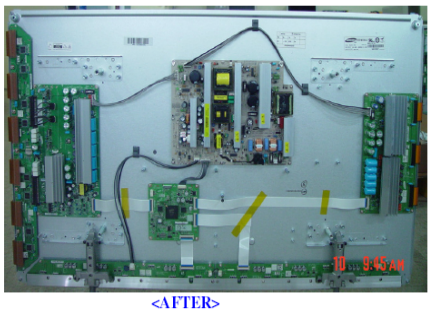
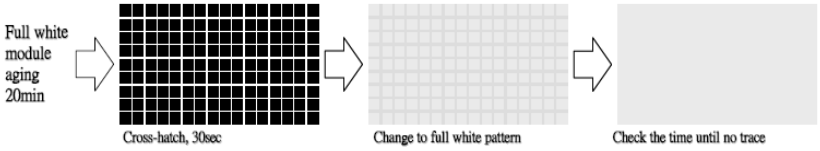
Event	Content
(1) BK technology issue discussion – cable/connector incompatibility	[Quoted from the daily log 03/08/2007] SW made a phone call to FC (the report issuer) asking for details about the report, after which they arranged a meeting. I went to meet FC with SW. **FC spent about two hours explaining the composition of the cable and connector** to us. She dismantled a problematic cable and we inspected all the parts under a microscope…… After the two-hour meeting, we understood the content of the report clearly. However, I doubted whether the BK engineers would understand the report without an explicit explanation… [Quoted from the daily log 04/08/2007] I received an email from BK's JW this afternoon. It said that '(…) **The report is well written but I still don't understand it clearly.** Shall we have a meeting to discuss it in more detail?' We then planned to arrange a meeting with the BK engineers from Seoul on 6 August.
(2) AK engineering changes for shielding bag and connector	[Email from AK to T-Com 31/07/2007] Dear SC and JL I am writing to inform you about an ECN referring to a connector change. Regarding the change item, please refer to the table below and attached file. If you don't have any questions, please sign the report cover or reply to me by email  Best, LC [Email from AK to T-Com 31/07/2007] Dear SC and JL I am writing to inform you of an ECN about connector change. Regarding to the change item, please refer to the table below and attached file. If you don't have any questions, please sign the report cover or reply me by email.  Best, LC [Quoted from the daily log 31/07/2007] I don't understand the photos and the reports LC provided so I asked SC for an explanation. However, SC said **he couldn't understand them either** and raised more questions. **We spent quite a long time studying the reports but still couldn't understand them**. Then, SC wanted me to ask AK to clarify the reports, for example, what the symbol means and how could the before/after structures be compared with different constructions. The connector change **was even more difficult to understand;** why the connector was changed but the cable change was not mentioned……

Table 6-3 Email communication with multi-electronic forms (cont.)

Event	Content
(3) Project CK #50 label location change	[Email from CK to T-Com 31/07/2007] Dear SW This is just to let you know that we're going to change the location of the back label. Please see the photos. **Reason of change** : Easy to read by barcord reader  <BEFORE>  <AFTER> Regards, RL --- [Quoted from the daily log 31/07/2007] I heard that SW was talking to CC about the email after receiving the email. **SW asked CC, 'which label is it?'** **CC answered, 'I have no idea.'** After a few seconds, SW yelled 'I've got it! The label at the right hand side of the main board is moved to the right top corner of the PL.!' 'It is not just a label location change. They've added a new barcode'. CC answered.
(4) Project CK#50 image sticking issue	[Email from CK to T-Com 19/09/2007] Dear SW This is the evaluation process of the image retention in CK. Feel free to let me know if you have any comments. ◆ **DEFINITION** **After displaying intense pattern, it's image still remains after changing.** ◆ **MEASUREMENT – I.R "time" is measured by naked eye of inspector**  Regards, RL --- [Quoted from the daily log 19/09/2007] After receiving the email, SW discussed the process with SC. **Both of them thought that the process was not clear enough, and they spent about an hour interpreting the process in their own ways.** After which, they were still not sure how to interpret it (i.e. the above picture). Therefore, SC suggested SW to discuss more details about the evaluation pattern with CK

From the above, it can be seen that explaining technology issues by email is particularly difficult. In fact, it can be almost impossible to present a tangible technology issue adequately, as the example below illustrates.

[Email from T-Com factory to T-Com's DQA 20/08/2007]

Dear All

Please see the attached file of the low-uniformity phenomenon. The machine is in factory now. You could come to check it in person……SC, please let me know your comments.

LT (an engineer in T-Com factory)

The email from the T-Com factory to T-Com's DQA at headquarters presented the abnormal phenomenon of non-uniformity. However, this phenomenon was not clearly visible and could not be shown by alternative methods, such as being displayed by electronic forms. When the DQA engineers received the email, they did not understand what the problem was from the photograph. One DQA engineer guessed that the complaint referred to the dark corners on the screen, whereas another assumed that it was the dark vertical bars on the screen. In addition, judgement could not be made from this email whether it had been passed or failed. The DQA members requested clearer photographs and optical measurement data from the engineer who had issued the report, but none of them were helpful for addressing the issue. Finally, the DQA engineers travelled to the factory to check the abnormal phenomenon in person, after which they were able to start discussing the issue with the PL supplier.

Companies generally use email with multi-format attachments to gather information from: employees, suppliers and customers. However, the electronic format based nature of an email message can be a problem when discussing obscure technical phenomena. Moreover, tangible phenomena sent by email cannot be physically experienced by the recipients (heard, smelt, felt and touched) although information

may be shown pictorially. However, the more complicated the issues, the more problems are likely to occur, thus increasing the challenge of making email more viable.

Email's characteristic of being able to attach multiple diagrammatic representations has led to an improvement in electronic communication efficiency. However, as much of the above has demonstrated the farrago of semantic and graphical descriptions often takes a substantial amount of time to comprehend and can lead to the communicators being involved in chaotic misunderstandings. Moreover, email receivers are not required to reply immediately, which may intensify the worry and anxiety about a problem. Table 6-4 is an example which represents how email communication chaos that can deteriorate into a conflict situation.

In sum, the general rise of email discussions is more than just a shift with regard to technology use. It has undoubtedly transformed the pattern of how information is communicated and it could be argued that it has profoundly changed the ways in which people and companies work and interact.

Table 6-4 An example of complex communication by emails

Event	Content
Project DK#50	[Email from T-Com to DK 16/10/2007] Dear EC (DK sales manager) We have just been informed that your company has delivered 3480pcs of Project DK #50 'TA45' to our factory. However, I don't know when you started to change to 'TA45'. **We won't accept it as we've only approved the 'TA35'**. This PL has caused much controversy: ROM data has just been updated on the TA35, IPM type has been approved for the TA35 and the resolution for the PL shut down problem is under study for the TA35. Therefore, **we WILL NOT agree to you delivering the TA45 without approval and without any resolution of the above problems.** Best regards, SC [Email from DK to T-Com 17/10/2007] Dear SC There are a total of 4006pcs IPM-type PLs and we will ship to your company in Oct. and we will update the new ROM data onto 1,224pcs of PLs in Taiwan. The rest will be done in our manufactory. Due to internal material control, we have changed the model number from TA35 to TA45. Thank you for your understanding. With Best Regards., EC [Quoted from the daily log 17/10/2007] (……) SC was **complaining** about the email, 'this is not the first project we co-worked with DK. **I still don't know why they don't understand our rules. All changes have to be approved before shipping the products to our factory.** (…) I don't know what EC was talking about. I don't care how many pieces of PL are delivered to us. I am going to tell IQA (Inspection Quality Assurance) to reject them. I have never approved it at all!!' [Email from T-Com to DK 17/10/2007] Dear EC, About IPM type and ROM data, 1. Are you going to send someone to our company to verify the resolution on the TA45 model? 2. If not, how will you to apply the resolutions on the TA45 ? Or have you already done this? About TA45, 1. How can we recognize that the ROM data has been updated or not? And by T-Com or by DK? 2. Please issue an official document for the "TA45" change today. All differences between the TA35 and the TA45 have to be clearly written in the document. Best regards, SC [Email from DK to T-Com 17/10/2007] Dear SC, please refer to my reply as below. 1. Are you going to send someone to our company to verify the resolution on the TA45 model? 2. If not, how will you to apply the resolutions on the TA45? Or have you already done this? <KS replied> You haven't used the TA45 model yet. We have already change all of the display units, giving them new ROM data. We will update them before input to your line. After this lot of display units, all of the PLs will be TA45 models with IPM type. 1. How can we recognize that the ROM data has been updated or not? And by T-Com or by DK? <KS replied> Our CS Engineer will explain this to you. To. Mr. Choi, please help with the question. 2. Please issue an official document for the "TA45" change today. All differences between the TA35 and the TA45 have to be clearly written in the document. <KS replied> We already got the approval for the ECN from you. The meaning of the TA35 and the TA45 is about IPM. I've already informed you of the name differences by e-mail. (If you need to confirm this, I'll send it again for your reference.) Thanks.

Table 6-4 An example of complex communication by emails (cont.)

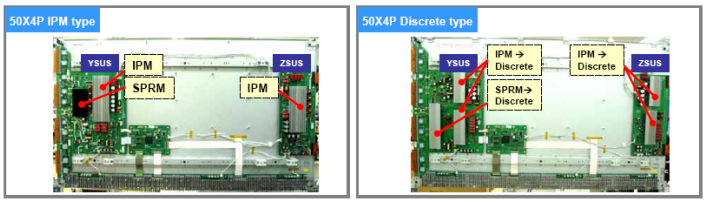
Event	Content
Project DK#50 (cont.)	[Email from T-Com to DK 17/10/2007] Hi K.J. Re: our phone conversation, I summarise the questions below. 1. Has the ROM data been updated in the TA45 also? How can the TA45 model with updated ROM data be recognised from the display's appearance? Is there any difference between the data updated in Taiwan or Korea? 2. Have you verified that the resolution on the TA45 works? 3. The CONCEPT of the countermeasure on the TA35 and the TA45 may be the same as far as we can see, however, we're worried about the exact application. I suppose the ROM data should be different between the TA35 and the TA45. The TA35 itself has two sorts of ROM data, doesn't it? Could you explain this in more detail for us? How about the T45? 4. About this "I've already informed you about the name differences (TA35/TA45) by e-mail ". I can't remember the emails. Could you send it again to me? (……) JL --- [Email from DK to T-Com 18/10/2007] Dear JL Please refer to my answer below. 1. Has the ROM data been updated in the TA45 also? How can the TA45 model with updated ROM data be recognised from the display's appearance? Is there any difference between the data updated in Taiwan or Korea? <KS replied> We have 1.4K (TA45 model) in our warehouse in Korea and we will change the Rom data before we input your assembly line. Our CS manager and engineer will confirm this for you. 2. Have you verified that the resolution on the TA45 works? <KS replied> We have already tested it and there were not shut down problems. 3. The CONCEPT of the countermeasure on the TA35 and the TA45 may be the same as far as we can see, however, we're worried about the exact application. I suppose the ROM data should be different between the TA35 and the TA45. The TA35 itself has two sorts of ROM data, doesn't it? Could you explain more details for us? How about the T45? <KS replied> The ROM data change is for peak mode operating when the AV mode is played. Actually the tracking range of the T-Com VSC is higher than the other customers' VSC so we have had to change the ROM data to suit to your design. So basically the ROM data is different between the TA35 and the TA45, but the concept is exactly the same. 4. About this "I've already informed you about the name differences (TA35/TA45) by e-mail". I can't remember the emails. Could you send it again to me? <KS replied> I am sending you another email with the approved ECN. Thanks. KS --- [Email from DK to T-Com 18/10/2007] Dear JL The approved ECN is attached. Sorry that I did not make it clear about the model name change. KS  Note: This ECN actually contains five pages. The photo is from one of the pages.

Table 6-4 An example of complex communication by emails (cont.)

Event	Content
Project DK#50 (cont.)	[Quoted from the daily log 18/10/2007] In order to clarify the differences between the TA35 and the TA45, DK posted a piece of the PL from Korea to Taiwan. The sample arrived at our office this afternoon. When we removed the packing and looked at the sample, the engineers were all shocked because the differences between the two models were not only the ROM data and IPM types, but the circuit design was also completely changed in the TA45. **Hence, the model had to be treated as a new project based on T-Com's rules. The safety engineer and one of the electronic engineers both cried out in exasperation. (The safety engineer looked like he was shocked when he saw the sample and the electronic engineers just said 'shit!' and left unhappily).** (……)
	[Email from T-Com to DK 18/10/2007] Dear KS, We now are checking the sample which you posted. The TA45 model's circuit design and PCBA layout are completely different from the TA35. Are the two models interchangeable? We need you to issue a formal document to explain the discrepancy between the two models BY TOMORROW. The ECN we approved did not mention any model name change. How do you expect us to know they are actually different models? For the TA45 model, we would need to assign a new product no. in T-Com. If you have any questions, please contact me! Best regards, SC --- S[Email from T-Com to DK 19/10/2007] Dear KS, I am waiting for your response. Best regards, SC --- [Email from DK to T-Com 19/10/2007] Dear SC I am sorry for the late reply. I'll submit a formal document to you by today. Thanks. KS --- [Email from T-Com to DK 22/10/2007] Dear KS, We are now checking the sample which you posted. The TA45 model's circuit design and PCBA layout are completely different from the TA35. Are the two models interchangeable? Best regards, SC --- [Email from DK to T-Com 22/10/2007] Dear SC **I can not understand why this issue is questioned again now.** The approval of the ECN means that everything is confirmed including service view points. As far as I know, the approval was completed on Sept. 28 as an attachment. Here, I reply to your questions as below again. (……) KIM (the CS manager in DK) --- [Quoted from the daily log 22/10/2007] SC hasn't replied to KIM's email. Before leaving the office, **I asked him 'why didn't you reply to KIM's email?' He answered, 'he sounded like he's done everything we need but he hasn't… It's not my fault if their products are rejected …I'd like to see how he's going to sort out this problem.**'

In spite of the participants' heavy dependence on email, the results of such communication were often ineffective. Table 6-5 shows the overall conflicting processes in the four cases and the outcomes after email discussions. It has transpired that dealing with process conflict is challenging and somewhat emotional. Communication in these processes can be ambiguous or understandings within them can be misread, and this can be further complicated by each of the companies' beliefs and notions of prestige. For nearly a decade, T-Com has prided itself as a 'high-quality display designer' – defined not only in its business model but also in its organisational label. Whilst it has difficulty accepting anything that detracts from its values, its suppliers also insist on defending their existing process standards, which they, in turn, consider to be best practice. That is, both uphold their own particular standards which have supported them in times of previous business crises and maybe this in part explains why the companies have survived in severe competition with their outstanding reputations. However, this strong self belief has also exacerbated the difficulty of establishing matched processes in instances of organisational collaborations.

Table 6-5 Main conflicting processes and outcomes

Case	Conflicting Process	Communication Media	Outcome
T-Com/AK	Cosmetic specification	Email	Remained unresolved
	Altitude testing	Email	AK provided test result based on AK internal criteria
	Document reference number	Email →Meeting	Remained unresolved; AK promised to improve the document system
	Product model name	Email →Meeting	Remained unresolved; AK promised to improve the document system
T-Com/BK	High temperature/humidity test criteria	Email	BK provided test result as T-Com require
	Uniformity measurement methods	Email	BK followed T-Com's measurement methods
T-Com/CK	Uniformity measurement methods	Email → Meeting	A compromise solution was reached
T-Com/DK	Frequently issued ECNs / PCNs	Email	DK explained the reasons about frequent engineering changes and promised to improve the situation for the next project.

6.5 Chapter Summary

Conflict arising from ambiguous or different understandings of organisational processes, namely process conflict, has been identified as existing in business collaborations in this chapter. The findings from this research have also revealed that all of the four cases have been co-worked under intense organisational process conflict and that had an important influence on participants' choice of communication media. In this regard, FTF meetings were the most preferable medium, but email was used most commonly when these could not be held promptly. However, owing to the inherent text-based characteristics of email, communication chaos often occurred in all of the case-studies. Further discussion on the subject of organisational process conflict in email communication is presented in Chapter 10.

Chapter 7: Business strategic conflict in virtual communication

In this chapter the nature of business strategic conflict in the virtual communication environment is addressed. The contents include: the existence of business strategic conflict in the four case-studies (section 7.1), communication media selection in an intense business strategic conflict situation (section 7.2) and the stylised communication behaviour adopted in the selected media in connection with the nature of the business strategic conflict (sections 7.3 and 7.4).

7.1 The existence of business strategic conflict in the case-studies

The growing significance of inter-organisational collaboration has been paralleled with an increase in the use of CMC. Communication through large numbers of email discussions, in addition to telephone conversations, audio-conferencing and FTF meetings, describes much of the virtual communication environment of this research. The virtual communication environment is not just concerned with the various available technologies, as it also refers to the process of human interaction through employing them. One of the key questions regarding organisational collaboration is the subject of relationships, and these can be generally categorised into two major types: adversarial and collaborative (Gules & Burgess, 1996; Tang et al., 2001). The classification used here appears to be rather simplistic, in terms of the real world. However, it is a useful categorisation for distinguishing the different orientations in collaborative projects. T-Com/AK and T-Com/BK are good examples of the adversarial and collaborative models, respectively. Business strategic conflict occurring in email communications acts as a double-edged sword because, on the one hand, written-based communication provides a psychological distance from aggressive behaviour, whereas on the other hand, lack of physical interaction and, hence, missed social cues can lead to misunderstandings. Thus, the behaviour and expression of business strategic conflict is different when communication relies on written-based email, as opposed to that occurring in FTF scenarios.

7.1.1 Intense business strategic conflict in the T-Com/AK collaboration

The relations between T-Com and AK could be seen as a typical example of the adversarial model. The collaboration between the two firms had not been auspicious, because AK being a well-known PL producer and display maker, was not only T-Com's supplier but also a strong rival to it in the display market. As a consequence, joint working between these two companies was problematic. Moreover, the two companies' competition in the North American market had intensified since 2007, and both companies had become engaged in an aggressive price battle in order to attract customers. However, these price reductions had not been increasing the volume of product sales and in recent years sales growth had started to slow down. That is, compared with an 88.8 percent rise in 2007 and a 92.6 percent increase in 2006, the sales increase in 2008 was expected to be only 26.6 percent which would a significant fall (Anonymous[8], 2007). Behind the low-pricing strategy, these two firms had been competing hard to be the number one brand in the market. This intense competition was shown in a market analysis report: '*Our latest XXX report, which reveals… T (T-Com own brand product) became the #1 brand…overtaking A (a pseudonym of AK's brand)'*… With a dramatic increase in sales, T-Com overtook AK as the top display brand in North America. It had been a bone of contention in the two firms' collaboration since the news was announced, and AK considered terminating the PL supply to limit T-Com's production increase. As a result of this situation, they had suspended technical discussions, citing any excuse, thereby causing T-Com major problems.

> [Interview with a T-Com project manager 19/10/2007]
>
> T-Com Project Manager: I believe the product spec. controversy is just a cover-up as AK does not want to supply PLs to us because our product selling has exceeded theirs. If the PL spec. is too difficult to change, it should also happen with BK…but it doesn't. The same issues occurred with AK's and BK's PLs, such as the uniformity issue. BK can change the evaluation procedure for us, why can't AK? The answer is obvious, they don't want to!!

[8] The source of this information has to remain anonymous because of concerns regarding confidentiality.

From the view point of T-Com, the business collaboration with AK was particularly critical, in that as explained in chapter 4, BK used to be the only L-type PL supplier to T-Com but its output was insufficient for T-Com's demand. Thus, if T-Com and AK's collaboration was successful, it would contribute significantly to a large annual income for T-Com, and if not, T-Com would face a significant shortfall in supply and a consequent loss of earnings. AK was still contemplating whether to continue to supply T-Com, fearing that T-Com's increasing market share could threaten their own sales in the market. However, T-Com's large purchasing volumes were attractive to AK and, therefore, they maintained the collaboration even under intense business competition, possibly resulting in highly cynical practice.

7.1.2 Potential business strategic conflict in the T-Com/BK collaboration

BK, the other L-type PL supplier, had worked with T-Com in a collaborative way that was quite different to that of AK, and T-Com's display sales success in North America could be ascribed to a well-timed deal between them. With BK's mature technology and steady product supply, T-Com, which was better-known as a low-cost manufacturer, launched their North American market successfully. It soon became a household brand of good quality and reasonably priced products and, furthermore, T-Com became BK's major customer.

Nevertheless, relations were not always harmonious between T-Com and BK, and potential conflict still existed, owing to both firms' awareness of their competitive environment.

> [Interview with the T-Com's DQA senior manager 13/09/2007]
> T-Com's DQA manager: Compared with AK, BK is more willing to take on board our suggestions when we have a disagreement. I believe it is because of our business interdependence. We co-work to survive in the market…of course we are also competitors but we are not in intense competition for now. If one day we have conflict in the market with BK, they might do the same thing as AK is doing to us. Who knows?

However, BK's product differentiation strategy in the market was distinct from T-Com's low-cost strategy, and as a consequence the overall relationship between T-

Com and BK was significantly more harmonious than that of T-Com and AK. Thus, although the T-Com/BK collaboration had the potential for conflict owing to business competition in the display market, the scale of this that materialised was insignificant compared that in T-Com and AK. Comparing T-Com/AK's adversarial approach with that of T-Com/BK's collaborative one, T-Com's DQA senior manager summarised the levels of business strategic conflict as follows:

> [Interview with the T-Com's DQA senior manager 13/09/2007]
> It is common that there are many disputes on specific issues when different companies work together, but it's really hard to deal with these disagreements with AK. When we highlight the issues to them, we hope to have further discussion, but they don't instinctively treat these issues as potential problems. They should face and resolve the issues, but they only blame us for being fussy…Working with BK is much better. At least, BK is more willing to work towards a compromise rather than insisting on their position being adopted. They understand that if we want to develop products successfully, we both have to make compromises with regards to our original requirements…Working with AK is awful. They have never cared whether our product development succeeds or not. They are only concerned about their own profit. It seems like they are always ready to cooperate with other buyers instead of us…I believe the root of the controversy is the business competition.

The sensitiveness of business competition was not mere speculation on the part of the participants in this research, but was found to exist to such a degree that it affected AK's business policy towards T-Com. In this context, the conversation below between the researcher and AK's CS manager indicates that the intensity of T-Com/AK's business competition determined whether an adversarial or a collaborative approach should be adopted.

> [Quoted from the daily log 08/08/2007]
> Q (The researcher): We (T-Com and AK) always spend a lot time discussing the levels of the cosmetic spec. It has been an open secret that your company has PLs with better cosmetic quality. Why don't you sell them to us according to our request?
> A (AK's CS manager): It's our company's policy.
> Q: What kind of policy is it?! We would like you to support us with higher-grade products and you do produce the types we need. Why don't you just sell them to us then we don't have to waste time arguing about the quality?

A: (There was silence for a few seconds. AK's manager cleared his throat and continued.) As you know, your company and our companies are serious competitors in the North American market. Do you think we should let you have the better quality products?

From this it can be seen that T-Com and AK's intense business competition had led to relatively high conflict regarding business strategy. In contrast, the more collaborative relationship between T-Com and BK has resulted in more moderate conflict levels.

7.1.3 Mild business strategic conflict in the T-Com/CK and the T-Com/DK collaborations

T-Com proceeded to dominate the display market when it entered with its own brand in 2005. It had relied heavily on BK's support regarding the supply of L-type PLs as the relationship between T-Com and AK had not been stable. However, T-Com had been careful not to depend solely on one supplier for important components, and they had actively sought alternative suppliers to meet their needs. For example, P-type display was viewed by them as having further market potential and, thus, they had tried to work with other firms in the industry who were working on such developments. Both CK and DK were two of a limited number of companies in the world capable of mass producing advanced P-type PLs. These two suppliers were important to T-Com and the business collaborations involving T-Com/CK and T-Com/DK were formed with the purpose of developing the P-type display.

However, P-type displays were not a leading product in the market and T-Com's revenue from P-type products was relatively small, as compared with those of the L-type. Hence, T-Com spent less time focusing on P-type technology and as a consequence, the business strategic conflict for T-Com/CK and T-Com/DK was relatively low.

7.2 Prevalent use of email in a heavy business strategic conflict environment

'Conflicts at inter-personal, inter-group, inter-organisational and international levels are clearly not the same' (Rubin et al., 1994, P.5). Within an inter-organisational business context, each company has its own objectives and can determine the level of business strategic conflict. Past experiences have an influence on current impressions in an inter-organisational collaboration and these, in turn, can affect the actual behaviour of individuals as they represent their companies. In terms of communication media selection, companies often do not choose specific tools for employees. However, importantly, their interaction which is associated with their consciousness of the business competition would be expected to influence their choice of communication tools. Regarding the four cases in this research, the T-Com/AK collaboration had exhibited a high degree of business strategic conflict compared to the other three. It has been found that, in heavy business strategic conflict circumstances, like that of T-Com/AK, employees had a tendency to avoid communication media which involve intensive social cues (e.g. FTF meetings and telephone conversations). Email, on the other hand, was used extensively. In comparison with the other three cases that exhibited lower levels of business strategic conflict than AK, it was not noticeable that telephone conversations and FTF meetings were avoided, unlike in the case of the latter.

Table 7-1 presents reports of different conversations between T-Com and the four collaborating companies. The purpose here is to give the readers an insight into the different perspectives found in the four case-studies, by this researcher, regarding FTF meetings and telephone conversations. Moreover, the reader's attention is drawn to the indication of the level of business strategic conflict, for each case of collaborations, in the context of these perspectives and an overall interpretation of these narratives is offered after the table.

Table 7-1 Attitude towards FTF meetings and telephone conversations in relation to the different levels of business strategic conflict

Case	T-Com/AK	T-Com/BK	T-Com/CK	T-Com/DK
Level of Business Strategic Conflict	**High**	**Moderate**	**Low**	**Low**
Attitude to FTF meetings & Telephone conversations	**Avoidance**	**Problem solving (Active)**	**Problem solving (Active)**	**Problem solving (Active)**
Events	**(1) Project AK #24 schedule delay** Mass production was delayed for weeks because of an AK PL thermal issue. AK's PL electronic design was over-heating and the thermal energy transferred to the metal frame which was near the over-heated region. The metal frame became deformed because of the thermal conduction and this led to a major problem with product assembly for T-Com. **T-Com requested a meeting with AK's engineers but AK refused to attend the meeting, saying their engineers were too busy to visit T-Com**. Another issue of metal frame expansion occurred later on that caused T-Com IQA to reject 1500 pieces of AK's PLs. **AK considered holding a meeting with T-Com but T-Com had begun to avoid interaction with no concern regarding AK's fortunes.** If the problem was not resolved soon, T-Com would also suffer a large business loss caused by the reduction in sales. I was worried about the potential business impact and discussed with SC the possibility of holding a meeting. **I told SC, 'It will cause AK a big problem if we are unable to sort out the issue asap'.** **'That's their business', SC answered.** **'But it would also affect the sale of (cont.)**	**(1) Cable disconnection issue** The PL cable disconnection issue significantly increased T-Com's manufacturing defect rate. **BK's engineer JW visited T-Com's factory for two days to study the root cause and find solutions but could not resolve the issue. JW therefore decided to call a meeting to get BK's R&D engineers in Korea and T-Com engineers together. The meeting was arranged in only three days and held in the T-CO factory. There was a total of eighteen engineers who attended this meeting:** eleven BK engineers from the Korea HQ, one BK engineer from the Taiwan branch, SC and the researcher from the Taipei HQ and four engineers representing the T-Com factory). The cable disconnection issue was complex but BK's analysis report and resolutions were discussed and T-Com's representatives gave support and suggestions. The issue was resolved within a week.	**(1) Guarantee letter** CK's salespeople and engineers visited T-Com's purchase dept. to discuss a PL order. An abnormal phenomenon of image sticking on CK's PLs was a major quality concern which delayed further orders being placed with CK. SW (T-Com's DQA engineer) was thus requested to join the meeting, following the initial purchase dept. discussion. SW explained about T-Com's standards and CK promised that their engineers in their HQ would work on quality improvement. In fact, the abnormal phenomenon remains a feature of P-type PL technology characteristics. The phenomenon could possibly be improved but may not be completely removed. Thus CK was becoming anxious that T-Com would not purchase the PLs from them. **CK's top managers subsequently visited T-Com to have a meeting with SC. Seven people attended this meeting:** CK's R&D senior manager and CK's Quality Assurance Department manager from their HQ, CK's sales senior manager and CK's FAE manger from the Taiwan branch and T-Com's DQA SC, SW and the researcher. It was (cont.)	**(1) ECN** **The standard procedure regarding the ECN for pre-existing projects is generally not complicated. T-Com's and DK's employees were quite used to dealing with ECN by email. In late September, DK's engineers visited T-Com to explain the ECN for a circuit design change and also to introduce a new staff member to T-Com.** SC was in China at that time, so SW and I joined the meeting instead of SC. The ECN discussion only lasted a few minutes. Then, the DK engineers explained their internal process regarding product design. This was helpful for better understanding why they tended to issue ECNs more frequently than the other firms. I reported to SC about the meeting. SC was pleased that DK made a special journey to T-Com. **He believed that the benefits of the meeting for improving our organisational relationships were more important than dealing with the ECN itself**.

	(cont.) our products'. **'They have to take all the responsibility, I don't want to waste time having a meeting with them', SC insisted.** The final outcome that resulted was that T-Com's design had to match AK's PL metal frame. **(2) Project AK #52 uniformity issue** AC (T-Com's DQA engineer) helped me to set up a display for the meeting with SS (AK's senior manager) and PT (AK's engineer). AC advised, 'I'd like to warn you that the AK people always behave in a very tough manner. You should brace yourself for this meeting with them… Months ago, our manager was away in China and I was asked to attend the meeting with SS. The way he spoke to me was like he was "lecturing" me, telling me that my testing methods were incorrect, like I was an idiot. He complained to us that we required too much detail and that it was difficult to work with our company…I didn't get any chance to speak at the meeting. I was upset. How can he be so tough towards his customers?!' I nodded and said, 'Yes, thank you….PT is a new member in the AK team. He might be more polite. **Would you like to join our meeting?' I asked. 'No, I have no interest in knowing anyone from their company.' (cont.)**		(cont.) agreed at the meeting that CK issue a guarantee letter as a temporary measure. **(2) Project CK #50 uniformity issue** I received a phone call from CK. I didn't know the engineer who was speaking, but he said he would come to visit T-Com the following Monday for a discussion of Project #50. It was quite unusual to receive a phone call from CK's HQ. Generally, RL (CK's FAE manager) handled all discussions regarding technology issues. SW called RL confirming the information but he was on holiday. SW then left an email to RL **The next day, SW got RL's reply saying that CK's HQ was concerned about the project progress, so the engineer had been assigned to visit T-Com.** In the meeting, T-Com actually had no exact technology issues to discuss with the engineer. But, this opportunity provided the chance for both parties to exchange their thoughts on uniformity evaluation standards	

	(cont.) **(3) Project AK #40 IIS** After a discussion on the phone, SC asked me to arrange a meeting, 'Ask LC or JH to come to a meeting tomorrow! I don't know what's wrong with them, why can't they provide the IIS'? I was unable to make any contact with LC and JH by telephone, so I sent them an email. **Three days passed. There was still no response regarding the IIS or about the request for a meeting.** I called LC again to request meeting up together, 'LC, I think we'd better to have a meeting today to discuss the IIS'. 'Um…I haven't got the reply from our HQ yet. I will try to email you the updated IIS by noon today. If I still don't have our HQ's reply, there is **nothing I can do for you at a meeting**'.'. **(4) Project AK #52 technology issues** SC wanted me to have a meeting with SS to sort out the issues with the technology. **I had had an argument with SS, some days previously, so I actually didn't want to meet with him but it was necessary**. SC promised he would join the meeting. **For several days I requested a meeting with SS as he kept saying he was too busy to have one.** The meeting was agreed, however **when SS arrived, SC suddenly changed his mind and said to me that he wouldn't join our meeting.** I was unhappy. SC was the person who had been insisting on holding a meeting with AK, but he did not want to attend. However, SS was already in our office, and we couldn't cancel the meeting. So finally, SW (cont.)			

	(cont.) and I attended the meeting. SC turned up to attend the final five minutes of the meeting **(5) Pixel pitch issue** SC was complaining whilst he was writing an email, 'I really don't understand why SS didn't have even a basic knowledge about PLs.' SC then showed me the email that he was writing. It was about the PL's pixel pitch calculation. In My opinion, SS should have known something about the issue. SC continued complaining and said, unhappily, 'It was apparent that the spec SS provided was wrong. Why didn't he admit that it was a mistake or just a typo and then correct it?' 'SS is usually very busy. You may wait for several days to get his email reply. **Why not just call him?** If he didn't understand the mistake, you can explain it to him, there and then.' I said. **'I hate talking to him,**' SC responded in a cool way. **'I may shout at him if he continues to speak in a tough way.**' I knew SC had had arguments with SS before, so I offered help, **'Would you like me to call him to clarify the issue?'** **'Oh…That would be great.** Thank you.''			

It would appear from the above that requests for FTF meetings and telephone conversations were often turned down in the T-Com/AK collaboration, but significantly less evidence was found in the other cases. T-Com and AK people tended to avoid speaking and meeting each other by using any excuse and some meetings between these parties were postponed, cancelled or even not called when they would have been useful. By contrast, participants in the cases of T-Com/BK, T-Com/CK and T-Com/DK collaborations were much more active in terms of both FTF meetings and telephone conversations. Moreover, in these cases, the discussions were more problem-solving oriented.

There are two reasonable explanations that have emerged from the analysed data to describe why email was preferred, and telephone conversations and FTF meeting were avoided or refused in intense business strategic conflict situations. Firstly, email's natural feature of recordability is often employed as a means of making legally binding agreements, particularly when participants are engaged in business strategic conflict scenarios. Secondly, email's asocial features (Friedman & Currall, 2003) provides a psychological distance (Heider, 1958) so when telephone conversations and FTF interaction are refused or avoided, they offered another way to sustain communication. These claims are now justified in more detail.

Email has become a major communication tool that organisations use to convey highly important documentation as well as information about ordinary day to day matters. However, it is a fact that because email is used to convey the former, it has led to it being a professional mode of communication. That is, even the less important messages/information passed between organisations in business, are taken to be formal and thus, care needs be taken with all such emails, as they can be legally binding. By contrast, FTF meetings and telephone conversations are not generally recorded and, hence, do not usually have this legally binding property. In business competition, people work under time pressure and the telephone is expected to be used as an appropriate medium when a quick response is required. However, when this researcher was working as a temporary staff member in T-Com for data

collection, she was usually requested to communicate by emails, for both vital and trivial matters. Initially, she was not aware that the business cooperation between T-Com and AK was strained, but became cognizant of the situation when the following happened.

> [Quoted from the daily log 20/06/2007]
> [SC and T-Com's purchaser were having an argument with AK about the final PL quantity allocation] ...SC made a conditional approval (which means that a certain limited quantity of PLs is approved with conditions) based on the information of the PL order for next month. But AK accused SC of being mistaken about the quantity of the conditional approval and thus the AK factory hadn't produced a sufficient number of PLs for T-Com. SC turned around to face me and said, 'Joyce, could you find the emails which SCU sent to us before?' I replied, 'I didn't ask for an email from SCU. She told me this by phone.' SC was mad and said, 'I told you several times that we need EMAILS, EMAILS!! You need to be really sensitive when working with AK. DO NOT trust oral information.'

The relevant past research has found that the level of urgency of communication affects the choice of media (Steinfeld & Fulk, 1986; Trevino et al., 1987) and the importance of the communication subject also influences media usage (Jones et al., 1989). However, what has emerged from this study's evidence, as shown above, is that business strategic conflict appeared to have more significance than the importance and urgency of communication in influencing media selection.

Furthermore, business strategic conflict can easily become a collective awareness in a company and is deeply rooted in employees' communication and interactions. That is, company prejudices are learned and tend to be held by all those working within a company. When conflict develops, direct association with persons on the opposing side can wither away (Coleman, 1957) and, in these circumstances, email becomes a useful tool for people to avoid holding conversations with persons whom they are hostile towards.

Avoidance behaviour is a common approach to managing disputes in East Asian cultures (Friedman et al., 2006; Ohbuchi & Takshashi, 1994), and T-Com/AK was an extreme case of this behaviour. When conflict occurs, people desire a psychological

distance (Heider, 1958) and email's asocial features (Friedman & Currall, 2003) provide another way of sustaining communication in intense conflict situations. In fact, in such circumstances, this asocial feature can be turned into an advantage, in that when active participation is refused, interaction by such written communication allows for discussion to be continued.

Business strategic conflict significantly influences communication media selection, as shown above but this is not the only determinant. For instance, cultural issues (e.g. language differences and variations in negotiation styles) should be taken into account in the context of avoidance behaviour (details regarding cultural influence on media selection are discussed in section 5.4). A number of possible reasons for avoidance behaviour have been identified but none of them appear to explain clearly why people in one organisation refuse to talk to others in the opposing organisation. In fact, the awareness of business strategic conflict can be easily turned into shared negative perceptions apparently among the members in a company, regarding the competitors. Negative perceptions and discrimination produce more vigorous competition and consequentially avoiding behaviour is legitimised and the situation becomes intransigent.

7.3 Expressions of business strategic conflict through email communication

Because of the writing based nature of email and the fact that it can be stored and recorded in database systems, the entire development of any discussion is there to be referred back to. As a consequence, an email discussion is open to over-elaboration, containing details which are unnecessary and unhelpful, but can be used to press a home point at a later date. Table 7-2 (Section 1 - Section 3) gives examples of email communication where small details are mentioned: warning regarding quantity, reminders about time schedules and pressure to provide documents. These examples occurred frequently in this multiple case-study, and they all possessed political implications beyond the written content for the participants. That is, the dates of sending, receiving and replying to emails might be a reflection of the work efficiency of a company: active response connoted effective working style, whereas slow email

reply could be down to poor support. Further examples of email content with political implications are shown in Table 7-2, section 1 and section 2, and refer to: highlighting delays in response and applying pressure to provide documents. Moreover, even discussions on quantity issues between technicians who had no responsibility for these could infer a political significance. For example (as shown in Table 7-2, section 3), one firm's technician implied to the other that if they delayed the process of specification approval, sales volume would be seriously affected, even though he had no power in this matter. This shows that often the content of an email can be somewhat irrelevant and yet it conveys a form of political threat. In spite of its apparent unimportance, it is actually important because it implies the apportioning of blame and responsibility between the communicators involved. Where communication by email takes this form, it can distract the parties involved from the subject of the discussions and, hence, compromise their effectiveness. Table 7-2, section 4, gives one such example. One day, T-Com received several samples of PLs from AK and these were disqualified after T-Com's test. T-Com DQA was unhappy with this situation and sent an email to AK asking for an explanation. AK then replied to the email, and this email implied that T-Com's project manager was already familiar with and accepted the bad quality of these samples. Hence, the project manager was angry and replied to the email immediately so as to clarify the situation formally.

Given email's characteristic of recordability which can be used to form a legally binding agreement, companies have to be cautious about what they write in them. In addition, companies that value their reputation have to keep their promises and reply punctiliously and thus perhaps have to deal with emails even more meticulously. Often, people issue emails as a means for record keeping, providing meeting minutes and to confirm telephone conversations (Table 7-2 section 5).

Table 7-2 Example of email's recordability being manipulated to make political implications

Political Implication	Event & Content
(1) Highlights of response delay	**Event: Project AK #40 waiting for an email reply** [Email from T-Com to AK 13/08/2007] Dear LC Since we discussed the issue last Friday, **I haven't had any response from you and I am still waiting for the updated spec**. We need your clarification to the questions I highlighted. Please speed things up. SW **Event: Project AK #46 waiting for email reply** [Email from T-Com to AK 14/08/2007] Dear JB, we've been **waiting for your response for two weeks**. Could you hurry it up?..... JL **Event: Project AK #46 meeting requirement** [Quoted from the daily log 13/08/2007] …T-Com had been waiting for AK's confirmation about the spec. controversy over project AK#46 for two weeks. T-Com's purchase manager was becoming impatient and called SC to check the progress. SC was unhappy about the purchase team's applying pressure and the late reply from AK. He asked me to email AK requesting a meeting and said I must c.c. the purchase manager to let him know about AK's non-cooperative response. Thus, I sent an email to AK's JB and SS (and T-Com's purchase manager was included in the c.c. list). This simply requested that we should hold a meeting SC said to me that **he didn't think that either JB or SS would attend the meeting, but he believed that the email would emphasize AK's lack of support**. **Event: An engineering change in an AK project** [Quoted from the daily log 09/10/2007] I had almost forgotten that the ECN about the shielding bag change was not approved yet. I couldn't understand why such a simple ECN took AK two months to complete. **31/July - ECN released from AK** **1/Aug – T-Com asked for clarification regarding some unclear information** **9/Oct – LC replied to the email and then the ECN was approved on the same day (……)**
(2) Document requirement	**Event: Project AK #46** [Email from T-Com to AK 23/07/2007] Dear SS **I haven't received your IIS for spec reviewing & RoHS certificate/banned use of substances information**…… Best regards, SC **Event: Project AK #40 & AK #46** [Email from AK to T-Com 10/08/2007] Dear SCU **I need T-Com's final approval** on all the below projects or AK's HQ won't schedule production. **It's urgent.** JC
(3) Warning of quantity	**Event: Project AK #46 specification approval** [Email from AK to T-Com 20/07/2007] Dear SC … #46 project's MP is near. So I would like to discuss the #46 PL spec. with you. Please let me have your SRS. According to our sales guy, **there is mutual agreement about shipping 3K for this month**, we should discuss the PL spec. ASAP…… SS

Table 7-2 Example of email's recordability being manipulated to make political implications (cont.)

Political Implication	Event & Content
(4) Anxiety about the political implication	**Event: Project AK #52 disqualified PL samples** [Email from AK to T-Com 27/08/2007] Dear JL When we provided 20 pcs of samples, I informed CHI [T-Com's project manager] that the PL quality was problematic, so we provided them for free. Anyway, the problem you raised will be fixed with optimization of the manufacturing process……. [Email from T-Com to AK 27/08/2007] Hello SS, You did inform me of the PL quality issue before, however, we don't know how many and what kind of quality issues there are in these 20 samples. You can not just send us 20 disqualified samples without formal notification. That is why I asked you to provide a technical notice or formal notification to let us know about the quality issues and reasons, a long time ago… CHI [Quoted from the daily log 27/08/2007] After the email, CHI made a phone call to me. **She complained that SS manipulated her words and gave out wrong information. She didn't discuss anything to do with the samples' technology problems, but only wanted to let me know that she did not agree and would not accept the disqualified samples.**
(5) Meeting minute / legally binding agreement	**Event: Project AK #46 IIS discussion** [Quoted from the daily log 08/08/2007] I just finished talking with JC (AK's CS manager) on the phone. **I got JB's email about the IIS based on the telephone conversation between myself and JC.** **Event: Project AK #52 meeting required for discussion on technology issues** [Quoted from the daily log 22/08/2007] SC wanted me to send an email to SS and JB for a meeting but he actually didn't think any of them would come. **He believed that the email could, some day, provide evidence to illustrate AK's poor support.** T-Com called a meeting several times, but the AK people did not turn up. **Event: Project CK #50 image sticking** [Email from CK to T-Com 12/09/2007] Dear JL Thank you for your reply. In the case of image retention, I would like to let you know about its **history**. We thought that this issue was almost resolved after the discussion between RL & SW. However, another issue emerged from T-Com which made us confused about this situation. **1. CK visited T-Com to discuss image retention. (8/29)** **We proposed our version (9/6) (attached file 1), and then we waited for T-Com's reply.** **2. T-Com's reply came after RL & SW's discussion (attached file 2) (9/11).** **3. CK proposed compensation conditions at the meeting of 8/29 -> Compensation will be applied only for the public broadcasting display.** **(attached file 3) (9/12)** **4. CK received an e-mail about the question of image retention from JL -> Need to discuss further on 9/12.**…… JHC **Event: BK's cable disconnection issue** [Quoted from the daily log 14/08/2007] I received an email from CM (BK's R&D engineer) who was the representative from BK at the meeting of the cable disconnection issue on 6th Aug. In that meeting, **CM promised to issue the meeting minutes as an email with the test report** as provided by the connector makers, by 14th Aug. This email was received today. **Event: Project DK #50 technology issue discussion** [Email from DK to T-Com 22/10/2007] Dear SC **I cannot understand why this issue is being questioned again now.** The approval of the ECN means that everything is confirmed including the service view points. As far as I know, **the approval was completed on Sept. 28 and sent as an attachment.** KIM

In heavy business strategic conflict situations, all issues tend to be discussed in small detail, whether of major or minor importance. Through the recording of these details in emails, evidence is accumulated and, as addressed before, can be used to make judgements on who has responsibility for what. Such records can be also used, for example, to show where agreements have been broken or to highlight mistakes. The reasons for choosing email that have emerged in this research, in relation to business strategic conflict that reflects Rubin et al.'s claim (1994) about the effect of negative attitudes and perceptions, to some extent. That is, negative attitudes and perceptions make it more permissible to accuse the opposing party, and when blame needs to be laid for an error, which in normal circumstances could be seen to be no-one's fault or have ambiguous origins, they are the ones who are expected to take the responsibility (Rubin et al., 1994). In such circumstances, people communicate by email so that they can store up information as evidence of the wrong doing of the other party, and thereby justify their initial dislike of their current adversary.

Email may be used as a last resort particularly in heavy business strategic conflict situations. In such an environment, people who are involved in the discussion realise that the emails have political implications, whereas those who are outsiders can often not go beyond the overt linguistic meanings and, thus, are unable to interpret the political undertones. That is, it could be construed that a secret form of communication develops in cases of business strategic conflict, and people prefer to use email so that they can maintain this rather esoteric form of interaction.

7.4 Politeness or hypocrisy of email communication

Although companies involved in heavy business strategic conflict prefer email communication, their communication behaviour is not necessarily more aggressive and hostile. In reality, the evidence from this research has revealed that offensive language hardly ever occurred in written communication but often appeared in spoken conversation. Table 7-2 compares the same communicators for identical issues, and it becomes apparent that whilst strong language was used in oral

conversations, written communication was presented in a polite and perhaps hypocritical way. This provides a significant contrast, whereby expressions relating to business strategic conflict are manifestly different in written and spoken communications, and this gives evidence that the communication tool is instrumental in shaping communication behaviour.

The extensive use of email in heavy business strategic conflict situations leads to the development of new forms of communication behaviour. The case-studies have provided evidence of two such behaviours: the natural characteristic of revisability of email allows people to check over and revise the content before sending it out, and, written communication in the guise of formal statements can be manipulated to appear neutral.

By comparison with oral communication like telephone conversations, business strategic conflict through email communication is conducted in a diplomatic way. That is, harsh and offensive language regarding conflicting business policy could show up in telephone conversations but hardly ever occurs in emails. AK is the company which had tough negotiation behaviour towards T-Com, and vice versa, but email communication was pursued using mild-mannered expressions. As can be seen in the transcriptions, where people expressed their apologies and gave appreciation to those people in the opposite firm even though the atmosphere was tense, that is: ‘sorry’, ‘thank you’ and ‘appreciate your support’ were written in almost every email. However, the data collected from participants’ everyday communication and phone conversations did not show the same spirit., in that T-Com actually complained about AK’s ineffective responses, and AK argued that T-Com was constantly raising difficulties.

Cooperation between T-Com and AK is likely to remain in limbo until the market competition reaches some degree of stability. During the researcher’s five-months of data collection, these two firms’ relationship was in an uncertain state, one which employees in the firms could not control, and there was little progress and hardly any improvement in their business collaboration. Owing to this uncertainty in the status

of their cooperation, any communication mistake between these two firms could have led to cooperative business failure and, as a consequence of this highly sensitive situation, business strategic conflict became a taboo subject. Furthermore, awareness of the delicacy of the relationship between the collaborating firms led to the adoption of special communicative consideration in email communication. That is, employees in these two firms never mentioned the conflicting business policy in emails during the research period, but they did convey such information in spoken communication, particularly on informal occasions (see Table 7-3). Business strategic conflict in speech is easily noticed from both the verbal communication itself and non-verbal signs, e.g. a sigh, a laugh or hesitancy in responding. However, in email discussions, it is difficult, if not impossible, to recognise the signs that betray the authenticity of the communication, that is whether it is a statement of truth or whether it is an excuse to cover up a conflict in business policy. For example in Table 7-4, event 3, the email statement explains that Project #52 remained pending because AK was experiencing a PL shortage but according to AK's senior manager's response on the phone, business policy was given as the real reason.

In sum, business strategic conflict in email communications is expressed in a different style from spoken communication. Moreover, communication behaviour changes caused by different uses of communication media are more than a technical matter in that they contain complex elements including social influences and situational determinants. The nature of these influences will be discussed in detail in the Chapter 10.

Table 7-3 Comparison of communication behaviour between spoken and written communication

Event	Spoken Communication	Written Communication
(1) Project AK#46 spec. approval	AH (T-Com's purchase manager) came to our office to speak with SC. He looked anxious and was worried about the progress of the PL approval. AH talked to SC, 'JEC (AK's sales manager) told me that if we can't approve the panel today, he would transfer the 3K we ordered to other companies.' SC answered, '**What! It is a threat!** We pushed their engineers to issue the spec. sheets to us but we have received no response over the past two weeks. We received the document just this morning and you want us to approve it today!! **It is ridiculous!! You want me to close my eyes and sign the PL approval, don't you?! You should be pushing the supplier to provide the documents earlier, rather than pushing me!!**' 'I don't mean that. We all know that the spec. approval is just an excuse, because they don't want to sell PLs to us, so we can't give them any excuse to stop supplying the 3K.' AH started begging SC to approve the PL within the day. SC was still grumbling when CC (T-Com's DQA supervisor) joined in complaining about AK. AH shook his head and said, 'It is a supplier dominated market now. **Let's wait 'til the 3rd quarter when it shifts to being buyer-dominated. Then we can let them feel our revenge.'**	Dear LCH, have you got a schedule for Project AK #46 spec approval in your company? JC Dear JC We are working on this and need your FAE team's support to close the spec issue ASAP. But this should not be a reason to delay the Project #46 sample schedule. Please coordinate with your FAE team and HQ and ship out the samples right away, **thanks**. AH Dear AH! **I always appreciate your support**. AK has already started the project #46 MP preparation internally and we will start the MP from next week. They are not for T-Com but for another customer. So at the moment we cannot input T-Com's request and it will have to wait till the week after. **Please understand our situation. I will give you a more detail schedule as soon as possible. Thank you!** KSS (AK's sales manager) Dear AH Please see the emails I attach below. That's the reason why I can't approve the PL before AK has revised it. There are many mistakes in their documents. They always ignore our advice and argue the toss. Why did we have to check THEIR documents and even explain all the mistakes THEY have made? It is unbelievable! SC Dear SC **I really appreciate your support as always**. As you know, we respect your professional knowledge and hard work. I fully understand your feeling. **Sorry** for causing you and JL inconvenience. But, it is very difficult to complain to AK at such a critical time otherwise they would refuse to supply PLs to us. **I can only now express my appreciation to you and apologise any inconvenience caused. Hope you can understand.** AH Dear AH We always understand the situation of heavy work loads and tightening schedule pressures. **Thank you for your great support**. SC

Table 7-3 Comparison of communication behaviour between spoken and written communication (cont.)

Event	Spoken Communication	Written Communication
(2) Project AK #46 cosmetic spec. discussion	I called JB for a discussion on a technical issue. He picked up the phone. I introduced myself (this was the first time I had called JB) I said that I would like to discuss the cosmetic spec. **He suddenly shouted at me 'Why are you so fussy? Why are you still not satisfied with our support?** I've told you several times we've done our best We can't change anything for you……'. Initially, **I didn't say anything but only listened to him. He complained endlessly and impolitely. Then I was getting annoyed and answered back angrily** **'Stop shouting!!** I just want to DISCUSS the issue. If anything I said was wrong, please correct me. All the questions that I wrote in the emails were pure questions. I really don't understand why you couldn't respond to one single email in the past two weeks…….' He became calm and we started to discuss the spec. problem. He promised that he would pass on our requests to their HQ and think about the possibility of spec. improvements.	Dear JL ……**I am afraid** that we can not modify the IIS for T-Com because in the case of the family entertainment products, AK fix IIS for all customers... So, I can not find another method…… Best regards, JB [Note: he meant that the IIS of family entertainment products for all customers are fixed and the same. AK can not change it only for T-Com, so he had no idea how to support T-Com, when T-Com requested higher levels of quality.] --- Dear JL **I am really sorry** for all the confusion. I'll resend the spec… Please see the reply below to your questions…… Best regards, JB --- Dear JL ……I don't have the materials on hand. **I will send them to you tomorrow as today is a Korean national holiday**. Best regards, JB --- Dear SC **Sorry for the late response. LC will send you the document later today**. Best regards, JB
(3) Project AK #46 spec. approval	SS called me to discuss the progress of the Project #46 PL approval. Initially, he asked me gently whether I had any other comments about the panel spec. I answered that I was still waiting for LC's or JB's reply to clarify the IIS. **He suddenly shouted 'CS is CS. It's not my responsibility. You should know if you don't approve the PL, our HQ won't produce any PLs for T-Com.'** I didn't know why he had to be so angry, because actually the delay was their CS dept.'s fault. I took a deep breath and answered 'I am also worried about it. So, can I have your help in asking your CS dept. to provide the IIS I need.' **I didn't think he listened to me and still shouted 'tomorrow!! By tomorrow, if you don't approve the panel, we won't prepare anything for T-Com.**' **I became annoyed and said 'OK, if you think cosmetic spec is not your responsibility, I will also say that the schedule is not my concern. If you are worried about it, will you please contact our purchase department?' He hung up suddenly.** I felt his actions were ridiculous.	Dear JL Please see the attached files. I have updated the information in them already. **Thanks** SS --- Dear SS The chassis gap information is still incorrect. Please check it again. --- Dear JL **Yes, you're right. Sorry about the mistake.** Our correct spec. for chassis gap is as follow: max: 2.0 min:1.0. **Thanks**. SS

Table 7-3 Comparison of communication behaviour between spoken and written communication (cont.)

Event	Spoken Communication	Written Communication
(4) Project AK #46 spec. approval	SC was complaining whilst he was writing an email, 'I really don't understand why SS didn't have even a basic knowledge about PLs.' SC then showed me the email that he was writing. It was about the PL's pixel pitch calculation. In My opinion, SS should have known something about the issue. SC continued complaining and said, unhappily, 'It was apparent that the spec SS provided was wrong. Why didn't he admit that it was a mistake or just a typo and then correct it?' 'SS is usually very busy. You may wait for several days to get his email reply. **Why not just call him?** If he didn't understand the mistake, you can explain it to him, there and then.' I said. **'I hate talking to him,**' SC responded in a cool way. **'I may shout at him if he continues to speak in a tough way.**' (……) **Every member in the T-Com/AK team knew that SS and SC disliked each other. SC tried not to speak to SS directly. If it became necessary, he would, without fail, ask me to call SS. When I was conducting data collection in T-Com, SS never made any phone calls personally to SC, although he understood SC that was the only person who could make final decisions regarding PL approval in T-Com.**	Dear SC **Long time no see. I hope everything is going well on**. Project #46 MP has nearly started. I would like to discuss the #46 SRS with you…… Besides, **if you are available next Monday, I would like to visit you. Please let me know what you think. Thanks.** SS --- Dear SS I haven't got your IIS & RoHS certificate/banned use of substances information. **I am sorry,** I have some other meetings on Monday. I won't be available for a meeting with you. Best regards, SC
(5) Project AK #46 Pixel pitch spec.	I received SS's call from Korea. **He was complaining about something** but I couldn't understand his Mandarin very well. **He sounded very angry and was too inpatient to listen to me. I just kept quiet until he stopped scolding me.** I wasn't happy either and told him '**If you're calling to discuss spec., you should stop complaining and focus on the spec discussion. If you just want to complain, sorry! Don't waste my time. I am busy.'** Then he started to ask me his first question about the spec. for the pixel pitch……	[SS was in a meeting so he asked the R&D engineer KIM to reply to the email.] Hi JL **Sorry** to make you confused. The pixel pitch is 0.53025X0.53025. The pixel pitch spec I sent you was wrong. **Sorry again**! KIM
(6) Project AK #40 cosmetic spec. sheet request	SC was furious after the weekly management meeting. He asked me to make a phone call to AK to check their progress on the cosmetic spec. sheet. I called JB. He apologised that he was on business trip in China and he was unable to connect to the Internet for a week so the document preparation had been delayed. I told SC about this conversation with JB. SC was still unhappy and said 'What?! In the management meeting, I was blamed by the purchase manager because I didn't sort out the issue, but it's just because JB couldn't be connected to the Internet? **What a bummer!?**'	Dear SC and JL I attached the spec. to the email. I forgot to send you the IIS that I has originally planned to send on 8th Aug before my Chinese business trip, but I resent it on 14th Aug. **I am sorry** that you didn't receive it…… Best regards, JB --- Dear JB **Thank you** for the quick response…… Best regards, SC

Table 7-3 Comparison of communication behaviour between spoken and written communication (cont.)

Event	Spoken Communication	Written Communication
(7) Project AK#24 thermal issue	The thermal issue caused a serious delay to the mass production schedule. T-Com's analysis report proved that the deformation of the metal frame was caused by the PL circuit design over-heating. I called SL (AK's FAE senior manager) to discuss resolving the thermal issue. When I said that the deformed metal frame was caused by this thermal issue, **he was unhappy and interrupted my speaking, 'why don't you ask your mechanical engineers to review your metal frame tolerance? You are the ones who should change your spec., rather than ask us to modify our design'.** I was angry about his tough manner of speaking and retaliated with the question, 'OK, tell me what your metal frame spec is. Can you tell me clearly your metal frame is not out of spec?' 'I didn't say it's not our mistake but you should ask your engineer to modify your design tolerance. If he keeps an appropriate tolerance, the situation wouldn't be so serious.' 'It sounds like you won't take any action on modifying your design. **Fine! We've received 1.5 K of PL in our China factory, and our IQA will reject them -100%. You should take responsibility for this.**' Then I hung up the phone.	Dear JL, **Thank you** for your attention regarding our project #24. Please see our reply as set out below to your e-mail (He provided all the information I had requested). **If you have any questions, please let us know. Thanks.** SL

Table 7-4 Business strategic conflict in spoken communication

Event	Content
(1) **Project AK #40 & #46 PL approval**	[Quoted from the daily log 10/08/2007] Spec. negotiation with AK became more and more difficult. SCU (purchase team member) called either SC or me five times everyday. SCU called me this afternoon and that really annoyed me. I answered unhappily, 'I am not the person who can make the decisions regarding PL approval. AK can't provide products to meet our company's standard and you couldn't find any other suppliers to replace AK. Our DQA insists on quality control and you have your own difficulties in finding other PL suppliers. AK also has their concerns…. One party will have to make a compromise if we are to break the deadlock. But there's nothing I can do!!' SCU **sighed** and explained the situation to me, **'It's a business issue. I can do anything either.** I also found that it's very difficult to get support with enough stocks of PLs from AK. And, **I believe this is AK's policy**. The **T-Com-branded display has become famous and has become a threat to AK. Recently, they say they can only provide us with 30% of our purchase order. If I order 10K pieces, they will only send us 3K**. The 70%shortage affects our business seriously. I am so worried our CEO will sack me if they can't at least provide this 30%.'……
(2) **Project AK #40 and #46 cosmetic spec. discussion**	[Quoted from the daily log 08/08/2007] The cosmetic spec. became the key focus of the PL approval. SC strongly believed that AK had better-quality products but JS kept saying that the products supplied to T-Com were of top grade cosmetic spec. Despite long discussions and a considerable number of emails, the argument about the cosmetic spec. remained locked in stalemate. ……SC wanted me to make a phone call to AK. I called JB this afternoon and discussed the cosmetic spec. He did not say much, but promised that he would discuss this with their HQ. After about 20 minutes, I received a phone call from JC (AK's CS manager). He said that it was impossible to provide products to the spec. that T-Com requested. He explained this to me in quite a nice manner. This is our conversation on the phone. JC: I am sorry that our company can't support you with the better quality PLs. JL: We (T-Com and AK) always spend considerable time discussing the levels of the cosmetic spec.. It has been an open secret that your company does manufacture PLs of a better cosmetic quality. Why don't you sell them to us? JC: **It's our company's policy.** JL: What kind of policy is it?! We would like you to support us with higher grade products and you do produce the ones we need. Why don't you just sell them to us, then we won't waste more time on arguing about the quality? JC: **(There was silence for a few seconds. AK's manager cleared his throat and continued.) As you know, your company and our companies are serious competitors in the North American market. Do you think we should let you have the better quality products?** ……
(3) **Pending Project AK#52**	[Quoted from the daily log 07/09/2007] Finally, the problematic technology issues in Project #52 have been sorted out after protracted discussions. However, today, T-Com's project manager issued an email saying that there was a PL shortage in AK. All on-going processes for this project would therefore have to be terminated. **Later on, I received a phone call from SS, 'I am so sorry to hear that there is a shortage of supplies of PL. We have spent so much time on these technology issues, but the project has finally come to an end because of a business issue'.** **I answered, 'It's because of your company's policy, not because of product shortages. Our business in North America is getting stronger, so you don't want to sell the PLs to us. It's jealousy. Everyone knows that!!'** He suddenly laughed. It sounded extremely sarcastic to me.

7.5 Chapter summary

As discussed in Chapter 2, Business strategic conflict has been identified as one of the main sources that can hinder inter-organisational collaboration and in this chapter, it has been found that this pattern of conflict in email communications is expressed in a very different style to when spoken communications are engaged in. Moreover, communication behaviour changes caused by different uses of communication media are more than a technical matter in that they contain complex elements including social influences and situational determinants. The nature of these influences will be discussed in detail in Chapter 10.

Chapter 8: Cultural conflict in virtual communication

Contemporary business collaboration is increasingly taking place across national and organisational boundaries and cultural differences between countries and companies have been highlighted as one of the most difficult obstacles to effective inter-organisational communication. Having identified the impact of cultural conflict in the inter-organisational business in the literature review chapter, in this chapter the nature of the inherent existence of cultural conflict in the four case studies is examined (section 8.1). In this context, the evidence elicited from the case-studies how communication media are chosen in the resolution of cultural conflict. Moreover, this chapter presents the findings which show that cultural elements appear to be relevant in the course of conflict development in CMC (sections 8.3 and 8.4).

8.1 The phenomenon of cultural conflict in the case-studies

Culture is a complex phenomenon, which is difficult to understand and describe in an explicit way. That is, for example, in contrast to business strategic conflict, it is hard to express the concept of culture in concrete terms. When various participants in the cases of this study were asked about their views on cultural differences in relation to communicating with foreign suppliers, they struggled to explain clearly how they really felt. That is, conversations with cultural overtones often occurred in their working lives but it was difficult to get the participants in the research to pin down accurately their thoughts in words.

The concept of culture has been perceived to have a wide range of different meanings. In this regard, a number of researchers have been keen on using the term ‘culture’ but their definitions do not appear to have had much in common (Alvesson, 2002). The main purpose of this study is not, however, to explore the tacit meaning of culture and give it a clear explicit explanation. This researcher preferred to leave

the definition vague after the fieldwork and decided to address simply the ‘language’ aspect of the demarcation between cultures. This is because, language is one of the most obvious ways in which cultures differ (Hill, 2002), and it is central to the communicating of people’s ideas, thinking and cerebrations. Nevertheless, language is more than just a medium for communication as it shapes the way people understand the information received from others. Differences in language create a cultural gap, whereas if people share a common language, this can help cultural integration.

Language can be both spoken and unspoken (non-verbal communication), and it emerged in this research that the cases of T-Com/DK and T-Com/AK were critical examples of cultural conflict that had developed through spoken and unspoken language, respectively. The following sections explain this in detail.

8.1.1 Cultural conflict in the T-Com/AK collaboration

The languages used for communication between T-Com and AK were English and Mandarin. Clear communication in this situation was made even more difficult by the fact that those from AK spoke Korean with all its attendant differences to the nuances of the other two languages. With three languages/cultures involved, it is hardly surprising that there were many instances in which, both spoken and unspoken language, were interpreted differently by the parties involved. Given that many of the messages passing between the organisations engaged numbers of people from each side, what could emerge and was actually observed as happening in the case of T-Com/AK was a cluster perception. That is, members in each company people expressed their personal cultural/nationalistic prejudices with their colleagues and thus these views became collectively adopted with in the organisation. Subsequently, inter-organisational communication was influenced by this collective cultural overlay, to some extent, as shown in a number of the examples below.

Moreover, it emerged from the research findings that the business culture of Korea appeared to be distinct, in a number of ways, from that of Taiwan. However, it is not the intention in this research to validate this claim as being true in general, and the aim is simply to categorise the major organisational cultural differences which appear to have led to conflict in each of the four cases.

- Negotiation behaviour

Negotiation behaviour, perhaps, was the biggest difference in organisational culture that was found in the collaboration between T-Com and AK. It has been observed that Korean negotiating behaviour is relatively direct and more confrontational than that of Chinese and Japanese people (Gesteland, 2002). This difference was also found in this study, especially in the case of T-Com/AK. Further, the different communication and negotiation styles could be easily misunderstood because of the variations in the internalised cultural views between the Koreans and the Taiwanese. The latter often viewed the former's behaviour as dominating, whereas the former thought that the latter were indecisive, as the following illustrates.

> [Quoted from the daily log 24/08/2007]
> AC (T-Com's DQA Engineer) helped me set up a display unit for the meeting with SS (AK's senior manager) and PT (AK's engineer) this afternoon. When AC was moving the display into the meeting room, he asked me, 'Joyce, who will attend the meeting from AK?' 'SS and PT. Why?' I answered. 'I'd like to warn you that AK people always behave very tough. You should brace up yourself before meeting with them… Months ago, our manager was away in China and I was asked to attend the meeting with SS. The way he spoke to me was like he was "lecturing" me on my testing capabilities, like I was an idiot. He complained to us about how fussy our company is and how difficult it is work with our company…I didn't get any chance to speak in the meeting. I was upset. How can he be so tough to his customers?!' I nodded and said, 'Yes, thank you. I heard some people talking about that. But, don't you think that SS is a special case and only he behaves toughly?' 'No, I think all of them behave like that. SL and JB (The other two AK senior managers) do the same…um…but Taiwanese people in that company are nicer, not really nice, just nicer than the Koreans,' AC talked excitingly. 'PT is the new

> member in AK. He might be more polite. Would you like to join our meeting?' I asked. 'No, I have no interest in knowing anyone from their company.'

In fact, AC was not the only person who warned this researcher to be more careful when negotiating with AK representatives, as other people expressed their biased opinions about them. In essence, these thoughts became shared within T-Com which gradually led to them regarding AK in a symbolic form. Moreover, culture does not exist 'inside' people's heads but somewhere 'between' them, where symbols and meanings are publicly expressed (Alvesson, 2002).

- Organisational hierarchy

A stronger sense of organisational hierarchy existed in these Korean companies as compared with T-Com, in that Korean business people showed great respect for people in higher positions, such as senior employees or higher-ranking executives. The Taiwanese were sensitive to organisational hierarchy, but less so than the Koreans, and on the whole they paid less attention to it. That is, in Taiwan, senior or higher positioned staff was not necessarily held in such high esteem and often had quite equal relationships with junior members of staff. The relationship between T-Com and AK was tense during the period of the fieldwork and different perspectives on organisational hierarchy became a potential source of conflict between these two entities.

> [Quoted from the daily log 27/08/2007]
> I unintentionally heard a conversation between A (T-Com's CEO) and DQA's senior manager. The CEO patted the manager on the shoulder for encouragement and said, 'As you know, the relationship between our company and AK is not stable but we do need their support. Those persons are in high managerial positions in their company. Please be patient and speak to them politely even when you are receiving unreasonable demands from them…'

- Gender

In the past, Korean women have not reached positions of authority in firms, and so most Korean men have been unaccustomed to working with women whose positions are in the higher managerial ranks (Gesteland, 2002). Similar difficulties exist for women in the business environment in Taiwan, however, these are not as profound as those for Korean women. That is, although Korea has developed a society with gender equality, business women sometimes still find it a daunting experience when they try to enter male dominated Korean firms.

> [Quoted from the daily log 15/08/2007]
> I called JB for a technical issue discussion. He picked up the phone. I introduced myself (this was the first time I made a call to JB) I said to him that I would like to discuss the cosmetic spec. He suddenly shouted at me 'why are you so fussy? Why are you still not satisfied with our support? I've told you several times we've done our best. We can't change anything for you…'He proceeded to complain without interruption and impolitely. Then I started to get annoyed and answered back angrily, 'Stop shouting!! I just want to DISCUSS the issue. If I said anything wrong, please correct me. All questions I wrote in the emails were just questions. I really don't understand why you couldn't respond to any single one of my emails over the past two weeks.'
> My colleagues heard that I was arguing with someone and came to see what was happening. I was still talking with JB and at the same time I was listening to my colleagues' conversation: 'Why is Joyce so angry?' 'She is talking with JB.' 'Everyone talking with AK people can get very angry. Working with Korean men, women are bullied if they are not powerful enough…' I was not able to comment whether my colleagues' point of view was true or not but their conversation had an influence on me. That is, my manner of speaking with JB became more determined, 'Please check your spec. page 3. You, as the head of the Engineering Department have been working in the industry for over 20 years, tell me which company is using such ridiculous definition of dot defects?!! And page 4…Lots, lots of mistakes in the document...' He was calm and quiet so that we started discussing the issues T-Com highlighted. Then, I suggested, 'Please spend some time thinking about the issues we discussed today. Your thoughts with your knowledge and experience are always welcome.' He promised that he would pass our requests to their HQ and think about the possibility of spec. improvement.
> I hung up the phone and SC came to speak to me, 'Sorry, this company (AK) is tricky.' 'I am fine. It was just difficult to get him to listen to me but he finally understood our concerns. That's good.' SC continued, 'From my point of view, having a high level of skill or knowledge

> helps women feel less daunted when working with the Koreans. Expertise conveys respect in their business culture. You showed that you had studied and clearly understood all the engineering issues in their document, even better than he who signed the document. You did well.'
>
> The cultural perspectives might be my colleagues' personal biases but they are important to take into account. This was shown by the fact that just before I left the office, I received an apologetic email with an updated spec. from JB.

The veracity of the positions taken by this researcher's colleagues cannot be proven but, to some degree, they brought latent cultural conflict into communication scenarios.

8.1.2 Cultural conflict in the T-Com/BK collaboration

Theoretically, T-Com/BK should have experienced the same organisational cultural conflict as T-Com/AK because it involved the same combination of countries and languages. However, although cultural differences were observed between T-Com and BK, these did not appear to lead to conflict.

8.1.3 Cultural conflict in the T-Com/CK collaboration

The communicators representing CK were a CS senior manager who was Taiwanese and had excellent communication skills, and a sales senior manager who was Korean. The Korean manager spoke surprisingly fluent Mandarin and always behaved with humility towards T-Com employees. Both managers exhibited great skill in their communication with T-Com and thus there was no evidence in this case of any cultural conflict.

8.1.4 Cultural conflict in the T-Com/DK collaboration

T-Com and DK communicated in a single foreign language, namely English, which increased the difficulty in communicating clearly. The example below shows how using a foreign language, i.e. English, can lead to difficulties in communication,

which could be of a different form than if they were speaking in one of their native languages. That is, KS from DK said 'I think you have enough data' which to a native English speaker is fine but for Mandarin speakers in T-Com, this would have been considered too direct and even confrontational, as elaborated upon below.

> [Email from DK to T-Com 20/09/2007]
> Dear SW
> Thanks for your comment.
> Even you developed new models, what we drovide data to you were same.
> => EMI, Safety, MTBF, RoHS (But it's same), CAS (It also same spec. with IPM type)
> I talked with our engineer about waveform but it's not related to your side. so I don't want to give any confusing to you.
> I think you have enough data to check this ECN. Thanks!
> KS

In fact, English was the only language used in the case of T-Com/DK and, in their communication, incorrect spellings, grammatical mistakes and improperly constructed sentences occurred on a regular basis. It was sometimes hard for the readers to grasp their meaning and, thus it led to misunderstandings and potential conflict situations.

> [Quoted from the daily log 20/09/2007]
> After receiving the email, SW came to me and asked 'what does the email mean? Does it mean that if we will develop new models in the future, the data which they will give us will be the same as what they have already provided to us?'
> 'I guess so.' I answered.
> 'But, only RoHS and CAS are same. Also, does he mean that he doesn't want to confuse us so he won't send us the waveform graph? Why will we be confused if we have waveform data?'
> 'I think he just wanted to say that it's not necessary to give us the waveform graph.'
> For the same email, SC (T-Com's DQA senior manager) reacted differently regardless of the language mistakes. He was not happy with the reply and said to me 'how can he (DK's CS engineer) predict that the data we'll need must be the same? He has no right to comment about it……Ask him which engineer told him that waveform is not related to our design!! You should lecture him on why we need it……What?! Who does he think he is to tell us we have enough data to approve this ECN? … The engineer's manner is so offensive.'

Initially, on first viewing this email in English appears to be quite un-contentious but when seen from a cultural perspective, it contains several different meanings. These meanings are in connection with how words/sentences, speaking, utterances or actions are interpreted (Alvesson, 2002; Kunda, 1992) and are of crucial significance. That is, T-Com/DK was engaging in foreign language communication with a strong underlying cultural bias which affected the interpretations of meaning and, hence, the outcomes of the interaction.

8.2 Diverse CMC selection

'Language is one of the defining characteristics of a culture' (Hill, 2002, P.94), and it is also an essential part of culture (ibid). Human thoughts, including both the explicit and the implicit, are transmitted through language and in turn, language itself helps to mould the way people think (Guirdham, 1999). From this study, it has been found that difficulties in foreign-language communication have significant implications regarding attitudes to media selection. In this regard, T-Com/DK is a typical case. Because communication between these two companies relied on English only, mispronunciations and oversights could be a serious obstacle to effective comprehension by each of the parties. The evidence of contrasting regularity of use of telephone conversations between the four cases revealed a relationship between language difference and media selection. That is, T-Com/DK hardly ever involved communication by telephone, as compared with frequent telephone contacts in the T-Com/AK, T-Com/BK and T-Com/CK cases. One key reason for is that some of the employees in the latter three companies spoke Mandarin, even though they were mainly engaged in an English speaking communication environment and for some this was their native language. As a consequence, they were more comfortable in using the telephone as they were able to communicate in their first language.

In the case of T-Com/DK, email, with its reviewability and revisability properties, was selected as the favourite communication tool. According to this researcher's

record, there were only three calls from T-Com to DK and two from DK to T-Com during the entire period of the fieldwork, and most discussions were carried out by email (210 emails were recorded). Here, examples of conversations taken from interviews and the researcher's daily logs also show this dependence on email by T-Com.

> [Interview with the T-Com's DQA supervisor 19/10/2007]
> Communication by email is easier for me as I have more time to think and ponder over every word and sentence, when I am writing. This can reduce misunderstandings.
>
> [Interview with a T-Com project manager 19/10/2007]
> I like to use email. Telephone discussion easily causes misunderstandings, easily. If I have to discuss something urgently by phone, I write an email to confirm that we have the same understandings about the content on the phone. (…….) If the issues are too complicated to describe by emails, I prefer to hold a meeting to discuss the points face to face.
>
> [Quoted from the daily log 11/09/2007]
> I said to SW, 'This issue is urgent. Why don't you just make a call to them?'. SW answered, 'This issue is sensitive. My English speaking is not good. If I don't explain it well on the phone, it could cause a big problem…I am still thinking how to explain the whole situation more clearly. Don't worry! I will write an email to them later.'

In a foreign language communication environment, email has received preferential usage mainly because writing can be produced at the pace and speed set by the writers (Yates, 1984), and it allows them to think about the content more carefully. Nevertheless, it has emerged from this research that contrary to the situation for organisational process conflict and business strategic conflict, where the existence of both of which exhibited a bias towards the selection of email, the results regarding the impact of cultural conflict appear to suggest that a varied use of the media is engaged in. In this vein, instant messenger (e.g. MSN and Skype) has appeared in the business environment, and may prove useful in cultural conflict situations, as the following would suggest.

> [Interview with the T-Com DQA supervisor 19/10/2007]
> Q (the researcher): I've found out that you've been using MSN for communication quite often. Why is it so useful for you?
> A (T-Com's DQA supervisor): It is convenient. Instead of wasting time in pointless FTF meetings, I feel I get issues resolved quickly by MSN with constant and quick interaction. (…) I don't speak English fluently. Discussion by phone is sometimes difficult for me. If I use MSN, it won't be a problem. I could use the dictionary to check the words that I don't understand.(…). MSN gives the communicators freedom to choose their level of availability, by showing the different statuses of being available or not to be disturbed. (…) I believe it is not only useful as a 'purpose-driven' communication tool but it is also for relationship improvement. (…) Although it is a written-base communication tool, it's more informal compared to email.

Indeed, this interviewee here highlights the practical advantages regarding MSN, that is: (1) written-based communication benefits personnel who are not confident at foreign language speaking because it allows the users to clearly understand the information at their preferred speed (in this regard, email provides the same advantage); (2) the constant and quick interaction reinforces communication efficiency; (3) the virtual present status gives the communicators more freedom in choosing whether to talk or not to be disturbed, by indicating their current status as: available to talk, busy, away, be right back or off-line; (4) personnel are under the impression that it is aimed towards informal communication and hence they are more likely to be informal and often seeing communication as chat. In addition, this communication tool may be of benefit to those people who wish to develop relationships, given its potential for informality.

It would have been fruitful to study the use of these communication tools in more depth for this fieldwork. However, the fact of their utilisation only emerged at a very late stage and as a consequence of the limited time remaining further investigation of this phenomenon was precluded. In any case, it was difficult to observe participants' in MSN chat, because their conversations were often of a personal nature and therefore outsiders to conversations would have been seen as intruders. In terms of the usage of MSN, employees in T-Com were actually banned from using it, unless

they submitted a successful application. On the other hand, the use of Skype was encouraged in this company. These two very different treatments regarding MSN and Skype were related to the users' pre-existing perceptions about the tools. That is, the communication section in MSN is based on chat rooms, including individuals and groups, whereas Skype was originally invented as a web-telephone tool. As a consequence of the different symbolic perceptions towards these two similar tools, T-Com adopted contrasting policies with regards to each of them, as shown in the following exchange.

> [Quoted from daily log 19/10/2007]
> SW asked CC, 'Why do you have MSN on your PC but I don't?'
> CC answered, 'You could submit an application.'
> SW continued, 'But, why do we have Skype without specific applications?'
> SC joined their conversation and answered, 'It's a long story. One day, an engineer in N department was chatting with his friend on the MSN. Our vice president was walking past the engineer, and he was curious about what the engineer was giggling about. Then he stood behind the engineer quietly and observed him chatting for over 10 mins…The next day, the ban on MSN use was officially announced and the engineer was sacked.'
> I still wondered why only MSN was banned but Skype was allowed, so I asked SW, 'Skype also provides the function of chatting. It's strange that ONLY MSN is banned. Actually MSN supports several functions which may be helpful for work discussions.'
> SW answered, 'It's hard to change top managers' thoughts, particularly when they're old. The same goes for me, I am not so familiar with the new software as you young people. When you reach my age, you will understand, even a musical mobile ring tone can scare you (everyone laughed)……come on, show me how to use Skype to make phone calls to China. The administration department suggested that I use Skype for telephone calls. It's international phone rate is much cheaper than landlines. Isn't it?'

In fact, instant messenger has been transformed into a multi-functional communication medium, with the additional features of file transfer and audio- and video- conferencing. Nevertheless, in spite of these changes to the original systems and convergence in their scope, the initial symbolic perceptions that were adopted by T-Com, as described above, still remained strong and these negative perceptions

were restricting their use. Another important observation regarding the use of instant messenger was that many employees at the middle and lower levels used it, whereas some senior managers remained reluctant, as they did not understand it.

The increasing interest in the use of instant messenger did not only happen in T-Com and the researcher found that team members in AK, BK, CK and DK had also installed instant messenger on their laptops; MSN, Yahoo messenger and Skype were three of the most popular types. AK had even established a communication system which integrated a work flow system and instant messaging function to allow their employees to connect with their counterparts who were working at different locations.

> [Quoted from the interview with the AK engineers 17/10/2007]
> KEC (a senior engineer in AK): The communication system in our company is still on trial but I found it's quite useful…… It combines several functions, like: email, instant messenger and our internal work flow systems, together. I've discussed and chatted with our colleagues in our headquarters through the instant messenger very often. I feel much happier talking on the instant messenger…..Information can be described more clearly than on the phone……you can get an immediate response from the people with whom you're talking.
> JC (an engineer in AK):……Particularly when we're communicating in English, I like the instant messenger best.

In sum, both spoken and unspoken languages play significant cultural roles which have an impact on communication media selection. That is, it has emerged that written communication is preferable where language cues have a high possibility of being misconstrued and this is most common when people are not communicating by using their first language.

8.3 A new variety of English communication in email

The awareness of cultural differences existed in all of the four cases. T-Com/AK and T-Com/DK were characterised as having a high degree of cultural conflict. That is the T-Com/AK collaboration involved a high level of this phenomenon in connection with unspoken language, whereas that of T-Com/DK was more oriented towards

spoken language. In contrast, T-Com/BK and T-Com/CK did not exhibit any noticeable signs of cultural conflict, and the issue of language was perhaps the major reason that made communications regarding these cases so different to the other two. That is, although participants in T-Com/BK and T-Com/CK communicated mainly in English, several members in BK and CK could speak fluent Mandarin and this improved the effectiveness of their communication with T-Com. Nevertheless, language differences cannot explain the reasons for conflict by themselves because, for example, some AK members spoke Mandarin and yet there were still deep antipathies between the two firms.

It was pointed out above that language conveys both verbal and non-verbal signs. More specifically, non-verbal clues are conveyed as well as the more overt verbal clues whilst people are speaking that is a highly complicated system, which contains non-verbal cues as well as those that are explicit narrative verbal behaviour are conveyed intensively while speaking. As Guirdham (1999) has argued: 'In communication with people who are familiar, language use goes on largely at a level below consciousness, with varying degrees of effectiveness; with new acquaintances or people from different backgrounds, heightened consciousness of how language is being used is needed for effectiveness. This applies widely in work situations' (Guirdham, 1999, p.106). Moreover, in the work place, the use of formal language is usually requested. However, in a foreign language communication environment, the narrow capability of the linguists often causes difficulty in meanings being expressed fully and accurately. In these case-studies, it was observed that a new variety of English communication appeared to be developing owing to the use of email.

In this context, in T-Com/DK, the participants experienced problems owing to their weak command of their chosen communication language, namely English. As a result of this weakness, they opted to use email, which showed that language limitations had an influence on their media selection. Although this communication was in English, the grammar, syntax and spelling in the messages was highly stylised

and formed by a consensus. That is, two different languages, namely Korean and Mandarin, were mediating the way in which the English language was being used and thus transforming it. In fact, UK or US native English speakers would most likely have difficulty understanding the meanings of some of the emails in their entirely, regarding this case. Moreover, sentence structure and spelling became arbitrary and formal writing rules were less important. This suggested that language used in such situations was returning to its natural basic status of information exchange, one in which non-grammatical sentences and spelling mistakes did not affect the overall meaning. However, because these new forms of written language were not bound by any agreed convention, it was found that they sometimes led to confusion, in terms of their specific details. Notwithstanding this, the Korean and Taiwanese languages have similar syntax and thus, as shown in this case the people involved could grasp general meanings in communications, despite their appearing rather odd to western English speakers. What becomes apparent from this discourse is that language in email communication is in a state of flux and some typical examples referring to the case of T-Com/DK are given below.

[Email from DK to T-Com 20/09/2007]

Dear SW

Thanks for your comment.

Even you developed new models, what we drovide data to you were same.

=> EMI, Safety, MTBF, RoHS (But it's same), CAS (It also same spec. with IPM type)

I talked with our engineer about waveform but it's not related to your side. so I don't want to give any confusing to you.

I think you have enough data to check this ECN. Thanks!

KS

[Email from T-Com to DK 20/09/2007]

Dear KIM

As you attached ECN has been revised by yourself, I didn’t be informed before.

I original approved ECN did not include page 2. that is a key point to highlight ‘TA35’ be changed to ‘TA45’(……)

SC

Next, cultural conflict arising from communication difficulties is addressed. However, before this, it is useful to consider some of the fundamental differences between oral conversation and written communication. Chafe and Danielewicz (1987) claimed that one of the differences between speech and writing is that speakers tend to operate with a narrower range of lexical choices than writers. However, this study has found that, in fact, email discussion often adopts a simple semantic structure, in that the communicators tend to describe their thoughts in a simple way. There are two reasonable explanations for this situation: one relates to the features of technology subject discussions, as have been investigated here, in that in such circumstances people are concerned with the effectiveness of communicating the subject matter and are not particularly self-conscious about whether their grammatical phrasing of the language used is correct. Table 8-1 presents several examples where this is the case, and they show how it is common that: a few words may be sent back and forth to discuss a single issue (e.g. Event #1; this event actually contains 33 emails), simple statements are used to express important business policies (Events #2, #3 and #4) and a simple greeting is given instead of a formal introduction (Event #5). That is, the English used is being reduced to the minimum possible to still convey the message.

Table 8-1 Simple semantic structure in email communication

Event	Content
1. **Project #46 product specification discussion**	[Email from AK to T-Com 31/08/2007] Dear SS The chassis gap in the spec. (P.23) was changed to 1.5 (±0.5) mm. However, the IIS shows the spec. is <=1.5. So, is the gap 2.0mm allowed in the product? JL --- [Email from AK to T-Com 31/08/2007] Dear JL Sorry, I was confused project #46 and #52. As indicated in our spec., chassis gap should be 1.4±0.5. So maximal gap is 1.9 and minimal gap is 0.9. Sorry about this. SS --- [Email from T-Com to AK 31/08/2007] Hi SS Could you check the spec. you provided again and let me know the final answer. JC --- [Email from AK to T-Com 31/08/2007] Dear JL Our final spec. for chassis gap is max: 2.0 min:1.0 Thanks. SS
2. **Project AK #46 cosmetic spec. discussion**	[Email from AK to T-Com 08/08/2007] Dear JL ……I am afraid that we can not modify IIS for T-Com because in case of family entertainment product, AK fix IIS for all customer... So, I can not find other method…… Best regards, JB
3. **Project AK #46 cosmetic spec. discussion**	[Email from AK to T-Com 22/08/2007] Dear JL I up dated it. Please refer to attached file. And in case of major and minor defect, I added it in the spec. Best regards, JB
4. **Project AK #46 cosmetic spec. discussion**	[Email from AK to T-Com 13/08/2007] Dear AH! I always appreciate your support. AK has already internally started project #46 MP preparation and we will start MP from next week. They are not for T-Com but for another customer. So at the moment we cannot input T-Com's request and have to wait till the week after……. KS
5. **Project DK #50 ECN discussion**	[Email from DK to T-Com 13/07/2007] Dear Mr. SC and Ms. SCU Nice to talk with you. I am KS from DK P-type Biz. Application Gr. And I am working with KW and I'll be in charge of T-Com with KW. (……) Thanks, KS

8.4 Cultural interpretation of the underlying meanings in email

The terse communication pattern, as shown above, may be an easy and efficient way to discuss simple topics but it can lead to awkward misunderstandings, particularly in Asian cultures. In the Taiwanese and Korean societies, people show respect for their seniors and also people in higher organisational positions, by using complicated syntax and specific vocabulary. Although these two nations use different levels of respect, the situation is of a similar nature in both cases. In other words, respectful communication is likely to be reciprocated and ignoring cultural awareness might be considered bad manners. Furthermore, developing a good relationship is essential for conducting business successfully in many Asian countries (Gesteland, 2002), including Taiwan and Korea. Gesteland (2002) described it pertinently as: 'First, you make a friend, then you make a deal'. That is, without a trustful relationship, successful business collaboration is hard to establish and sustain, in this part of the world.

Non-verbal behaviour is regarded as carrying more rational development for communicators than verbal signs (Ma, 1984). That is, much more is going on in FTF and/or spoken communication than just the words themselves. However, in email communication, non-verbal behaviour can only be expressed through: symbols (e.g. emoticons), non-linguistic conventions (e.g. :) and x) conventions or graphically (e.g. a photograph or a diagram). In the business related cases of this research such emotional expressions were not found to be in use, and therefore any expressions were contained in the actual words themselves. However, sophisticated communication behaviour which can accurately reflect emotions, requires comprehension of a large vocabulary and complex syntax that is difficult to achieve for people who are communicating in a foreign language. Hence, it is not easy for people in such circumstances to show respect properly and even more challenging for them to negotiate an agreement with tact and diplomacy. Drawing the elements of

the above together, it becomes apparent that email communication in a foreign language encounters serious difficulties when attempting to convey non-verbal signs. As a consequence people tend to establish their non-verbal interpretations by decoding the text in accordance with their cultural perspectives, and this can easily result in misunderstandings that lead to conflict. The example below and its explanation illustrate the development of one such event. Although it is a simple sentence quoted from an email, it contains complicated cultural elements behind the text.

> [Email from DK to T-Com 22/10/2007]
> Dear SC, I cannot understand why this issue is questioned again now…….
> KIM

The literal meaning of 'I cannot understand why this issue is questioned again now' is easily understood but the receiver interpreted the sentence to be that the issuer was complaining that he had raised the question. Also, the email receiver, SC being a senior manager with a high position in T-Com, felt that he was disrespected and, therefore, he was angry and did not reply to the email (details have been shown in Table 6-4). The sentence might be the issuer's simple desire but the receiver inferred the communicative intent by using his own assumption, and hence conflict ensued

From this example, it becomes apparent that because non-verbal signs are very difficult to express in writing, they often become interpreted by communicators through the lens of their different cultural perspectives. This conversation between the researcher and an AK engineer is another example of cultural difference in communication leading to contrasting interpretations.

> [Quoted from the daily log 24/08/2007]
> (After I had an altercation with JB on the phone on 15/08/2007…) AK engineers came to the T-Com office to check abnormal technical issues in Project #52. After the meeting, LC (AK's CS engineer) asked me (the researcher), 'Joyce, I heard that you had an argument with our boss.' I answered, 'Do you mean JB? Yes, I did. Several days ago. How do you know?'

> LC smiled and teased me, 'You are now very famous in our office. No one dares to speak to him loudly but you shouted at him. Do you know he is the head of all our technical departments?' I said, 'oh, really? I only knew he was the manager of your department.'
> LC continued, 'haha…I think he's never dreamed that he would be scolded by a young woman.'
> 'We were discussing technical issues, right is right and wrong is wrong, that does not relate to positions and does not relate to me being a young woman or an old man …...' I answered back.
> 'haha…I think it's acceptable in a Taiwanese company but he is a Korean……', LC answered.

After the argument between this researcher and JB, the former actually received an apologetic email from the latter, which suggested he was feeling contrite. However, it appeared from the above that LC had a different perspective on the matter, one where JB was very angry. Which of LC or JB's versions was true, if any, cannot be ascertained from simply reading the email in question. On the other hand, the interpretation of this event could have been based in the different cultural perspectives involved. It is not the intention in this study to examine whether the participants' opinions regarding this were true or not. What is being presented here is that cultural conflict may not appear in email communication explicitly but can be embedded in the participants' interpretations. Moreover, terse email communication, containing very few words and in a foreign language to the communicators gives virtually no opportunity for expressions of non-verbal signs which can deepen the consciousness of cultural differences, thereby increasing the challenge of trying to work in a non-native language.

Subsequently, and importantly in the context of cultural conflict, individual interpretations of cultural awareness can coalesce which leads to the collective adoption of a symbolic form regarding the organisational culture of another company in a cooperative exercise. That is, the parties involved in such circumstances unintentionally form a common cultural perspective regarding other companies which can lead to conflict. In this regard, T-Com/AK emerged as being a typical case, in that personnel in T-Com and AK invariably blamed each other for their tough negotiation behaviour and fussy working attitude, respectively. The business

collaboration between T-Com and AK, with high organisational process conflict, business strategic conflict and cultural conflict, was critical and several cooperative projects involving these companies were eventually terminated.

8.5 Chapter summary

In this chapter, how cultural conflict influences participants' communication media selection and the difficulty of email communication when cultural elements are involved has been investigated.

From the results presented in the previous chapters (Chapters 5-8), it has emerged in all the cases considered that discussion of technical subjects has moved on from the previously common forums of FTF meetings to the widespread use of email as the prevalent communication platform. In addition, it has been found that conflict influences media selection and, in turn, conflict is influenced given the selected media. Further, strong evidence has been revealed that media selection is interrelated with all three patterns of conflict: organisational process, business strategic and cultural. The following chapters (Chapters 9 and 10) discuss the interrelations between the three patterns of conflict and the selection of communication media.

Chapter 9: Summary of research findings

This multiple-case study has provided rich data with regards to the phenomena of conflict in the virtual context. This chapter contains a summary of the main points of the extensive data in the form of brief descriptions. This serves to fulfil the purpose of drawing together the complex set of findings, so as to provide the reader with a clear understanding and thus assist in the comprehension of the discussion chapter, which follows.

With the emphasis on conflict in a virtual context, the data analysis was directed by three questions:

RQ1: What are the elements which lead to conflict in inter-organisational collaborations (section 9.1)?

RQ2: How does the existence of conflict influence communication media selection (section 9.2)?

RQ3: How is conflict expressed and transformed in a virtual communication environment (section 9.3)?

9.1 Conflict in inter-organisational collaborations

The first question aimed to explore the elements that cause conflict in inter-organisational collaborations. Besides business strategic conflict and cultural conflict, which were discussed in the literature review chapter, organisational process conflict emerged as a main source of conflict from the fieldwork and none of the four cases was exceptional to this pattern. Organisational process conflict appeared to be inherent to the firms co-working together and was likely to occur when the processes were compelled to change or be integrated towards an intermediated one. However, process conflict exists in firms at different levels from business strategic conflict and

cultural conflict in firms. Organisational processes are manifested as explicit objects which can be dealt with and resolved after discussion and negotiation; namely, they are more realistic, impersonal and task-oriented. In contrast, business strategic and cultural conflict are latently rooted in employees' perspectives and they are determined by environmental elements, such as the status of the industrial market and specific interpretations given by different languages, and these are beyond the organisations' power of control. In other words, the phenomena of business strategic conflict and cultural conflict are more abstract, affective and emotions oriented, than process conflict. The above depiction of the three types of conflict is perhaps not the general situations that would be found in all firms, but has been found to exist in all the collaborations of this multiple-case study investigation. By means of providing a comparison, Table 9-1 summaries the circumstances regarding the three types of conflict in the four cases

Table 9-1 The level of conflict in the case-studies

Case	Organisational Process Conflict	Business Strategic Conflict	Cultural Conflict
T-Com/AK	High	High	High for Unspoken Language
T-Com/BK	High	Moderate	Low
T-Com/CK	High	Low	Low
T-Com/DK	High	Low	High for Spoken Language

9.2 Impact of inter-organisational conflict on media selection

The second research question set out to explore whether and how the existence of conflict affects the participants' selection of communication media. From the results of this study, it was found that the three types of inter-organisational conflict had a significant impact on the participants' choices of different media. The relations between the types/levels of inter-organisational conflict and preferred communication media are shown in Table 9-2.

Table 9-2 Conflict and preferences in communication media

Case	Organisational Process Conflict		Business Strategic Conflict		Cultural Conflict	
T-Com/AK	High	FTF, Email, Telephone	High	Email	High for Unspoken Language	Email
T-Com/BK	High	FTF, Email, Telephone	Moderate	FTF, Email, Telephone	Low	FTF, Email, Telephone
T-Com/CK	High	FTF, Email, Telephone	Low	FTF, Email, Telephone	Low	FTF, Email, Telephone
T-Com/DK	High	FTF, Email, Telephone	Low	FTF, Email, Telephone	High for Spoken Language	Email, Instant messenger

The table shows that in high process conflict circumstances, a FTF meeting is the most preferred medium. However, because of organisations and workplaces' dispersion, it is not possible for FTF meetings to be carried out frequently and thus email, with the capability of attaching diverse electronic files becomes the second best choice. With the feature of attachability, pictorial representations that complement written communications, has improved the effectiveness of email interaction and thus the use of media has shifted substantially from difficult to arrange FTF meetings to email. In addition, the telephone is useful when immediate response or quick feedback is needed and thus it is employed as complementary to ongoing asynchronous communication by email. Teleconferencing tools, i.e. audio-conferencing and video-conferencing, use audio and video telecommunications to bring people working at different places together for synchronous group discussions. However, they were found not be employed frequently in the four cases. According to the records, there were barely five audio-conferencing meetings and no video-conferencing held during the five months of the data collection and instead, email was deployed as a group discussion platform.

Nevertheless, a number of examples in this study have shown that telephone conversations and FTF meetings were usually avoided as conflict intensified. This has emerged as being particularly evident in high business strategic conflict

situations, i.e. that of T-Com and AK, where the latter is both a supplier and a rival of T-Com in the L-type display market. The collaboration between the two firms was operated on a fiercely competitive business basis, which promulgated high levels of scepticism leading to significant levels of business strategic conflict. In comparison, the other L-type PL supplier BK, co-worked with T-Com in a more collaborative way. This is not to say that relationships between T-Com and BK were perpetual harmony and potential conflict still existed, but it was of a more moderate nature. Given that AK and BK were both supplying the same type of PL and yet they were experiencing different levels of business strategic conflict with T-Com, they provide important insights into how these different conflict levels affect media selection. That is, with AK the high level of business strategic conflict led to email being favoured, with telephone and FTF meetings being avoided or refused, whereas BK, exhibiting a lower level of this form of conflict, was quite willing to interact through FTF meetings, the telephone as well as email. Moreover, the cases of T-Com/CK and T-Com/DK which had lower business strategic conflict did not provided any evidence that the phone or FTF interactions were avoided or refused.

Contrary to the fact that the participants in T-Com/AK were biased towards selecting email, T-Com/DK's communication relying just on English led to a varied use of media and more fruitful exchanges. In addition to the prevalent use of email, instant messenger and web-based communication systems were selected and created for improving communication through a foreign language. That is, with its revisability and reviewability properties, email allows for those with weak writing skills in a particular language to check and correct their messages before sending them. These advantages of email were embraced in the T-Com/DK collaboration. In this vein, use of instant messenger (e.g. MSN, Yahoo Messenger and Skype), which include provided with text-based-related functions like email, has emerged in the business environment.

9.3 Conflict expression and transformation in the virtual context

The third research question aimed to explore and explain how conflict is conveyed and transformed by the choice of media. Overall, email was the most widely used form in the four cases. Moreover, what has emerged from the fieldwork is that people respond differently to email communication, according to their perception of the pattern of conflict that exists, if any.

People counted on email heavily for discussing conflicting organisational processes and intricate technology issues, which subsequently led to more conflict. That is, in this form of conflict, it has emerged that often after discussing a process issue conflict can be triggered and escalates through the succeeding email exchange, for which three explanations are put forward. Firstly, electronic communication is insufficient for describing many tangible technical phenomena clearly. The abnormal display problem mentioned above (section 6.4), for example, demonstrated one such issue, whereby it was extremely hard to explain the problem using electronic forms and this easily led to misunderstandings and profound confusion. Secondly, when email is employed as a group discussion platform it can make communication more complicated. That is, when a number of people get involved in an email discussion, a mass of potentially contradictory information from different people can confuse the participants. Moreover, when organisational authority overlaps and collides in a group discussion, concerns about giving something up, as this could be perceived as a loss of face, often leads to participants communicating in an aggressive way in order to defend their positions and this can result in conflict. Thirdly, the time lapse in asynchronous email discussions can cause impatience and anxiety that can gradually increase tensions between the communicators and ultimately result in conflict.

When two firms come into heavy business strategic conflict with each other, it has emerged that email communication is used extensively and this leads to the

development of a special form of communication behaviour, as follows. Firstly, email communication is presented in a polite and thus a somewhat hypocritical way, whereas, in contrast, oral conversations often involve blunt or hostile reactions and offensive language. That is, there is a very marked difference, as expressions of business strategic conflict operate manifestly differently in written and spoken communication. Secondly, it has been found that communicators hardly ever express their opinions with regards to business strategic conflict in emails. By contrast, business strategic conflict can be easily detected in speech from both verbal communication and non-verbal signs (e.g. a sigh, a laugh or a hesitant response). In other words, in email discussions it is difficult to recognise the signs that would enable the reader to understand the level of authenticity of a communication, i.e. whether a statement is true or an excuse for covering something up. T-Com/AK emerged as being a typical example exhibiting this form of relationship, whereby people regularly were unable to confirm the veracity of the contents of emails and this led to further conflict. Therefore, when business strategic conflict is perceived to exist, those involved in email communication need to recognise the existence the particular characteristics of the medium described here. Moreover, it should be noted that the nature of communication tools is instrumental to the way people interact.

Cultural conflict, in the context of language differences, significantly affects communication behaviour. In this study, it has been found that the need to conduct email discussions in a foreign language led to the adoption of a simple semantic form of communication, one in which the communicators tended to exchange information as briefly as possible. There are two reasonable explanations for this: one is related to the features of the technology subject discussion, in that people are concerned with the effectiveness of communicating the subject matter and whether they are skilled enough to get the grammatical phrasing of the language correct, is of little consequence and the other is about the idiosyncratic use of English between the Taiwanese and Korean. The Korean and Taiwanese languages have similar syntax and thus communicators in these companies would be expected to be able grasp the

meanings of emails written in odd/quaint English. However, because there is no agreed convention on this use of English, misunderstandings and confusions can easily arise. This new variation of English communication may or may not cause conflict, but when differing cultural traits are involved, meanings can be interpreted in different ways and thus, conflict can be triggered. For instance, brief responses in email communication are probably fine in Korean culture, but if they are not carefully expressed, they can easily be considered to be terse and unfriendly to a Taiwanese person. Moreover, sophisticated communication behaviour requires comprehension of a large vocabulary and complicated syntax, which can be extremely challenging for those people who have to communicate in a foreign language. Hence, people tend to understand the non-verbal meanings by their own assumptions and to 'decode' the email issuers' intentions as meaning something else and this can easily lead to conflict. This problem can be particularly acute if the messages are extremely short and hold very few or even no non-verbal cues.

9.4 Chapter Summary

In this chapter the research questions have been addressed through consideration of the evidence regarding: organisational process conflict, business strategic conflict and cultural conflict in the virtual context. In this vein, the analysis above has demonstrated the significant impact of these three forms of inter-organisational conflict on CMC media selection and how this, in turn, shapes the development of conflict situations. Moreover, conflict with regards to email communication in each of the four cases resulted in very different outcomes. That is, business collaboration in T-Com/AK was terminated, whereas T-Com/BK, T-Com/CK and T-Com/DK survived even though there was intense conflict in at least one of the forms of the conflict phenomenon. Why this happened in the different cases is the subject of the discussion in the next chapter, Chapter 10.

Chapter 10:Discussion

Conflict appears to exist inherently in the course of inter-organisational collaborations. Owing to the development of the Internet, virtual communication comprising mainly CMC has become a prevalent communication pattern and therefore special attention needs to be paid to gaining an understanding about the nature of conflict in the virtual context. The basic premises of this study are that conflict influences media selection (section 10.1), and that it is influenced by the selected media (section 10.2). Thus, the first section of this chapter discusses how the existence of inter-organisational conflict has affected participants' choice of communication media, by drawing on the results from this multiple-case study. Secondly, the evidence that emerged from this study presents that media selection is not only an outcome of conflict but also an antecedent that leads to existing conflict being transformed and escalated. That is, conflict is expressed and conveyed distinctively by the selected media, and consequently it is shaped through the process of the virtual communication. Moreover, from these case-studies, it has been found that virtual communication can increase the challenges and difficulties of business collaboration, despite the fact that the use of CMC is widely regarded as an efficient communication platform (Bal & Gundry, 1999; DeSanctis & Monge, 1998; Prasad & Akhilesh, 2002). In other words, it did not benefit all the collaborations involved, and the results of these arrangements had very different outcomes even though they all experienced a certain level of conflict. That is, all cooperative projects between T-Com and AK were terminated, whereas T-Com/BK, T-Com/CK and T-Com/DK continued their collaborations and launched new joint projects. What led to this profound difference? What caused T-Com/AK to flounder but enabled the latter cases' co-working to last over time? In answer to these questions, the evidence from this study suggests that business strategic conflict is the most significant component, playing a much stronger role than both organisational process conflict and cultural conflict. However, as all three of these are involved to a greater or lesser extent in conflict situations, it is important to investigate their interrelationship. Such an

investigation is carried out in detail below, and subsequently there is presentation and discussion of a framework that draws on the results of the research, linking conflict transformation and media selection.

10.1 Communication media selection

The techniques of CMC available in the business environment are constantly developing. Email allows information to be disseminated and to arrive almost simultaneously in the receivers' inboxes, without the need for posting large bulks of paper documents. Teleconferencing provides the functions of audio- and video-connections so that group meetings become effective without the need for tiring journeys from one country to another. Instant messenger offers the possibilities of synchronous text-based communication, without the anxiety of waiting for email replies at a later point in time. However, as mentioned in the literature review chapter, all of these CMC tools can create confusions and misunderstandings, with varying degrees of severity, particularly when the collaborative organisations transcend national boundaries. Appropriate media selection can make the difference between effective and ineffective communication, and thus it can even improve or impede organisational relationships (Trevino et al., 1990). For this reason, it is important to understand how and why people choose different media to manage business collaborations. Existing literatures have offered a number of insightful thoughts regarding media selection theories but they appear to have ignored the influence of inter-organisational conflict on media selection that has been found as being an essential element of business collaboration in this multiple-case study. This section discusses media selection by integrating the existing theories and findings from this study, regarding three aspects: information richness theory (section 10.1.1), situational determinants (section 10.1.2) and social influence theory (section 10.1.3). A number of interesting results emerged from this study which have both supported and criticised a number of contentions of previous studies and these can make a contribution to the media selection theories by filling in some of gaps in the knowledge.

10.1.1 Information richness theory

The media richness theorists (Daft & Lengel, 1986) claimed that the choice of media in collaborative tasks is based on the need to reduce communication equivocality, and thus the FTF meeting is considered the richest medium, whereas other CMC tools are judged to be rather 'lean'. Although previous research (e.g. Markus, 1994) has suggested that FTF meetings may not be necessary because email can be used for complex communication, the findings of this study have shown that FTF meetings were still considered to be the preferred medium for complex communications, in most cases. FTF meetings were often held when issues could not be resolved after a lengthy email discussion and telephone conversations because they provided a direct way for communicators to discuss technological phenomena which were difficult to be described in electronic forms. Consequently, the participants placed high expectations on FTF meetings that were aimed at solving complex issues. Although there was no evidence indicating FTF meetings always have positive outcomes (of the eleven meetings held in this multiple case only one of them obtained a direct resolution within the meeting), it was obvious in these cases that participants believed that these complex issues could be resolved easily and quickly by FTF interaction.

Two reasonable explanations appeared to explain this phenomenon of the participants' high expectations for FTF meetings. Firstly, this direct form of communication is considered highly appropriate given the inherent features of the high-technology industry, in that often there is numerous subject matter and the phenomena can be too complex to express via electronic forms. Secondly, FTF contact can be used for relationship improvement and this, in turn, can make a positive impact on communication effectiveness. Although no hard data emerged that supports the position that relationships had improved significantly in any of the collaborations, several participants in T-Com made positive comments regarding those supplier companies who went to the expense of arranging formal meetings as official visits. Moreover, the evidence of the research appeared to show that many of

the participants were of the belief that alternative communication tools could not compete with FTF meetings, with regards to both complex communication issues and relationship improvements.

Given the difficulties of holding FTF meetings, as discussed above in the previous chapters, although to many they were the preferable means of communication, they had a large extent been superseded by email. In other words, email, with its capability of attachability and recordability, something which has not been identified in the previous literature, became the second most preferable choice behind FTF meetings, when these could not be held promptly. From the perspective of the information richness theory, the email features identified by previous researchers (Clark & Brennan, 1991; Friedman & Currall, 2003), as given in the literature review chapter (Chapter 2), are combined with those that emerged from the findings of this study, as shown in Table 10-1.

Moreover, the results have shown that instant messenger (e.g. MSN, Yahoo Messenger and Skype) have emerged as being communication tools in the business environment. Some interviewees described the usefulness of these tools was mainly because of their multiple functions. These include: (1) the virtually present feature giving users freedom of availability by showing their status, (2) the written-based chat room offering the same advantage as email but being synchronous that allows for communication to have greater interaction than email, (3) the additional features web-telephone, audio- and video- conferencing make the employment of these tools more attractive because of these variations in the choices for communication. These observations shed light on the potential for such a medium to improve communication in the business environment; a subject that has received little attention in the previous literature. These functions are listed in Table 10-2.

Table 10-1 Natural characteristics of email

Medium	Co-presence	Visibility	Audibility	Co-temporality	Simultaneity	Sequentiality	Reviewability	Revisability	Recordability	Attachability
FTF	V	V	V	V	V	V				
Telephone		V	V	V	V	V				
Audio-conferencing		V	V	V	V	V				
Video-conferencing		V	V	V	V	V				
Email							V	V	V	V

V: The medium is provided with the feature

Table 10-2 Features of communication media – instant messenger

Medium	Co-presence	Virtual presence	Visibility	Audibility	Co-temporality	Simultaneity	Sequentiality	Reviewability	Revisability	Recordability	Attachability
FTF	V		V	V	V	V	V				
Telephone			V	V	V	V	V				
Audio-conferencing			V	V	V	V	V				
Video-conferencing			V	V	V	V	V				
Email								V	V	V	V
Instant Messenger		V	V	V	V	V	V	V	V	V	V

V: The medium is provided with the feature

Instant messenger's characteristics are listed in Table 10-2 and compared to the other communication tools. In addition, inherent features which have been neglected in previous literatures (e.g. email's recordability and attachability, and instant messenger' virtual present), but have emerged in this study as being significantly influential in media selection, are also displayed.

10.1.2 Situational determinants

The high preference for FTF meetings did not result in this medium being prevalent in the four cases. In fact, during the period of the fieldwork, the frequency of FTF meetings was low compared with the magnitude of email and telephone communication. Although people in the four cases might have liked to think that they were totally free to make their own choice depending on the topics of communication and/or to improve their relationships, this emerged to not be the case. The 'best' medium (i.e. FTF meeting) might not be the 'most appropriate' in contemporary situations. That is, according to the findings of this study, there are three 'situational determinants' (Trevino et al., 1990) that make FTF interaction less favoured in the today's workplace. These being: geographical dispersion, bustling working norm and the existence of conflict in inter-organisational collaborations.

(1) Geographical dispersion

Previous researchers have suggested that the factor of geographical distribution can lead to users choosing a 'lean' communication tool rather than the richest medium available (e.g. Kock, 2004; Poole et al., 1992; Trevino et al., 1990). In this multiple-case study, the workplaces with regards to these four collaborations were dispersed across different cities and countries, and it was not possible to hold FTF meetings frequently. This was because cross-country trips were costly, and the employers did not always have funds available and/or were unwilling to pay the high travel and accommodation costs. In addition, employees were usually heavily pressured for time and, hence, they could not spare much time for travelling between countries. A number of previous researchers have supported the above claim that both

geographical and temporal factors determine media choices (e.g. Culnam & Markus, 1987; Markus, 1994; Prasad & Akhilesh, 2002; Steinfeld & Fulk, 1986; Trevino et al., 1990). The discussion below considers the affects of particular situational determinants on media selection, which have not received much attention in the previous research but have emerged as being important in the four business collaborations of this study, these being: bustling working norm and conflict exists.

(2) Bustling working norm

As discussed in section 10.1.1, according to the data analysis email appeared to be the medium of second preference when FTF meetings were not viable. From the viewpoint of information richness theory, it can be argued that video-conferencing, which simulates most of the characteristics of FTF meetings (Friedman & Currall, 2003; Short et al., 1976) and hence has been viewed as a rich CMC medium (Kydd & Ferry, 1994; Leonard et al., 1998; Markus, 1994), should be considered as the second best choice when FTF meetings are not possible. However, no video-conferencing meetings were carried out in any of the four cases. In this respect, the key point being that the participants in these companies were involved in a busy and bustling working norm which caused difficulties when they tried to get together at the same time. The existence of this work environment explains why other group discussion media, such as audio-conferencing, were not used frequently in the cases of this research. Previous research has highlighted the shortcomings of these forms of group discussion media but it has not detected the importance of this time-related obstacle. As a consequence of this time factor, email was employed for group discussions because its inherent feature of asynchronicity permits greater flexibility by lifting the restrictions of time and place involved in FTF meetings and teleconferencing. In this regard, email's asynchronicity was advantageous to group discussions that previous literatures may have not noticed and thus have usually given this feature a bad name.

(3) Media choice where conflict exists

Three types of inter-organisational conflict: namely organisational process conflict, business strategic conflict and cultural conflict have been identified in these case-studies. Moreover, the evidence has shown that the inter-organisational conflict that existed during the life of these business collaborations, significantly influenced participants' choices with regards to communication media. As discussed before (see Chapter 5), the participants in these four cases relied on FTF meetings and email to deal with conflicting organisational processes, whereas the awareness of business strategic conflict led to the said participants having a bias towards email and a deliberate avoidance of telephone and FTF interactions. Moreover, foreign language communication, that is English in the context of this research, led to increased use of forms of written communication (i.e. email and instant messenger).

In addition, it is important to highlight the impact of business strategic conflict on media selection because it emerged that the levels of this form of conflict affected the use of different media in a quite distinct way, unlike the other two forms. That is, in intensified business strategic conflict situations, like that of T-Com and AK, the preferred media was narrowed down just to email, that is, employees chose to avoid communication media that carry intensive social cues (such as FTF meetings and the telephone). By comparison, in the other three cases that exhibited lower levels of business strategic conflict than T-Com/AK, there was no evidence that telephone conversations and FTF meetings were avoided, and a number of examples regarding this are presented in Table 7-2. As pointed out above, no similar pattern in choice of media was observed where process or cultural conflict was evident.

As mentioned earlier in the literature review chapter, business strategic conflict relates to the industrial environment and thus manifests itself in a unique pattern, when compared with group and personal conflict (Putnam & Poole, 1987). It should be noted that the market covered by this research is highly competitive, usually in a state of flux and not controllable by any of organisations involved in the industry. As a consequence of this uncertainty, it was found that T-Com and AK had never

resolved whether they were in collaboration or competition and were lingering in an intermediate state between these two. However, since an industrial magazine revealed the investigation in August 2007 that T-Com-branded name product had overtaken AK for being the top one brand in the display market in North America, the relationship between these two firms were forced to move towards either competitive or collaborative orientation. The theoretical competitive and collaborative models (Gules & Burgess, 1996; Tang et al., 2001) regarding organisational relationships have been criticised for being too simplistic (Thomas, 1976) but they emerged as being pertinent for distinguishing the profoundly different orientations that prevailed in all joint projects between T-Com and AK. Subsequently, the uncertainty of this business collaboration resulted in the adoption of a different pattern of media selection from the other three cases, and a special communication style in the virtual context, was the result, which will be discussed in greater detail in section 6.2. Here, it is important to discuss how the uncertain business relationship results in a special communication style in email.

Two conceivable explanations emerged from the analysed data to explain the distinctive communication style between T-Com and AK: (1) email communication was viewed in this case in terms of legally binding agreements and (2) it asocial feature provided a psychological distance.

(1) Email, with its feature of ‘recordability’ can be established as a means of forming legally binding agreements. By recording emails, evidence can be collected that may be used to make judgements on who has responsibility. That is, for example, these records can be used to highlight the opposing organisation’s mistakes or breaking of agreements. This would suggest that high sensitivity to business strategic conflict increases the likelihood of participants communicating by email.

(2) In heavy business strategic conflict circumstances, email’s original disadvantage with regard to its asocial feature (Friedman & Currall, 2003), can be turned into an advantage, in that when enthusiastic participation in the collaboration is shunned, interaction in this form allows for discussions to be continued. In other words, when

conflict becomes intense, associations with persons on the opposing side wither (Coleman, 1957), and people usually desire a psychological distance (Heider, 1958), thus they avoid FTF meetings or telephone conversations carrying intensive social cues and reverting to email as a safer way of maintaining contact.

In these four cases, people usually worked under time pressure, and the telephone was supposed to be an appropriate medium when quick responses were required. However, a number of examples in this study, particularly T-Com and AK, have shown that telephone conversations were usually avoided when conflict became more intense. Moreover, in several instances FTF meetings were refused when complicated issues needed to be resolved with some urgency (see Table 7-2). Therefore, although past researchers have found that the level of urgency of communication affects the choice of media (Steinfeld & Fulk, 1986; Trevino et al., 1987) and the importance of the communication subject influences media usage (Jones et al., 1989), this researcher would argue that the impact on CMC selection owing to the existence of business strategic conflict is more significant than these two foremost factors.

A number of possible reasons have been indentified in this study to explain why people avoid using media that involve intensive interaction when there is a high level of business strategic conflict. Nevertheless, this is not the only determinant, and cultural elements are another key factor that needs to be taken into account in the context of avoidance behaviour. Avoidance behaviour is a common approach to managing disputes in East Asian cultures (Friedman et al., 2006) and T-Com/AK is a typical case. Intensive communication may lead to people being assertive and quickly laying their cards on the table which could be interpreted as impolite and aggressive behaviour. In such high tension situations, people, in Taiwan and Korea, become reluctant to accept changes or compromises because they often see this as giving something up and hence perceive it as losing face (Gesteland, 2002).

Moreover, it has emerged that, as the major language used for communication between T-Com and the four Korean collaborators was English, written forms of

communicating, such as email and instant messenger' chat rooms, became the preferred option when participants were not confident in speaking English. That is, working in these forms allowed sufficient space for participants to produce written communication at their preferred pace.

10.1.3 Social influence perspective

The above results indicating a wide use of email show that participants in the four cases selected potential CMC tools through maximizing the fit between conflicting situational elements and the inherent characteristics of the media. However, these explanations are insufficient, by themselves, for a clear understanding of why personnel in one firm refused to interact with those in the opposing organisation by means of the telephone and FTF meetings. This study has found that the insistence on email communication increased when social influence factors were considered. That is, some managers' strong preference for the use of specific media had an influence on the choices of people of lower seniority. Moreover, the choice of media when participants are conscious of the existence of a conflict situation can easily be infectious, in that other members of the company adopt the same negative perspective regarding the competitors and this negativity can take on an embedded collective nature. What has emerged from the data of this research is that social influence is profoundly important in the process of CMC selection.

SC, T-Com's DQA senior manager and the key informant in this study, had faced the problematic situation of how conflicting organisational processes could be resolved efficiently when business strategic conflict and cultural conflict were embedded between collaborating organisations. He complained several times to this researcher that he had endured dishonest communication and behaviour from these four supplier companies especially AK. He reported that his team members were frequently blamed by the other departments in T-Com for providing the wrong information that led to design mistakes and problems. However, he had defended his team stating that the wrong information actually came from AK and that they were the ones who deserved to be blamed. He held the strong belief that this problem was caused by T-

Com and AK's competitive business relationship, which resulted in AK providing incorrect information to T-Com. In other words, to some extent, the competitive relationship between these two firms gave legitimacy to and a rationale for their employees' carelessness when working with T-Com. In light of this situation, SC had insisted that his team members used email for nearly all communication with AK employees. He always requested that his team members sent emails to confirm the contents of their telephone conversations and meetings, on the rare occasions that telephone calls and FTF meetings were absolutely necessary. The reason he gave for demanding this action was that email's recordability makes communicators cautious in the way they interact, as if they are not what they write can be manipulated as evidence to show that one of the parties is behaving inappropriately. It appears that the role of email in situations where significant conflict exists is far wider than that of a pure communication tool, and it takes on political meanings. The phenomenon of the widespread use of email in the DQA team supports media selection theories regarding the aspect of social influence, in that managers can determine the result of media selection, and this can spread throughout the organisation.

The collective awareness of the competitive relationship between T-Com and AK was embedded in the employees' communication approaches and each factor influenced the other. Personnel in T-Com generally believed that the business strategic conflict was the fundamental principle which caused organisational process conflict and cultural conflict to increase. The DQA was not the only team in T-Com that had adopted email as their major communication tool and others who had a strong reliance on email included the project management and the purchasing departments, both of which worked intensively with these supplier companies. The extensive use of email in these teams appeared to be spontaneous, arising from the team members' choices, yet members of both of these teams reported a similar reason for relying so heavily on email communication. That is to say, they believed that the records provided through email could serve to protect them, or prove a case, should the need arise regarding suppliers breaking the terms of their agreements.

Thus, from this research, clear evidence has been provided of the social influence from fellow workers on media selection.

10.2 Conflict transformation

Overall, in the four case-studies, email was the most widely used medium owing to both its inherent characteristics and the nature of the conflict situations that prevailed. The above discussion presented the relationship between media selection and inter-organisational conflict, and this section moves on to focus on the causes and process, with regards to conflict transformation in email communication. Hence, this section starts by addressing the interrelations between the three patterns of inter-organisational conflict: business strategic conflict, organisational process conflict and cultural conflict. When the four case-studies are compared, business strategic conflict appeared to be the most important element that dominated the development of the other two forms of conflict, which in turn, influenced the outcomes of business collaborations. The second part of this section focuses on the perceived escalation of business strategic conflict as the most likely trigger for a termination of business collaboration. It needs to be borne in mind, as discussed above, that there may be very little or no evidence of this conflict in any of the explicit writing in the emails and, in fact, they may become increasingly polite. Moreover, in this vein, East Asian cultural factors have emerged in the findings of this study as offering an explanation for this particularly stylised form of communication in conflict situations and this is also addressed below. Finally, a framework of business strategic conflict transformation is presented that describes pictorially the nature of conflict in the inter-organisational virtual context.

10.2.1 Interrelations of inter-organisational conflict

As mentioned above, employees in T-Com generally believed that business strategic conflict was influential in the development of organisational process conflict and cultural conflict. In other words, escalating business strategic conflict led to both

organisational process conflict and cultural conflict being intensified, whereas lower business strategic conflict resulted in the latter two decreasing (see Table 10-3). By comparing the data from the four case-studies, evidence emerged to support the statements of T-Com staff members. For example, both the T-Com purchasing manager and the DQA manager claimed that conflicting organisational processes, regarding product specification differences, had happened in the T-Com/AK and T-Com/BK collaborations. AK had insisted on their own standards, lacking any concern for the existence of non-matching processes with T-Com, whereas BK changed the specification to meet T-Com's requirements. Other examples, such as those of uniformity measurement methods and cosmetic specification differences, also showed similar scenarios in which AK refused to comply with T-Com's requirements, and CK and DK provided what T-Com wanted. Gradually, in T-Com, participants' negative opinions became commonplace which led to them holding prejudices claiming that AK employees had tough negotiating styles and that there were strong gender differences in the male-dominated Korean firms. In return, AK complained that T-Com was too fussy and uncooperative. It became evident that these prejudiced people distorted and negatively interpreted communication from those about whom they held prejudiced views and, subsequently, people who became aware of the others' prejudices about them were likely to develop negative attitudes. What emerged supported previous researchers' claims that the effects of prejudice at work act as intrinsic barriers to communication for both individuals and organisations (Guirdham, 1999; Inman & Baron, 1996) , even when the prejudice is not overt. Therefore, it became apparent, that in T-Com/AK, when business strategic conflict was intensified, organisational process conflict and cultural conflict tended to be high, whereas, in the other three cases, organisational process conflict and cultural conflict decreased because business strategic conflict was low (see Table 10-3).

Table 10-3 Tendency of conflict development

Case	Business Strategic Conflict Time → 5-month observation			Organisational Process Conflict Time → 5-month observation			Cultural Conflict Time → 5-month observation		
T-Com/ AK	High	Email	High	High	FTF, Email, Telephone	High	High	Email	High
T-Com/ BK	Moderate	FTF, Email, Telephone	Low	High	FTF, Email, Telephone	Low	Low	FTF, Email, Telephone	Low
T-Com/ CK	Low	FTF, Email, Telephone	Low	High	FTF, Email, Telephone	Low	Low	FTF, Email, Telephone	Low
T-Com/ DK	Low	FTF, Email, Telephone	Low	High	FTF, Email, Telephone	Low	High	Email, Instant messenger	Low

This researcher had a couple of conversations with two of AK's managers, and they explained that the reason why they pushed for their designs and standards to be adopted was rooted in the company's business policy and hence they could not help T-Com even though on a personal level they understood their concerns. According to participants' statements from both T-Com and AK, it has become clear that business strategic conflict was the fundamental factor that dominated both organisational process conflict and cultural conflict. That is, whether the latter two forms increased or decreased was dependent on the situation regarding the foremost.

This interrelationship reflects Rubin et al.'s view (1994) that organisational policy towards other firms provides authorisation for the attitudes adopted by individuals within a firm and hence affects their behaviour when communicating with another firm. What has emerged from this study is that organisational business policy is the most influential factor in the development of business collaborations. Moreover, it should be noted that this factor is only relevant in inter-organisational conflict, thus making this form of conflict distinct from that occurring at the inter-group and inter-personal levels. In other words, business strategic conflict exists between organisations, rather than between individuals.

10.2.2 Hypocrisy in email communication

Although it emerged that email communication was preferred when companies were involved in heavy business strategic conflict, participants' communication style in email was not necessarily aggressive and/or hostile in such circumstances. In a high proportion of the email examples in the case of T-Com/AK polite expressions were employed, which could be construed as being hypocritical given the level of animosity known to exist between the two firms. That is, within each company, there were often complaints amongst the personnel about the members of the other firm. In addition, in direct communications by phone between the two firms, hostile and aggressive behaviour was observed by this researcher. By contrast, in email, none of these behaviours emerged, as the writers always used polite expressions, such as: 'sorry', 'thank you' and 'appreciate for your support'. However, 'sorry' in these emails did not really mean 'sorry', and 'thank you' would appear to be for nothing positive being seen to have been received (Panteli, 2002). There was no sign that this politeness ameliorated the situation and, thus, there were no improvements in communication nor was there any reduction in the level of conflict. The above appears to illustrate how the choice of communication tool was instrumental in forming the communication style.

Moreover, this multiple-case study provided evidence in connection with email's written-based nature to explain why such a communication style was elicited: (1) The natural characteristics of reviewability and revisability (Watson-Manheim & Belanger, 2007) allows people to ponder over and revise the content before sending it out. (2) Written communication taking the form of formal statements could be manipulated to appear neutral and task-oriented.

(1) Speakers have no time to sift through all of their vocabulary and ideas that are appropriate to the conversation and typically pick the first words that occur to them (Chafe & Danielewicz, 1987), whereas writing can be produced at any pace, as set by the writer alone (Yates, 1984). So, it was usually found that people generally thought clearly about the words, sentences and even tone for emails. Subsequently, they

could review the contents and, thus, impulsive and emotional expressions could be prevented.

(2) Given email's written-based nature and their contents being legally binding, writers were conscious about what they wrote in them. In particular, when participants were engaged in an uncertain status of business collaboration, like that of T-Com and AK, minor communication mistakes could lead to collaboration failure. Email discussions in such situations were operated in a neutral and task-oriented fashion, and emotions were hardly expressed.

Therefore, whilst business strategic conflict between T-Com and AK was intensifying in reality, the participants hardly ever expressed their opinion in email communications, regarding the conflicting business strategies. That is, to the outsiders, the overall email discussions would have given the false impression that these two firms had harmonious relations, whereas conflict was actually escalating and eventually their business collaboration was terminated.

10.2.3 Email manipulation resulting in conflict escalation

As pointed out above, email communication in T-Com/AK was manipulated and made to appear anodyne to prevent participants from becoming involved in direct conflict. However, this form of avoidance behaviour that failed to deal with the underlying conflict led this collaboration into deadlock. In sum, the above discussion regarding the relationship between media selection and conflict development has shown that when there is a reliance on the exchange of seemingly polite emails for communication, there is often an escalation of conflict taking place. Four different interpretive characteristics regarding email can be offered to explain this escalation, these being, the: symbolic meanings of the medium, lack of relational communication, narrow capability of foreign language communication and the problematic effects of asynchronous interaction. That is, these are not inherent characteristics of email, but are interpretations conveyed on it by the users.

(1) Symbolic meanings of media - a business weapon

The extensive use of email and avoidance of the telephone and FTF interaction became apparent in the case of T-Com and AK. When participants in T-Com were asked by this researcher to describe their reasons for avoiding FTF interaction or talking with AK members, many of these explanations involved emotional statements, such as 'I hate talking to them' and 'I have no interest in knowing anyone from their company'. These negative comments appear to support previous researchers' claims that media may be selected for symbolic meanings of media, which transcend the explicit and linguistic messages in the context of communication (Trevino et al., 1990; Trevino et al., 1987). In this regard, the medium itself becomes a message (Trevino et al., 1987). For instance, putting a message in writing, such as in an email, may indicate a commitment to formal statements, whereas opting for an FTF meeting may convey a willingness to engage in interactive communication. In this context, in the case of T-Com/AK, it became evident that email was far from a pure communication tool in that the medium was usually employed in such a way that the message had underlying political implications.

The fact that email communications could be stored and recorded in database systems, meant that it was possible to refer back to the entire development of any discussion. Given this situation, what emerged from this research was that the communicators wrote down every minute detail, so it could be used as evidence in any future dispute. As a result, the messages were often over elaborate and contained irrelevant details, such as: the time, the date and references back to previous communications. Such excessively detailed emails occurred in these case-studies frequently, especially in T-Com/AK, and many possessed political implications between the lines of the contents. For instance, highlighting delays in reply and response connoted the opposing organisation's poor support and inefficient work. Moreover, when any joint project was delayed or failed, one or both of the organisations involved would use past emails as proof that the problem that had arisen was the other's fault. Outsiders may not have been able to sense easily the underlying political meanings from the linguistics but the people who were involved

in a particular discussion would come to realise that these emails contained significant connotations, regarding political concerns. In intense business strategic conflict circumstance, like that of T-Com and AK, email played a role as both communication tool and 'business weapon'.

(2) Lack of relational communication

In the case of T-Com and AK, the extensive use of email and avoidance of FTF and telephone interactions might have helped to prevent offensive and impulsive behaviour during communication and, thus, protected participants from becoming involved in direct conflict. However, although email is an effective form of communication, it is insufficient for supporting all the necessary aspects of communication involved in collaborations. As mentioned earlier, FTF meetings in these four cases were often held for two purposes, namely, for dealing with complex communication issues and for relationship improvement. Regarding the first purpose, the effectiveness of CMC tools for task-oriented activities has been proved in previous research (e.g. Hiltz & Turoff, 1986; Kock, 1998, , 2001; Walther, 1995) and, more specifically in this research, email was found to be efficient with regards to complex communication matters. However, in no case in this study did the evidence support the second of these purposes for FTF meetings, that is, the use of email did not appear to be helpful for relationship improvement. In this vein, scholars have suggested previously that email can express 'relational communication' (Burgoon & Hale, 1984), in that they consist of messages and message dimensions that people use to define or redefine relationships (Millar & Rogers, 1976; Parks, 1977; Walther, 1995). Therefore, the evidence of this study has emerged as being inconsistent with this previous research. Perhaps more importantly, developing a good relationship is essential for conducting business successfully in many Asian countries (Gesteland, 2002), including Taiwan and Korea. That is to say, without a trustful relationship, successful business collaboration is hard to establish and sustain. In this study, T-Com/AK was a typical case where no such relationship was established.

(3) Limited capability of foreign language communication

Non-verbal behaviour is regarded as carrying more social cues for communicators than verbal forms (Ma, 1984). That is, much more is going on in FTF and/or spoken communication than just the words themselves. By contrast, in email communication, the expressions of non-verbal behaviour are limited and thus unsurprisingly in these case-studies all non-verbal behaviour was conducted through the actual words themselves. This phenomenon has reflected Byron's study in which it has been argued that emotions are difficult to accurately communicate by email (Byron, 2008). Moreover, sophisticated communication behaviour requires comprehension of a large vocabulary and complex syntax that is difficult to achieve for people who are communicating in a foreign language (i.e. English in these cases). In these four cases, when the Taiwanese and Korean people were communicating in English by email, simple semantic structure was applied in the email discussions, owing to their limited ability in written English and this on occasion led to awkward misunderstandings. In particular, such a simplistic semantic structure in email can be interpreted as being terse and impolite by people with East Asian cultural backgrounds and thus cause conflict. Both Taiwanese and Korean people have been deemed to be high-context communicators (Hall, 1976) who use contextual clues and non-verbal cues intensively to decode the information during communication and, hence, when participants in these cases encountered serious difficulties in conveying and receiving non-verbal signs in email, they had a tendency to establish their non-verbal interpretations by decoding the text in accordance with their biases, prejudices and cultural perspectives. This can easily exacerbate any conflict situation and, in this study, T-Com/AK exhibited itself as an extreme example this.

(4) Problematic effects of asynchronous interaction

Email's feature of asynchronous communication challenges companies' strict adherence to time. That is, time lapse between email sending and replies can cause impatience and anxiety, and this can lead to conflict. The sender of an email becomes increasingly curious as to why there is no reply in any day to day communication situation but this can be particularly prevalent in a business environment. There are two reasons for this. Firstly, people in a business environment normally work under

time pressures which demand speed and efficiency and this can lead to impatience and anxiety which can initiate conflict. In this context, it was evident in the four cases of this research that slow email replies were blamed on inefficient work practices and this happened particularly frequently in T-Com/AK, because of the tension in their business relationship, as discussed above. Secondly, written-based discussions complemented with pictorial representations were a common form of email communication in all four cases and as the compilation of the attachments could be very time-consuming, time efficiency was often impaired. In other words, although such communication allowed for participants' interaction to be more effective and informative, they had a tendency to accentuate the disadvantage of email's asynchronicity and thus feeding potential conflict situations. Moreover, it is subjective as to what should be considered a reasonable amount of time in replying to an email, as compared to an unreasonable one. For example, one member of T-Com complained that he hadn't received a reply from AK within two days, which to this researcher would appear to be rather impatient (Table 7-2 section 1). Unfortunately, these inherent properties would appear to be an unavoidable inevitability in email discussions and, therefore, it is important to recognise that they could play a role in the course of any conflict escalation.

10.2.4 A framework of conflict transformation and media selection

In previous conflict studies, two kinds of models have been deployed for the building of theories: process models and structural models (Van de Vliert, 1984). Process models are oriented primarily towards dynamic courses of conflict development, where one event follows another (Filley, 1975; Pondy, 1967; Thomas, 1976). Structural models, on the other hand, place emphasis on the factors that influence conflict development and behaviour (Thomas, 1976; Walton & Dutton, 1969). Van de Vliert (1984) criticised both approaches, arguing that process models hardly pay any attention to the causes of conflict, whereas structural models neglect the dynamics and consequences of conflict. This researcher has attempted to counter these limitations by including both the causes and the courses of conflict, thereby

integrating the two different modelling treatments, rather than accentuating the differences. Therefore, drawing on the results of this study, a framework (Figure 10-1 and Figure 10-2) is established to assist in the prediction of the nature of conflict transformation in the virtual context.

The framework of conflict transformation that is based on the concepts of the dual concern model (Blake & Mouton, 1964) and the conflict-handling model (Thomas, 1976), as were introduced earlier in the literature review (Chapter 2). These models are more often considered with regard to the choice of strategy when one party tries to resolve a divergence of interest with the other (Rubin et al., 1994). However, they do not address the dynamic aspects of conflict. Therefore, the framework devised from this research in Figures 10-1 and 10-2 incorporate the dynamic strategic choices that have been missing from these two previous treatments.

The concept of the dual concern model was originally developed as a theory of individual differences in conflict styles (Blake & Mouton, 1964). The evidence in the four case-studies was largely consistent with the descriptions of this model, that is a two-dimensional pattern of concerns emerged with bilateral interaction between the parties. In this multiple-case study, the bilateralism is an extension from the previous model because it refers to relations between two organisations, rather than just between individuals. However, in this scenario, the concerns still refer to the strategies that were adopted to deal with conflict: collaborative, competitive, compromise, avoidance and accommodative. Nevertheless, the lattermost strategy did not emerge in any of the four cases and therefore is not included in the discussion. That is, whether this strategy is employed in the business setting is still open to debate.

In these case studies, firms collaborated together in order to develop joint projects which would help them to survive in an uncertain market but success in these organisational collaborations was not the result in all of the cases. A collaborative strategy was often the approach taken at first, especially when an organisation valued its relations with its partner and perceived that common ground could be reached.

Thus, in these circumstances, conflict could be resolved through the initial harmonious relations that were established when the common goal was agreed. However, this initial harmony could easily be broken and when this happened the organisations reverted to being competitive and contentious (arrow 1 in Figure 10-1). Thus, conflict escalated until a compromise agreement was reached (arrow 2) and this could last for a while. In turn, in the best case scenario, such as in T-Com/BK, a collaborative orientation reappeared (arrow 3) or, in the worst cases, like that of T-Com/AK, conflict escalated again (arrow 4).

In the course of moving between arrow 1 to arrow 4, the organisations or their representatives may not have interacted entirely openly towards one another, but they shared a mutual acceptance which allowed for their collaborations to be maintained. During these stages, there was no evidence that the participants had any specific bias towards any particular communication media and all of FTF meetings, telephone conversations, audio-conferencing and emails were all chosen and used by the communicators. In other words, the participants in all four cases used diverse media for different communication purposes, that is, although email was still the most preferred option, the evidence in these case-studies did not show that any specific communication medium was avoided or rejected during the movement between arrows 1-4.

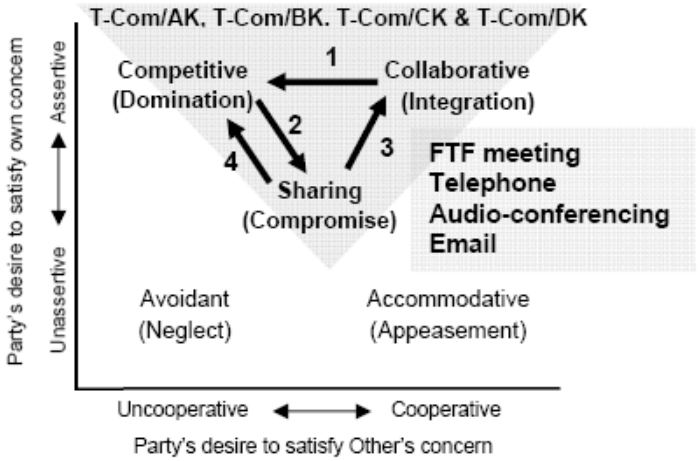


Figure 10-1 Conflict transformation and communication media selection

All the cases in this study experienced the movement of conflict development from arrow 1 to arrow 4, i.e. their business relationships did not attain a stable status. However, only T-Com/AK adopted an avoidant-oriented strategy (see Figure 10-2) resulted from the intense competitive strategy of both parties over a considerable period of time. The subsequent outcome of this behaviour was conflict escalation. In other words, in relation to Figure 10-2, this case moved from a competitive to an avoidance orientation (arrow 5) and active communication and interaction was rejected with a whole host of excuses. Subsequently, email became the only medium connecting both parties because of its asocial features and the fact that it had the property of being legally bindings, as discussed earlier in this chapter. This narrow channelling of their collaborative activity led to a deadlocked business situation.

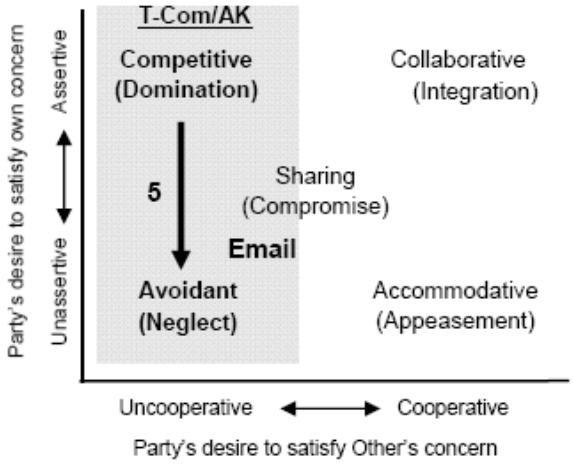


Figure 10-2 Conflict avoidance and communication media selection

As described above, the evidence has shown that participants in the case of T-Com/AK avoided or refused interactions by telephone and/or FTF and, furthermore, they never gave any opinions about their conflicting business strategies in email communication. In other words, conflict avoidance manifested itself in the denial of the existing conflict and in the suppression of its very existence by both the parties involved. Moreover, they shied away from dealing with conflict directly although both these firms recognised that the business strategic conflict between them was the

dominant issue that would determine the outcome of their collaboration. There are several possible results from adopting such an avoidance strategy. Firstly, the issues leading to conflict might disappear with the passage of time or a change of circumstances. For instance, if North America had ceased to be the target market for either T-Com or AK, the tension between these firms could have eased and thus it would have been the right decision for both parties not to have allowed themselves to become entangled in the conflict situation in the first place. In the second possible scenario, as eventually happened in reality with T-Com/AK, conflict avoidance over time can exacerbate the situation and thus, consistent with Deutsch's (1987) claim, it can lead to harmful consequences. It is important to note avoidance behaviour in a collaborative project does not mean that the parties involved are not communicating with each other. For instance, in T-Com/AK, emails continued to be sent and the conflict was disguised by their over polite content. This disguising conflict reduced the clarity of the messages, leaving them open to whatever interpretation the parties wished to convey upon them, thus facilitating the conflict escalation that occurred.

Previous studies (see Chapter 2) have addressed the difficulties of communicating by email but the evidence elicited from the case T-Com/AK has presented a vital point which previous literatures may have missed: conflict does not always increase because participants communicate by email, but when the use of email supplants other communication tools (e.g. telephone and FTF meetings) and becomes the only medium carrying complex forms of interaction, the difficulties of communication are further exacerbated and, result in harm being done to the business collaborations.

10.3 Chapter summary

The research findings that emerged from this multiple-case study have been summarised and discussed in this chapter. The first section has described the research findings regarding the course of media selection from three theoretical perspectives: information richness theory, social influence theory and situational elements. By considering the results with reference to these theories an integrated insight has been developed about why and how different media are selected for different purposes

when inter-organisational conflict exists. The second section has explained the transformation of conflict in the selected media (mainly email) based on the evidence that evolved in the four case-studies. Subsequently, a framework regarding the interrelations between inter-organisational conflict and media selection was established in order to give a better description and understanding of the nature of conflict in virtual communication.

The next chapter will describe the contributions that this study has made and the implications of the research findings in academia and for practice. In addition, the limitations of this research and ideas for further studies will be presented, respectively.

Chapter 11:Conclusion

In this research, the nature of conflict in virtual communication has been explored by conducting a multiple-case study, and a large body of evidence was collected which allowed for an explanation of this contextual phenomenon in relation to the research questions. From these case-studies, it has become apparent that there are at least three patterns of inter-organisational conflict: organisational process conflict, business strategic conflict and cultural conflict that can exist in inter-organisational collaborations, which can influence significantly the participants' media choices. It has also become evident from the findings that the use of media has shifted substantially from FTF meetings to email, and it has emerged that conflict is expressed, shaped and transformed by the selected media. This chapter begins with a description of the contributions to knowledge achieved by this research regarding CMC and conflict studies from a theoretical perspective (section 11.1). The second section highlights the practical contributions and implications, and subsequently, recommendations for management practitioners are proposed (section 11.2). The third section considers the limitations of this research (section 11.3) and finally, suggestions for further work in this field are put forward (section 11.4).

11.1 Theoretical contributions and implications

The findings elicited from this study have made a contribution to the realm of CMC studies, in particular with regard to the matter of conflict in the inter-organisational setting. Although previous CMC literatures are vast and much has been strongly valid, the research data and findings presented in this research have brought out four key differences from these studies. Firstly, in this thesis, the importance of the selection and the use of CMC in the resolution of inter-organisational conflict in business collaboration has been elicited (section 11.1.1). Secondly, this complexities inherent in the interrelations between synergetic companies in the same industry, with respect to communication-behavioural characteristics, have emerges as being

important. For example, form a CMC perspectives, when there is conflict of interest within the context of specified goals and objectives, how conflict is perceived (section 11.1.2) is different from how it is be expressed (section 11.1.3). In addition, as cultural elements were involved in the resolution of business collaboration via CMC in all the case-studies, conflict escalation from the standpoint has been explored (section 11.1.4). Overall, the revelatory findings have allowed for the framework (Figure 10-1 and Figure 10-2) to be drawn up illustrating how conflict is developed, transformed and escalated. Moreover, depending on the different choice of communication media and their usage, it shows how the outcome form this process can be the termination of business collaboration. The establishment of this framework and the other outcomes from this research provide a contribution of new knowledge to the arena of conflict theory, in particular with regards to inter-organisational conflict. In addition, the first-hand data collected by the researcher directly from the four cases provides an insight into the workings of inter-organisation collaborations and their communication strategies, which has rarely been undertaken previously.

11.1.1 CMC in inter-organisational conflict

As addressed earlier in the literature review, researchers have increasingly come to realise the difficulty and potential problems of communication through the use of CMC (e.g. Byron, 2008; Friedman & Currall, 2003; Kersten et al., 2002; Ulijn & Lincke, 2004). However studies into inter-organisational settings are still limited. With the consideration that employees often have to communicate with suppliers and customers outside their employing organisations, Byron (2008) recommended that studies on organisational differences are urgently needed. Recognising the importance of understanding CMC in relation to these organisational differences, this study was undertaken to add to the limited amount of knowledge in this field of study.

When organisations cooperate together, conflict would appear to be inevitable because firms usually operate with different goals, aims and values which are likely to lead to them being suspicious of the business collaborations and therefore result in

negative outcomes. That is, some business collaborations survive under the challenges of inter-organisational conflict, whereas others fail during the process. This research has looked into the course of business collaborations through the perspective of CMC, which has become the prevalent communication platform in the contemporary business environment.

This multiple-case study, firstly, has outlined three patterns of inter-organisational conflict, and business strategic conflict has been found to be the most influential factor dominating the development of the other two patterns of conflict. This, it is argued, is because, in the dynamic business environment, it is at the organisational level that each firm's strategy is mapped out and the major foundations for inter-organisational relations established. However, in spite of the primary role of business strategic conflict, in relation to the other two forms, the three conflict phenomena were found to be interrelated. In fact, once conflict was evident in any or all of these three forms, it emerged that written email was selected as the predominant tool for creating a virtual communication platform. Furthermore, the existence of business strategic conflict emerged in the findings as narrowing down participants' media choice to just email, and telephone conversations and FTF meetings were avoided or denied, this particularly being the case in intense conflict situations. Although this research was not aimed at studying any specific single medium, the results have shown that, email was the dominant communication tool employed. Based on the findings of this research, a framework (Figures 10-1 and 10-2) were proposed to illustrate how conflict was transformed in relation to the selection and the use of communication media, and it was used to predict how conflict situations might unfold. This framework serves as a starting point for explaining the relations between multiple media usage and conflict in inter-organisational settings, something that is vital if businesses are to devise more effective strategies when embarking on business collaborations and hence preventing breakdowns in cooperative endeavours. Moreover, two modelling approaches regarding conflict style, i.e. the structural and process models, were considered equally important in this framework. The literature from previous scholars shows that the focus has been on discussing these separately,

whereas in fact, the findings from the researched case-studies have indicated that these models need to be considered together in order to reach an understanding of the development and transformation of conflict. Thus, the discussion of the results concentrated on integrated the two different modelling treatments, rather than accentuating the differences between them.

11.1.2 Perceived conflict in email communication

Communication is a primary process through which organisations collaborate together. That is, personnel representing different organisations must communicate in order to discuss and negotiate their joint projects and to complete the tasks which their companies assign to them. It is also integral to managers' roles, as they are representatives of an organisation with the responsibility for the management and maintenance of business relationships in the course of collaborations. Therefore, it is essential to acquire an understanding of why certain communication media are selected for different purposes.

This study has explored the course of CMC selection, with regard to participants' perceptions of conflict, and the results have shown that email is used extensively whereas telephone and FTF meetings are avoided when firms engage in intense conflict circumstances. The outcomes have also supported the assertion that communication media are far more than pure communication tools but the choice of CMC itself is a message and thus have reflected Trevino et al. (1987) who argued that media themselves possesses symbolic meanings. For instance, putting a message in writing, such as in an email, may indicate a commitment to formal statements, whereas opting for an FTF meeting may convey a willingness to engage in interactive communication. More significantly, this study has found that email's written-based characteristic can be manipulated as a business weapon. Email, with its feature of recordability, has been adopted as a means of making legally binding agreements, and thus it has become the major communication tool in situations where organisations have significant business strategic conflict. That is, by recording emails, evidence is collected and can be used to make judgements on the issue of the

ownership of responsibility. That is, with this usage, email is not solely a technique for communication, and it can be employed in a way that the message has underlying political implications.

Furthermore, the data of this study has revealed that the perception of conflict is influenced by email with its inherent characteristics. In these case-studies, the use of media shifted substantially from FTF meetings to email for several reasons, as explained in Chapter 6. However, participants' high reliance on email for communication could result in being problematic. For instance, Friedman and Currall (2003) argued that email can increase the likelihood of conflict escalation among the people involved. Moreover, Byron (2008) found that emotions are particularly difficult to accurately communicate by email owing to the relative lack of social cues, and slow and decreasing feedbacks during communication. To some extent, the evidence and the subsequently devised framework from this study support these view points. Nevertheless, these previous depictions and predictions of difficulties of communication by email, arguably, have missed a crucial point: conflict does not necessarily increase when communicating by email. Nonetheless, when the use of email supplants other communication tools (e.g. telephone and FTF meetings) and becomes the only medium carrying complex forms of interaction, the difficulties of communicating effectively grow and, thus, conflict can escalate.

11.1.3 Expression of conflict in email communication

Understanding the intentions behind a message, whatever the medium is, is crucial for the receiver to engage in effective communication. However, when information is exchanged by email, it is essential that those involved in the process take care to elucidate their meaning effectively, as it is much easier for misunderstandings to arise. That is, as found in this research, when terse expressions are used to convey messages through email, conflict is more likely to increase. Further in this context, this study has extended the previous knowledge regarding the perception of conflict in email, by highlighting how the use of stylised expressions affects conflict development.

The data displayed in earlier chapters shows that the selection of CMC is instrumental in shaping the way in which information is conveyed and expressed. By comparing different uses of media (e.g. email and telephone conversations), there is a very marked variation in the expressions of conflict in written and spoken communication emerged. In other words, whereas conflict in email communication can be engaged with in a polite/hypocritical way, oral conversations under such circumstances often involve blunt or hostile reactions and offensive language. Moreover, the psychological perceptions including: blame, anger, fear and threats (Rubin et al., 1994) that people normally express to those that they are hostile towards are rarely found in emails. Instead, the more intense is the conflict that is perceived by the participants, the more polite the expressions that are used in email communication. The usual expressions of conflict that arise during communication do not occur often in email, thus frequently it is hard to decode what is written and to interpret the meaning of the message correctly.

Although aggressive and hostile language was hardly apparent in the emails of this study, no evidence emerged to indicate that conflict was resolved or eased by conducting email communication. On the contrary, excessive reliance on email appeared to lead to the situation of participants experiencing difficulties in interpreting non-verbal expressions that served to exacerbate the levels of miscommunication. Moreover, it has been found that communicators hardly ever expressed their opinions with regards to conflict through the use of emails. By contrast, conflict could be easily detected in spoken conversations from both verbal and non-verbal signs (e.g. a sigh, a laugh or a hesitant response). Therefore, this researcher concludes that when conflict is perceived to exist, people involved in email communication need to be capable of recognising the stylised expressions and to avail themselves of their true meanings. It is important to highlight the fact that the perception and expression of conflict in email are clearly not the same thing. The awareness of the importance of the different expression styles in written and spoken communication, as highlighted in this study, could assist people communicating in the virtual context, by their modifying the contents of messages so as to increase

their efficacy in using the media and, thus, help them to improve their working practice.

11.1.4 Conflict escalation in email from the cultural perspective

When discussing the expression of conflict in email communication, cultural differences appear to be another important explanation for its existence and potential escalation. Language is considered to be the most important identifiable feature that defines a particular culture (Hill, 2002), and it was adopted as the aspect of culture for investigation regarding this study. It has been found that the limited linguistic ability in a foreign language, mainly English in these case-studies, increased the difficulty in expressing meanings clearly and fully, which in turn, deepened the pre-existing antipathies between the communicators.

Existing literatures have highlighted different conflict orientations in relation to cultural perspectives. That is, conflict avoidance may be useful in East Asian cultures (Friedman et al., 2006; Tjosvold & Sun, 2002) where relationships are highly valued (Chan, 1963; Leung, 1997; Tjosvold & Sun, 2002) but it is largely counterproductive in the West where open communication for dealing with conflict has been encouraged (Amason et al., 1995; De Dreu & Van Vianen, 2001; Wong et al., 1999). Much of this previous research has looked into conflict avoidance from the perspectives of culture but relatively little of it has directly investigated this in CMC. The research findings here would appear to bridge some of this gap in that it was found that avoidance behaviour can cause a breakdown in communication and the failure of a collaboration, owing to conflict being expressed in an over-polite and hence hypocritical way, when email is used. This conclusion matches the findings of Poole et al.'s study (1991) about group computer-support systems, which in certain cases appeared to indicate that managing group decision processes via computer increases the risks of conflict escalation. Moreover, the findings of this research, point to the need for researchers in the field to embrace the fact that cultural elements are relevant in the expression of conflict, in particular with regards to email communication. By investigating the Eastern Asia region, where avoidance

behaviour is a common approach to managing disputes, this research has revealed new knowledge in the field of CMC and conflict management. Moreover, the importance of exploring the cross-cultural elements of inter-organisational business relations has been highlighted by a number of authors (e.g. Friedman et al., 2006; Ohbuchi & Takshashi, 1994), and this research has also contributed to this debate.

11.2 Practical contributions and implications

The answers elicited to research questions that were set out at the start of the research process have implications for both management scholars and practitioners. Firstly, Communication media selection involves more than just common sense by the users and, in fact, involves a complex process of social and political factors. In this context, the outcomes of this study have allowed for a systematic and integrated assessment of three previously defined perspectives: information richness theory, social influence theory and situational factors that influence participants' media selection and have been applied in the inter-organisational setting. That is, although these theoretical perspectives are not new ideas created by this researcher, the research findings have outlined the predicted interrelations between conflict and media selection in an inter-organisational business context and as such could be used to form guidelines for those managers who intend to manage their business relationships through CMC.

Secondly, despite the growing availability of a range of CMC tools in the business environment, email is presently the dominant form in use and its written-based feature has led to the emergence of a stylised expressional form in which emotions are extremely difficult to decode from the literal meaning. Certainly, it is vital that communicators should recognise and understand the stylised expressions that are being adopted in written communication, which differ substantially from those used in spoken conversations. The results of this study have shed light on the interrelations between the communication tools and expressions and, thus offered ways in which communicators could manage and improve the efficiency of virtual communications. This would benefit their business collaborations, in the context of

the virtual communication environment and by implication would suggest that ignoring the above challenges will probably increase the likelihood of conflict escalation.

Thirdly, the research findings in this study imply that the boundary of 'virtuality' and 'reality' has become blurred although scholars have often been drawn into the false premise that the two concepts should be considered as distinct entities. That is, the results here would suggest that it is not necessary to separate the two anymore as they act together in influencing and changing the real world in which people live and work. Supporting this view, several recent editions of the Economist (2008; 2009) and the Financial Times (Munro, 2008) have indicated that contemporary society has embraced the use of IT in its everyday working and that people are no longer tied to specific places for specific functions, such as studying and working.

As the result of the above contributions and implications identified by this researcher, she would recommend that it is of great importance that management practitioners should be aware of the fact that the prevalence of virtual communication in recent years has been shaping the social cohesion in that it is impacting on the ways in which people interact and communicate in their real lives and work lives.

Overall, the results of this study are a good example to show that business activities in the real world influence the context of virtual communication, and vice versa. In particular, the first step towards success in business collaborations which incorporate the virtual communication environment is to recognise the symbolic meaning of the selected media as this may imply the perception that conflict exists. This is not to argue that any one medium is better than better than another, but what is important is the need attain an understanding of the most effective combination of communication media, so as to maximise performance in business collaborations. As discussed earlier, although conflict is not necessarily exacerbated by the use of email, when there is high level of reliance on email, thereby supplanting other available communication media for disseminating complex information, conflict can escalate. Further, regardless of the media in question, it is essential that there is much greater

understanding of its inherent features and in particular, for newly emergent forms an accurate translation of the somewhat idiosyncratic manner of usage is required. For instance, instant messengers provide facilities for emotional expression, such as emoticons and managers may need to draw up rules for their usage. By taking a more proactive role with regards to the use of CMCs, managers will acquire a better understanding of the nature of conflict in the virtual communication environment and thereby will able head off any potentially destructive developments for their business and/or any inter-organisational collaboration.

11.3 Limitations

Although this study has offered theoretical and practical contributions, it is not without limitations. This section addresses these limitations in the context of both the research findings and the methods used.

11.3.1 Limited availability of information in relation to the use of other forms of CMC

In this research, instant messenger emerged as being used for communication in the business environment. The most elegant feature of these is that users learn to use them very quickly, without the need for formal instruction and as such, as found in this research, they have great potential for business communication. This tool is now more useful because they have been transformed into multi-functional communication media with the additional features of file transfer, audio- and video-conferencing. However, the main problem this researcher experienced regarding the use of this communication tool was that of the users' privacy, whereby most messages on instant messenger were sent directly between individuals and permission to access them was difficult to obtain. This researcher took the view that her becoming involved in conversations through instant messenger would have unnecessarily disturbed the participants in their everyday work and, thus, only a limited amount of observed data from instant messenger was collected, even though this medium was used extensively.

Theoretically, video-conferencing is the medium which has the most features similar to FTF meetings as it can be used for private conversations between two persons or a formal meeting for a large group. However, no video-conferencing meetings were held in any of these cases in this research, despite its widespread availability. The analysis of data has provided a conceivable explanation why this was not observed, in that the participants being involved in a bustling working norm were unable to get together at the same time. Thus, although this researcher is of the opinion that communication behaviour through video-conferencing would be interesting she was unable to observe it.

11.3.2 Absence of top managers in the observance of conflict escalation

Although the previous chapters have presented little discussion on the feature of organisational hierarchy in inter-organisational conflict, the collected data for this study emerged as showing that the absence of top managers is perhaps one of the reasons why business strategic conflict was orientated towards avoidance. That is, inter-organisational business conflict is usually the responsibility of senior managers as they determine overall business policy and practice. Moreover, because personnel of a lower rank do not have jurisdiction in this area, it is possible they choose to avoid addressing it. In this research, there was limited observation of top management and, thus, there is scant evidence to verify or negate this assertion.

11.3.3 Limitations regarding the interpretive research

One of the limitations in this study, perhaps the most significant, is related to the nature of interpretive research itself. That is, this researcher acknowledges the challenge and potential shortcomings regarding accurate data analysis when undertaking this form of investigation. The concerns in this respect include whether the substantial amount of collected data was properly treated in the writing up process. That is, were the decisions made about what was written correct, in that the right content was included and inappropriate material dropped? There are no hard and fast answers as to whether these judgements are correct in this form of research.

In addition, another challenging task is about how to process and interpret the large amount of collected data and then present it in a form that is comprehensible for the readers to be able make sense of what has been learnt. These challenges are all about interpretation although previous scholars (e.g. Denzin & Lincoln, 2005; Miles & Huberman, 1994) have put forward various suggestions for dealing with such challenging tasks when undertaking this form of qualitative research, as Denzin (1998) pointed out that the process of interpretation is an art and thus it cannot be formalised. The strategy, structure, process and techniques of conducting this research and writing this thesis have all been designed to minimise these limitations, but the limitation can not be entirely eliminated.

11.3.4 Lack of interviews from the supplier companies

Another limitation of this study is related to the difficulty of obtaining direct responses from the four supplier companies (i.e. AK, BK, CK and DK) through interviews. In this context, this researcher's dual role in the participant observation had its limitations because given that the topic being observed was conflict, by definition she was positioned on one side of this phenomenon. That is, employees in the supplier companies saw her as representing T-Com, with a bias towards that firm, and hence were reluctant to share their true feelings in interviews with her regarding conflict in the collaborations. Nevertheless, a substantial amount of other data was gathered which allowed for the feelings of the participants from the supplier companies to be understood and thus the embedded position of this researcher in T-COM still allowed for the collection of rich data based in a natural setting.

11.4 Further studies

The value of the research findings in this study lies in their providing clearer understanding of the nature of inter-organisational conflict in CMC usage and, thus, offers the opportunity for achieving greater communication competency in the virtual context, which in turn could assist in the progress towards successful business

collaborations. In order to build on the results of this study into inter-organisational virtual communication, further research suggestions are put forward below.

11.4.1 Theory generalisation

Although the findings of this study have provided insights into the nature of virtual communication in the inter-organisational setting, and thus have allowed for the development of a framework in relation to conflict, it needs to be recognised that it only involved four cases. That is, for theory generalisation to be viable, further studies would need to be carried out. In this context, it is proposed that further research should examine other patterns of conflict (e.g. task conflict) regarding inter-organisational collaborations to increase the possibility of making such generalisations in this field of study.

11.4.2 Observation on the multiple use of CMC tools

Although this researcher was open to observe any form of CMC that occurred in the research setting, email was the dominant communication tool observed in the workplace during the study. Further research is needed to understand the use of multiple media and the choices regarding these in the conflict development. In this vein, it is recommended that the cases selected are ones where multiple media are being extensively used. The emergence of the use of instant messenger in the business environment, which was observed during this study, is one form of media that deserves such attention. When considered from the view point of information richness theory, this tool with its specific characteristics (illustrated in Table 10-2) has the potential to take the place of email as the most preferred medium but as yet relevant studies regarding it are still limited. In addition to the increasing importance of this tool for business communication, one further important observation on its use can be made in the light of this study, which is that it was found that many employees at the middle and lower levels availed themselves of its use, whereas some senior managers remained reluctant to adopt it. This suggests that conflict can

arise when different office ‘sub-cultures’ collide, and this would be a fruitful area for investigation.

11.4.3 A wider discussion of cultural aspects

Culture can be broadly defined as ‘a historically transmitted system of symbols, meanings and norms’ (Guirdham, 1999, P.61). Guirdham further commented that: ‘Symbols and meanings define what groups of people say, do, think and feel; it is not the people but the communication that links them together’ (Guirdham, 1999, P.61). In this regard, communication and culture are inextricably intertwined. This study adopted language as the main way of distinguishing different cultures, and this could be construed as being a rather narrow treatment of the concept. Because, as has been highlighted, understanding conflict in CMC from the cultural perspective is important, further research that considers wider aspects of culture, in line with Guirdham’s definitions, is suggested.

11.5 Chapter summary

The tools of IT clearly bring organisations closer by allowing them to stay connected when geographically separated. However, there are still unexpected ‘side effects’ of misunderstanding and conflict that can easily occur in the virtual communication environment from everyday conversations and ample evidence of these has been presented in this thesis. Nevertheless, today’s experience of IT when compared with that of previous decades has been much improved because the relevant technologies have become much more user-friendly. Many technological shortcomings may have been overcome and, thus, the current issues on IT usage are often of a sociological nature. In situations where CMC instead of FTF meetings are becoming the norm in the workplace, numerous pieces of information and emotions are being expressed and perceived through new different forms of verbal and non-verbal language. All CMC technologies have their idiosyncrasies, some positive and others negative, which require the users to adjust their behaviour in an ever changing world. Studying

the ways that people modify their activities in the virtual environment can be very rewarding, as it provides insights into their orientations.

This researcher has devoted more than three years to this study and to date has had positive responses when she presented her work at workshops and conferences. Moreover, some material related to this work has been published in conference papers, for example: the UK Academy for Information Systems (UKAIS) 2007 in Manchester, the International Conference of Information Management (ICIM) 2007 in Taipei, the International Federation for Information Processing (IFIP) Working Group 9.5 2008 in Luneburg and the European Conference on Information Systems (ECIS) PhD consortium 2008 in Galway. In addition, a paper submitted to the European Journal of Information Systems (EJIS) has been accepted subject to revisions, a chapter contributing to: 'The Handbook of Research on Technoethics' (Luppicini & Adell, 2009) has been published, and more recently a paper submitted to the Hawaii International Conference on System Sciences-43 (HICSS-43) has been officially accepted. There is the potential to continue the development of this work, through collaboration on research projects with scholars and representatives from industry and thus to publish more insightful and comprehensive journal papers in the future.

References

Albert, S., & Whetten, D. A. (1985). Organizational Identity. In C. L.L. & B. M. Staw (Eds.), *Research in Organizational Behavior* (Vol. 7). Greenwich: JAI Press.
Alvesson, M. (2002). *Understanding Organizational Culture*. London: Sage Publications.
Amason, A. C., Hochwarter, W. A., Thompson, K. R., & Harrison, A. W. (1995). Conflict: An Important Dimension in Successful Management Teams. *Organizational Dynamic*, 24(2), 20-35.
Amason, A. C., & Schweiger, D. (1997). The Effects of Conflict on Strategic Decision Making Effectiveness and Organizational Performance. *International Journal of Conflict Management*, 5, 239-253.
Appelbaum, S. H., Shapiro, B., & Elbaz, D. (1998). The Management of Multicultural Group Conflict. *Team Performance Management*, 4(5), 211-234.
Ashforth, B. E., & Mael, F. A. (1996). Organizational Identity and Strategy as A Context for the Indivisual. In J. A. C. Baum & J. E. Dutton (Eds.), *Advices in Strategic Management* (Vol. 13). London: JAI Press Inc.
Bal, J., & Gundry, J. (1999). Virtual Teaming in the Automotive Supply Chain. *Team Performance Management: An International Journal*, 5(6), 174-193.
Barsade, S. (2002). The Ripple Effect: Emotional Contagion and Its Effect on Group Behavior. *Administrative Science Quarterly*, 47(4), 644-675.
Bazerman, M. H., Curhan, J. R., Moore, D. A., & Valley, K. L. (2000). Negotiation. *Annual Review of Psychology*, 51, 279-314.
Becker, H. S., & Geer, B. (1957). Participant Observation and Interviewing: A Comparison. *Human Organization*, 16(3), 28-32.
Bindloss, J. (1998). Your Boss is Watching You. *Independent*, 12.
Blake, R. R., & Mouton, J. S. (1961). Reactions to Intergroup Competition under Win-Lose Conditions. *Management Science*, July(7), 420-435.
Blake, R. R., & Mouton, J. S. (1964). *The Managerial Grid*. Houston: Gulf Publishing.
Blanc, H., & Sierra, C. (1999). The Internationalisation of R&D by Multinationals: A Trade-off between External and Internal Proximity. *Cambridge Journal Economics*, 23, 187-206.
Boulding, K. (1963). *Conflict and Defense*. NY: Harper & Row.
Brannen, M. Y., & Salk, J. E. (2000). Partnering across Borders: Negotiating Organisational Culture in a German-Japanese Joint Venture. *Human Relations*, 53(4), 451-487.
Brett, J. M., & Okumura, T. (1998). Inter- and Intra-cultural negotiations: U.S. and Japanese Negotiations. *Academy of Management Journal*, 41(5), 495-510.
Bryman, A. (2004). *Social Research Methods* (2nd ed.). Oxford: Oxford University Press.
Bryman, A., & Bell, E. (2003). *Business Research Methods*. Oxford: Oxford University Press.
Burgoon, J. K., & Hale, J. L. (1984). The Fundamental *Topoi* of Relational Communication. *Communication Monographs*, 51, 193-214.

Burn, J., Marshall, P., & Barnett, M. (2002). *E-business Strategies for Virtual Organizations*. Oxford: Butterworth-Heinemann.
Byron, K. (2008). Carrying Too Heavy A Load? The Communication and Miscommunication of Emotion by Email. *Academy of Management Review*, 33(2), 309-327.
Campbell, D. T. (1975). Degrees of Freedom and Case Study. *Comparative Political Studies*, 8, 178-193.
Carley, K. (1993). Coding Choices for Textual Analysis: A Comparison of Content Analysis and Map Analysis. *Sociological Methodology*, 23, 75-126.
Carlson, J. R., & Zmud, R. W. (1999). Channel Expansion Theory and the Experiential Nature of Media Richness Perceptions. *Academy of Management Journal*, 42(2), 153-170.
Carlson, P. J., & Davis, G. B. (1998). An Investigation of Media Selection among Directors and Managers: from 'Self' to 'Other' Orientation. *MIS Quarterly*, 22(3), 335-362.
Chafe, W., & Danielewicz, J. (1987). Properties of Spoken and Written Languages. In R. Horowitz & S. J. Samuels (Eds.), *Comparehending Oral and Written Language*. New York: Academic Press.
Chan, T. S. (1992). Emerging Trends in Export Channel Strategy: An Investigation of Hong Kong and Singaporean Firms. *European Journal of Marketing*, 26(3), 18-26.
Chan, W. T. (1963). *A Source Book in Chinese Philosophy*. Princeton: Princeton University Press.
Chappanis, A. (1988). Interactive Human Communication. In I. Grief (Ed.), *Computer Supported Cooperative Work: A Book of Readings*. San Mateo: Morgan Kaufmann Publishers.
Charmaz, K. (2006). *Constructing Grounded Theory- A practical Guild through Qualitative Analysis*. London: Sage.
Choe, J.-m. (2008). Inter-organizational Relationships and the Flow of Information through Value Chains. *Information & Management*, 45, 444-450.
Chua, W. F. (1986). Radical Development in Accounting Thought. *The Accounting Review*, October(4), 601-632.
Cialdini, R. B., & Richardson, K. D. (1980). Two Indirect Tactics of Image Management: Basking and Blasting. *Journal of Personality and Social Psychology*, 39(3), 406-415.
Clark, H., & Brennan, S. (1991). Grounding in Communication. In L. Resnick, J. Levine & S. Teasley (Eds.), *Perspectives on Socially Shared Cognition*. Washington: American Psychological Association.
Coleman, J. S. (1957). *Community Conflict*. NY: FreePress.
Contractor, N. S., & Eisenberg, E. M. (1990). Communication Networks and New Media in Organisations. In J. Fulk & C. Steinfeld (Eds.), *Organizations and Communication Technology*. Newbury Park: Sage.
Coser, L. A. (1956). *The Function of Social Conflict*. NY: Free Press.
Cox, A. (2004). Business Relationship Alignment: On the Commensurability of Value Capture and Mutuality in Buyer and Supplier Exchange. *Supply Chain Management: An International Journal*, 9(5), 410-420.

Crabtree, B. F., & Miller, W. L. (1992). Primary Care Research: A Multi-method Typology and Qualitative Road Map. In B. F. Crabtree & W. L. Miller (Eds.), *Doing Qualitative Research*. Thousand Oaks: Sage.
Creswell, J. W. (2007). *Qualitative Inquiry & Research Design - Choosing among Five Approaches (2nd Edition)*. Thousand Oaks: Sage.
Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. London: Sage.
Culnam, M. J., & Markus, M. L. (1987). Information Technologies. In F. M. Jabin, L. L. Putnam, K. H. Roberts & L. W. Porter (Eds.), *Handbook of Organizational Communication: An Interdisciplinary Perspective*. Newbury Park: Sage.
Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32(5), 554-571.
Daft, R. L., & Trevino, L. K. (1987). Message Equivocality, Media Selection, and Manager Performance: Implication for Information Systems. *MIS Quarterly*, 11(3), 355-366.
Daly-Jones, O., Monk, A., & Watts, L. (1998). Some Advantages of Video Conferencing Over High-Quality Audio Conferencing: Fluency and Awareness of Attentional Focus. *International Journal of Human-Computer Studies*, 49(1), 21-58.
De Dreu, C. K., Harinck, F., & Van Vianen, A. E. M. (1999). Conflict and Performance in Groups and Organisations. In C. C. L. & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology (Volume 14)*. Chichester: John Wiley & Sons.
De Dreu, C. K., & Van Vianen, A. E. M. (2001). Managing Relationship Conflict and the Effectiveness of Organizational Teams. *Journal of Organizational Behavior*, 22, 309.
De Dreu, C. K., & Weingart, L. R. (2003). Task versus Relationship Conflict, Team Performance, and Team Member Satisfaction: A Meta-Analysis. *Journal of Applied Psychology*, 88(4), 741-749.
De Dreu, C. K., Weingart, L. R., & Kwon, S. (2000). Influence of Social Motivations on Integrative Negotiation: A Meta-analytic Review and Test of Two Theories. *Journal of Personality and Social Psychology*, 78, 889-905.
Dean, J. P., Eichhorn, R. L., & Dean, L. R. (1967). *Observation and Interviewing*. New York: Appleton-Century-Crofts.
Dean, J. W., Jr. Brandes, P., & Dharwadkar, R. (1998). Organizational Cynicism. *Academy of Management Review*, 23, 341-352.
Defillippi, R. J. (2002). Organizational Models for Collaboration in the New Economy. *Human Resource Planning*, 25(4), 7-18.
Delbridge, R., & Kirkpatrick, I. (1994). Theory and Practice of Participant Observation. In V. Wass & P. Wells (Eds.), *Principles and Practice in Business and Management Research*. Aldershot: Dartmouth.
Dennis, A. R., Fuller, R. M., & Valacich, J. S. (2008). Media, Tasks and Communication Processes: A Theory of Media Synchronicity. *MIS Quarterly*, 32(3), 575-600.
Dennis, A. R., & Kinney, S. T. (1998). Testing Media Richness Theory in the New Media: The Effects of Cues, Feedback and Task Equivocality. *Information Systems Research*, 9(3), 256-274.

Denzin, N. K. (1978). *The Research Act*. New York: McGraw-Hill.
Denzin, N. K. (1998). The Art and Politics of Interpretation. In N. K. Denzin & Y. S. Lincoln (Eds.), *Collecting and Interpreting Qualitative Materials*. Thousand Oaks: Sage.
Denzin, N. K., & Lincoln, Y. S. (2005). *The Sage Handbook of Qualitative Research (3rd Edition)*. Thousand Oak: Sage.
DeSanctis, G., & Monge, P. (1998). Communication Processes for Virtual Organizations. *Journal of Computer-Mediated Communication*, 3(4), 0-0.
Deutsch, M. (1973). *The Resolution of Conflict*. New Haven: Yale University Press.
Deutsch, M. (1987). A Theoretical Perspective on Conflict and Conflict Resolution. In D. J. D. Sandole & I. Sandole-Staroste (Eds.), *Conflict Management and Problem Solving: Interpersonal to International Applications*. London: Frances Pinter.
Doherty-Sneddon, G., O'Malley, C., Garrod, S., Anderson, A., Langton, S., & Bruce, V. (1997). Face-to-Face and Video-Mediated Communication: A Comparison of Dialogue Structure and Task Performance. *Journal of Experimental Psychology: Applied*, 3(2), 105-125.
Doty, D. H., & Glick, W. H. (1994). Typologies as a Unique Form of Theory Building: Towards Improved Understanding and Modelling. *Academy of Management Review*, 19(2), 230-251.
Easterby-Smith, M., Thorpe, R., & Lowe, A. (2002). *Management Research - An Introduction*. London: Sage.
Edwards, C. (2006). Inside Intel. *Business Week*, January 9, 42-53.
Ellis, C. (1995). Emotional and Ethical Quagmire in Returning to the Field. *Journal of Contemporary Ethnography*, 24(1), 68-98.
Filley, A. C. (1975). *Interpersonal Conflict Resolution*. Glenview: Foresman.
Fink, C. F. (1968). Some Conceptual Difficulties in the Theory of Social Conflict. *Journal of Conflict Resolution*, 12, 412-460.
Fish, R. S., Krant, R. E., & Root, R. W. (1993). Video as a Technology for Informal Communication. *Communications of the ACM*, 36(1), 48-61.
Folger, R., & Skarlicki, D. P. (1998). When Tough Times Make Tough Bosses: Managerial Distancing as a Function of Layoff Blame. *Academy of Management Journal*, 41, 79-87.
Frankford-Nachmias, C., & Nachmias, D. (1996). *Research Methods in the Social Sciences*. London: St Martin's Press.
Frauenheim, E. (2004). Sony, Samsung Complete LCD Plant. *The Economist*.
Friedman, R., Chi, S. C., & Liu, L. A. (2006). An Expectancy Model of Chinese-American Differences in Conflict-avoiding. *Journal of International Business Studies*, 37, 76-91.
Friedman, R. A., & Currall, S. C. (2003). Conflict Escalation: Dispute Exacerbating Elements of E-mail Communication. *Human Relations*, 56(11), 1325-1347.
Fulk, J. (1993). Social Construction of Communication Technology. *Academy of Management Journal*, 36(5), 921-950.
Fulk, J., & Collins-Jarvis, L. (2000). Wired Meetings: Technological Mediation of Organizational Gatherings. In F. M. Jabin & L. L. Putnam (Eds.), *New Handbook of Organizational Communication*. Newbury Park: Sage.

Fulk, J., Schmitz, J., & Steinfeld, C. W. (Eds.). (1990). *A Social Influence Model of Technology Use*. CA: Sage.
Fulk, J., Steinfeld, C., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), 529-552.
Gale, S. (1990). Human Aspects of Interactive Multi-media Communication. *Interacting with Computers*, 2(2), 175-189.
Geer, B. (1964). *First Days in the Field*. New York: Basic Books.
Gesteland, R. R. (2002). *Cross-Cultural Business Behaviour*. Gylling: Copenhagen Business School Press.
Gill, J., & Johnson, P. (1997). *Research Methods for Managers (2nd Edition)*. London: Paul Chapman.
Gillham, B. (2000). *Case Study Research Methods*. London: Continuum.
Gillham, B. (2005). *Research Interviewing: The Range of Techniques*. Maidenhead: Open University Press.
Glaser, B. G., & Strauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine Publishing Company.
Gold, C. Y. (1958). Roles in Sociological Fieldwork. *Social Forces*, 36, 217-223.
Gorden, J. R. (1991). *A Diagnostic Approach to Organizational Behaviour*. Boston: Allyn & Bacon.
Gregor, S. (2006). The Nature of Theory in Information Systems. *MIS Quarterly*, 30(3), 611-642.
Guba, E. G. (1985). The Contect of Emergent Paradigm Research. In Y. S. Lincoln (Ed.), *Organization Theory and Inquiry: The Paradigm Revolution*. Beverly Hills: Sage.
Guba, E. G. (1990). The Alternative Paradigm Dialog. In E. G. Guba (Ed.), *The Paradigm Dialog*. Newburry Park: Sage.
Guba, E. G., & Lincoln, Y. S. (1988). Do Inquiry Paradigms Imply Inwuiry Methodologies? In D. M. Fetterman (Ed.), *Qualitative Approaches to Evaluation in Education - The Silent Scientific Revolution*. New York: Praeger.
Guba, E. G., & Lincoln, Y. S. (1994). Competing Paradigm in Qualitative Research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research*. Thousand Oaks: Sage.
Gudykunst, W. B., & Nishida, T. (1984). Individual and Cultural Influences on Uncertainty Reduction. *Communication Monographs*, 51, 26-36.
Guetzkow, R., & Gyr, J. (1954). An Analysis of Conflict in Decision Making Groups. *Human Resource Relations*, 7, 367-381.
Guirdham, M. (1999). *Communicating across Cultures*. London: Macmillan Business.
Gules, H. K., & Burgess, T. F. (1996). Manufacturing Technology and the Supply Chain: Linking Buyer-Supplier Relationships and Advanced Manufacturing Technology. *European Journal of Purchasing & Supply Management*, 2(1), 31-38.
Hacker, K. L., Goss, B., Townley, C., & Horton, V. J. (1998). Employee Attitudes Regarding Electronic Mail Policies. *Management Communication Quarterly*, 11(3), 422-452.
Hall, E. T. (1976). *Beyond Culture*. New York: Doubleday.

Hamm, S. (2006). Speed Demons. *Business Week*, March 27, 68-76.
Heider, F. (1958). *Psychology of Interpersonal Relations*. New York: Wiley.
Herriott, R. E., & Firestone, W. A. (1983). Multisite Qualitative Policy Research: Optimizing Description and Generalzability. *Education Researcher*, 12, 14-19.
Hill, C. W. L. (2002). *International Business- Competing in the Global Marketplace: Postscript 2002 Third Edition*: McGraw-Hill Higher Education.
Hiltz, S. R., & Turoff, M. (1986). Experiments in Group Decision Versus Computerized Conferences. *Human Communication Research*, 13, 225-252.
Hofstede, G. (1984). *Culture's Consequences: International Differences in Work-related Values*. CA: Sage.
Hofstede, G., & Usunier, J.-C. (2003). Hofstede's Dimensions of Culture and their Influence on International Business Negotiations. In P. N. Ghauri & J.-C. Usunier (Eds.), *International Business Negotiations (2nd Edition)*. Amsterdam: Pergamon.
Hoon-Halbauer, S. K. (1999). Managing Relationships within Sino-Foreign Joint Venture. *Journal of World Business*, 34(4), 344-371.
Howard, M., & Squire, B. (2007). Modularization and the Impact on Supply Relationships. *International Journal of Operations & Production Management*, 27(11), 1192-1212.
Inman, M. L., & Baron, R. S. (1996). Influence of Prototypes on Perceptions of Prejudice. *Journal of Personality and Social Psychology*, 70, 727-739.
Jehn, K. A. (1997). A Qualitative Analysis of Conflict Types and Dimensions in Organizational Groups. *Administrative Science Quarterly*, 42, 530-557.
Jehn, K. A., & Mannix, E. A. (2001). The Dynamic Nature of Conflict: A Longitudinal Study of Intragroup Conflict and Group Performance. *Academy of Management Journal*, 44(2), 238-251.
Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why Differences Make a Difference: A field Study of Diversity, Conflict, and Performance in Workgroups. *Administrative Science Quarterly*, 44, 741-763.
Jones, J., Saunder, C. S., & McLeod, R. J. (1989). Information Media and Source Patterns Across Management Levels: A Pilot Study. *Journal of Management Information Systems*, 5(3), 71-84.
Julian, J. W., & Perry, F. A. (1967). Cooperation Contrasted with Intra-group and Inter-group Competition. *Sociometry*, 30, 79-90.
Katsorchi-Hayes, M., & Dunning-Lewis, P. (2006). Competing Meanings of Virtuality & Organisational Work: Workshop on Virtuality and Society, *First International Workshop on Virtuality and Society: Emerging Themes (IFIP WG9.5)*. London.
Kersten, G. E., Koszegi, S. T., & Vetschera, R. (2002). The Effects of Culture in Anonymous Negotiations, *The 35th IEEE Conference on System Sciences*.
Kiesler, S., Siegel, J., & McGuire, T. (1984). Psychological Aspects of Computer-mediated Communication. *American Psychologist*, 39, 1123-1134.
Kim, J. B., & Michell, P. (1999). Relationship Marketing in Japan: The Buyer-Supplier Relationships of Four Automakers. *Journal of Business & Industrial Marketing*, 14(2), 118-129.
Kluchkohn, F. R. (1940). The Participant Observer Technique in Small Communities. *The America Journal of Sociology*, 46(3), 331-343.

Kock, N. (1998). Can Communication Medium Limitations Foster Better Group Outcomes? An Action Research Study. *Information & Management*, 34(5), 295-305.
Kock, N. (2001). Compensatory Adaptation to a Lean Medium: An Action Research Investigation of Electronic Communication in Process Improvement Groups. *IEEE Transactions on Professional Communication*, 44(4), 267-285.
Kock, N. (2004). The Psychobiological Medium: Towards a New Theory of Computer-Communication Based on Darwinian Evolution. *Organizational Science*, 15(3), 327-348.
Komorita, S. S., & Lapworth, C. W. (1982). Cooperative Choice Among Individuals versus Groups in an N-person Dilemma Situation. *Journal of Personality and Social Psychology*, 42(3), 487-496.
Kraut, R. E., Rice, R. E., Cool, C., & Fish, R. S. (1998). Varieties of Social Influence: The Role of Utility and Norms in the Success of a New Communication Medium. *Organization Science*, 9(4), 437-453.
Kroeber, A. L., & Kluckhohn, C. (1952). *Culture: A Critical Review of Concepts and Definitions*. Cambridge: Harvard University Press.
Kuhn, T. S. (1970). *The Structure of Scientific Revolutions (2nd Edition)*. Chicago: University of Chicago Press.
Kunda, G. (1992). *Engineering Culture: Control and Commitment in a High-Tech Corporation*. Philadephia: Temple University Press.
Kydd, C. T., & Ferry, D. L. (1994). Managerial Use of Video Conferencing. *Information & Management*, 27, 369-375.
Layder, D. (1993). *New Strategies in Social Research*. Cambridge: Polity.
Lea, M., & Spears, R. (1991). Computer-Mediated Communication, De-individuation and Group Decision-Making. *International Journal of Man-Machine Studies*, 34(2), 283-301.
Lee, A. S. (1991). Integrating Positivist and Interpretive Approaches to Organizational Research. *Organizationa Science*, 2(4), 342-365.
Lee, A. S. (1994). Electronic Mail as a Medium for Rich Communication: An Empirical Investigation Using Hermeneutic Interpretation. *MIS Quarterly*, 18(2), 143-157.
Leminen, S. (2001a). Development of Gaps in Buyer-Seller Relationships. *Management Decision*, 39(6), 470-474.
Leminen, S. (2001b). Gaps in Buyer-Seller Relationships. *Management Decision*, 39(3), 180-189.
Leonard, D. A., Brands, P., Edmondson, A., & Fenwick, J. (1998). *'Virtual' Teams: Using Communications Technology to Manage Geographically Dispersed Development Groups* Harvard Business School Press.
Leung, K. (1997). Negotiation and Reward Allocations Across Cultures. In P. C. Earley & M. Erez (Eds.), *New Perspectives on International Industrial/Organizational Psychology*. San Francisco: Jossey-Bass.
Leung, K., Koch, P. T., & Lu, L. (2002). A Dualistic Model of Harmony and its Implications for Conflict Management in Asia. *Asia Pacific Journal of Management*, 19(2-3), 201-220.
Lewicki, R. J., Barry, B., Saunders, D., & Minton, J., W. (2003). *Negotiations*. New York: McGraw-Hill.

Linton, R. (1945). *The Cultural Background of Personality*. New York: Appleton-Century.
Lofland, J., & Lofland, L. H. (1984). *Analyzing Social Setting*. CA: Wadsworth.
Luppicini, R., & Adell, R. (Eds.). (2009). *Handbook of Research on Technoethics*. Ontario: Information Science Reference.
Ma, R. (1984). Computer-Mediated Conversations as a New Dimension of Inter-Cultural Communication between East Asian and North American College Students. In S. C. Herring (Ed.), *Computer-mediated Communication - Linguistic, Social and Cross-Cultural Perspectives*. Philadelphia: John Benjamins B.V.
Magretta, J. (1998, March-April). The Power of Virtual Integration: An Interview with Dell Computer's Michael Dell. *Harvard Business Review*, 72-84.
Mann, C., & Stewart, F. (2000). *Internet Communication and Qualitative Research-A Handbook for Researching Online*. London: Sage.
Markus, M. L. (1994). Electronic Mail as the Medium of Managerial Choice. *Organization Science*, 5(4), 502-527.
Maznevski, M. L., & Chudoba, K. M. (2000). Bridging Space over Time: Global Virtual Team Dynamics and Effectiveness. *Organizational Science*, 11(5), 473-492.
McCall, G. J., & Simmons, J. L. (1969). *Issues in Participant Observation: A Text and Reader*. Reading: Addison-Wesley Publishing Company.
McCallum, D. M., Harring, K., Gilmore, R., Drenan, S., Chase, J. P., Insko, C. A., et al. (1985). Competition and Cooperation between Groups and between Individuals. *Journal of Experimental Social Psychology*, 21, 301-320.
McQueen, R., & Knussen, C. (2002). *Research Methods for Social Science*. Harlow: Premtice Hall.
Mertens, D. M. (1998). *Research Methods in Education and Psychology: Integrating Diversity with Quantitative and Qualitative Approaches*. Thousand Oaks: Sage.
Miles, M. B. (1979). Qualitative Data as an Attractive Nuisance: The Problem of Analysis. *Administrative Science Quarterly*, 24, 590-601.
Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis (2nd Edition)*. London: Sage.
Millar, F. E., & Rogers, L. E. (1976). A Relational Approach to Interpersonal Communication. In G. R. Miller (Ed.), *Explorations in Interpersonal Communication*. Beverly Hills: Sage.
Miller, S. M. (1952). The Participant Observation and 'Over-Rapport'. *American Sociological Review*, 17, 97-99.
Morris, M. W., Williams, K. Y., Leung, K., Larrick, R., Mendoza, M. T., Bhatnagar, D., et al. (1998). Conflict Management Style: Accounting for Cross-national Difference. *Journal of International Business Studies*, 29(4), 729-748.
Morsbach, H. (1973). Aspects of Nonverbal Communication in Japan. *The Journal of Nervous and Mental Disease*, 157, 266-277.
Munro, K. (2008, April 30). Simple Rules that Make Social Networking Safer. *Financial Times*.
Nandahakumar, J., & Jones, M. (1997). Too Close to Comfort? Distance and Engagement in Interpretive Information System Research. *Information System Journal*, 7, 109-131.

Nandhakumar, J., & Jones, M. (1997). Too Close to Comfort? Distance and Engagement in Interpretive Information System Research. *Information System Journal*, 7, 109-131.
Nandhakumar, J., & Jones, M. (2002). Development Gain? Participant Observation in Interpretive Management Information System Research. *Qualitative Research*, 2(3), 323-341.
Nielson, C. C. (1998). An Empirical Examination of the Role of 'Closeness' in Industrial Buyer-Seller Relationships. *European Journal of Marketing*, 32(5/6), 441-463.
Nunamaker, J. F., Dennis, A. R., Valacich, J. S., Vogel, D. R., & George, J. F. (1991). Electronic Meeting Systems to Support Group Work. *Communications of the ACM*, 34(7), 40-61.
Ohbuchi, K. Y., & Takshashi, Y. (1994). Cultural Styles of Conflict Management in Japanese and Americans: Passivity, Convertness and Effective ness of Strategies. *Journal of Applies Social Psychology*, 24(15), 1345-1366.
Orlikowski, W. J., & Baroudi, J. J. (1991). Studying Information Technology in Organizations: Research Approaches and Assumptions. *Information Syetems Research*, March, 1-28.
Orlikowski, W. J., & Yates, J. (1994). Genre Repertoire: The Structuring of Communicative Practices in Organizations. *Administrative Science Quarterly*, 39(4), 541-574.
Ortner, S. B. (1984). Theory in Anthropology since the Sixties. *Comparative Studies in Society and History*, 26(1), 126-166.
Panteli, N. (2002). Richness, Power Cues and Email Text. *Information & Management*, 40, 75-86.
Panteli, N., & Dawson, P. (2001). Video Conferencing Meetings: Changing Patterns of Business Communication. *New Technology, Work and Employment*, 16(2), 88-99.
Panteli, N., & Fineman, S. (2005). The Sound of Silence: The Case of Virtual Team Organising. *Behaviour & Information Technology*, 24(5), 347-352.
Parkin, F. (Ed.). (2002). *Max Weber (Revised Edition)*. Padstow: Routledge.
Parks, M. R. (1977). Relational Communication: Theory and Research. *Human Communication Research*, 3, 372-381.
Patton, M. (1987). *How to Use Qualitative Methods in Evaluation*. Newburry Park: Sage.
Pendharkar, P. C., & Young, J. (2004). The Development of a Construct for Measuring an Individual's Perceptions of Email as a Medium for Electronic Communication in Organizations. *IEEE Transactions on Professional Communication*, 47(2), 130-143.
Pettigrew, A., & Whipp, R. (1991). *Managing Change for Competitive Success*. Oxford: Blackwell.
Phatak, A. V., & Habib, M., M. (1999). The Dynamics of International Business Negotiations. In R. J. Lewicki, D. M. Saunders & J. Minton, W. (Eds.), *Negotition (3rd Edition)*. Boston: Irwin/McGraw-Hill.
Pinkley, R. L. (1990). Dimensions of Conflict Frame: Disputant Interpretations of Conflict. *Journal of Applied Psychology*, 75(2), 117-126.

Pondy, L. R. (1967). Organizational Conflict: Concepts and Models. *Administrative Science Quarterly*, 12, 296-320.
Poole, M. S., & DeSanctis, G. (1990). Understanding the Use of Group Decision Support Systems: The Theory of Adaptive Structuration. In J. Fulk & C. Steinfeld (Eds.), *Organizations and Communication Technology*. Newbury Park: Sage.
Poole, M. S., M., H., & DeSanctis, G. (1991). Conflict Management in Computer-supported Meeting Environment. *Management Science*, 37(8), 926-953.
Poole, M. S., Shannon, D. L., & DeSanctis, G. (Eds.). (1992). *Communication Media and Negotiation Processes*. CA: Sage.
Popper, K. (1980). *The Logic of Scientific Discovery*. London: Unwin Hyman.
Prasad, K., & Akhilesh, K. (2002). Global Virtual Teams: What Impacts Their Design and Performance. *Team Performance Management*, 8(5/6), 102-112.
Pruitt, D. G., & Rubin, J. Z. (1986). *Social Conflict: Escalation, Stalement and Settlement*. New York: Random House.
Putnam, L. L., & Poole, M. S. (1987). Conflict and Negotiation. In F. M. Jabin, L. L. Putnam, K. H. Roberts & L. W. Porter (Eds.), *Handbook of Organizational Communication: An Interdisciplinary Perspective*. Newbury Park: Sage.
Rahim, M. A. (1990). Moderating Effects of Hardiness and Social Support on the Relationships of Conflict and Stress to Job Burnout and Performance. In M. A. Rahim (Ed.), *Theory and Research in Conflict Management*. New York: Praeger.
Rahim, M. A. (2001). *Managing Conflict in Organizations (3rd Edition)*. Westport: Quorum Books.
Reardon, J., & Hasty, R. W. (1996). International Vendor Relations: A Perspective Using Game Theory. *International Journal of Retail & Distribution Management*, 24(1), 15-23.
Reid, D. A., Pullins, E. B., & Buehrer, R. E. (2004). Measuring Buyers' Perspections of Conflict in Business-to-Business Sales Interactions. *Journal of Business & Insudtrial Marketing*, 19(4), 236-249.
Rein, M., & Schon, D. (1977). Problem Setting in Policy Research. In C. Weiss (Ed.), *Using Social Policy Research in Public Policy-Making*. Lexington: D.C. Heath.
Rice, R. E., Kraut, R. E., Cool, C., & Fish, R. S. (1994). Individual Structural and Social Influences on Use of a New Communication Medium. *Academy of Management Best Papers Proceedings*, 185-289.
Rice, R. E., & Love, G. (1987). Electronic Emotion: Socio-emotional Content in a Computer-Mediated Communication Network. *Communication Research*, 14, 85-108.
Ritzer, G. (1975). Sociology: A Multiple Paradigm Science. *American Psychologist*, 10, 156-167.
Robson, C. (1993). *Real World Research*. Oxford: Blackwell.
Robson, C. (2002). *Real World Research (2nd Edition)*. Malden: Blackwell.
Roloff, M. E., & Ifert, D. E. (2000). Conflict Management through Avoidance: Withholding Complaints, Suppressing Arguements, and Declaring Topics Taboo. In S. Petronio (Ed.), *Balancing the Secrets of Private Disclosures*. Mahwah: Erlbaum.
Rubin, H. J., & Rubin, I. S. (1995). *Qualitative Interviewing: The Art of Hearing Data*. Thousand Oaks: Sage.
Rubin, J. Z., Pruitt, D. G., & Kim, S. H. (1994). *Social Conflict: Escalation, Stalemate, and Settlement (2nd edition)* (2nd ed.). New York: McGraw-Hill, Inc.

Russ, G. S., Daft, R. L., & Lengel, R. H. (1990). Media Selection and Managerial Characteristics in Organizational Communication. *Management Communication Quarterly*, 4(2), 151-175.
Sano, N., & Yamaguchi, S. (1999). Is Silence Golden? A Cross-Cultural Study on the Meaning of Silence. In T. Suguman, M. Karasawa & J. Liu (Eds.), *Progress in Asian Social Psychology: Theorical and Empirical Contributions*. NY: Wiley.
Saunders, M. N., Lewis, P., & Thornhill, A. (2000). *Research Methods for Business Students (2nd Edition)*. Essex: Prentice Hall.
Schall, M. S. (1983). A Communication-rules Approach to Organizational Culture *Administrative Science Quarterly*, 28(4), 557-581.
Schein, E. H. (1980). *Organizational Psychology*. Englewood: Prentice-Hall.
Schmidt, S. M., & Kochan, T. A. (1972). Conflict: Toward Conceptual Clarity. *Administrative Science Quarterly*, 17, 359-370.
Schultze, U., & Orlikowski, W. J. (2001). Mataphors of Virtuality: Shaping an Emergent Reality. *Information and Organization*, 11, 45-77.
Schwandt, T. A. (1994). Constructivist, Interpretivist Approaches to Human Inquiry. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research*. Thousand Oaks: Sage.
Schwartz, M. S., & Schwartz, C. G. (1995). Problems in Participant Observation. *The America Journal of Sociology*, 60(4), 343-353.
Sheffi, Y. (2006). The Physical Internet- A Survey of Logistics. *The Economist*, June 17th, 3-4.
Shin, Y. (2005). Conflict Resolution in Virtual Teams. *Organizational Dynamics*, 34(4), 331-345.
Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London: John Wiley.
Simmel, G. (1955). *Conflict and the Web of Group-Affiliations*. NY: Free Press.
Snape, D., & Spencer, L. (Eds.). (2003). *The Foundations of Qualitative Research*. London: Sage.
Spears, R., Lea, M., & Lee, S. (1990). De-individuation and Group Polarization in Computer Mediated Communication. *British Journal of Social Psychology*, 29(2), 121-134.
Sproull, L., & Kiesler, S. (1992). *Connections: New Ways of Working in the Networked Organization*. Cambridge: MIT Press.
Stake, R. E. (1994). Case Studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research*. Thousand Oaks: Sage.
Stake, R. E. (2000). Case Studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research (2nd Edition)*. Thousand Oaks: Sage.
Stake, R. E. (2006). *Multiple Case Study Analysis*. New York: Guildford Press.
Steinfeld, C., & Fulk, J. (Eds.). (1986). *Task Demands and Managers' Use of Communications Media: An Information Processing View*. Chicago.
Strauss, A., & Juliet, C. (Eds.). (1998). *Grounded Theory Methodology- An Overview*. Thousand Oaks: Sage.
Strauss, A., Schatzman, L., Bucher, R., Ehrlich, D., & Sabshin, M. (1964). *Psychiatric Ideologies and Institution*. New York: Free Press.

Swierczek, F. W., & Onishi, J. (2002). Culture and Conflict: Japanese Managers and Thai Subordinates. *Personal Review*, 32(2), 187-210.
Tajfel, H. (1981). *Human Groups and Social Categories: Studies in Social Psychology*. Cambridge: Cambridge University Press.
Tanenaka, K., & Layne, N. (2004). Sony, Samsung to Share Patents. *The Economist*.
Tang, J. C., & Isaacs, E. A. (1992). Why Do Users Like Video? Studies of Multimedia-Supported Collaboration. *Computer Supported Cooperative Work*, 1(3), 163-193.
Tang, J. T. E., Shee, D. Y., & Tang, T. I. (2001). A Conceptual Model for Interactive Buyer-Supplier Relationship in Electronic Commerce. *International Journal of Information Management*, 21, 49-68.
Te'eni, D. (2001). A Congnitive-Affective Model of Organizational Communication for Designing IT. *MIS Quarterly*, 25(2), 251-312.
TheEconomist. (2008). A Special Report on Mobility. *The Economist, April 12th-18th*.
TheEconomist. (2009). A Special Report on Health Care and Technology. *The Economist, April 18th-24th 2009*.
Thoman, K. W., & Pondy, L. R. (1977). Toward an 'Intent' Model of Conflict Management Among Principal Parties. *Human Relations*, 30(12), 1089-1102.
Thomas, K. (1976). Conflict and Conflict Management. In M. D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology*. Chicago: Rand McNally.
Thomas, K. W. (1992). Conflict and Conflict Management: Reflections and Update. *Journal of Organizational Behavior*, 13, 265-274.
Thomas, K. W., & Pondy, L. R. (1977). Toward an 'Intent' Model of Conflict Management among Principal Parties. *Human Relations*, 30(12), 1089-1102.
Thompson, L. (1998). *The Mind and Heart of the negotiator*. Upper Saddle River: Prentice-Hall.
Tjosvold, D., & Sun, H. (2002). Understanding Conflict Avoidance: Relationship, Motivations, Actions, and Consequences. *International Journal of Conflict Management*, 13(2), 142-164.
Townsend, A. M., DeMarie, S. M., & Hendrickson, A. R. (1998). Virtual Teams: Technology and the Workplace of the Future. *Academy of Management Executive*, 12, 17-29.
Trevino, L. K., Daft, R. L., & Lengel, R. H. (1990). Understanding Manger's Media Choice: A Symbolic Interactionist Perspective. In J. Fulk & C. Steinfeld (Eds.), *Organizations and Communication Technology*. Newbury Park: Sage.
Trevino, L. K., Lengel, R. H., & Daft, R. L. (1987). Media Symbolism, Media Richness, and Media Choice in Organizations. *Communication Research*, 134(4), 438-455.
Triandis, H. C. (1972). *The Analysis of Subjective Culture*. New York: John Wiley.
Triandis, H. C., & Albert, R. D. (1987). Cross-Cultural Perspectives. In F. M. Jabin, L. L. Putnam, K. H. Roberts & L. W. Porter (Eds.), *Handbook of Organizational Communication*. Newbury Park: Sage.
Trow, M. (1957). Comment on 'Participant Observation and Interviewing: A Comparision'. *Human Organization*, 16(3), 33-35.

Turnball, P. W., & Wilson, D. (1989). Developing and Protecting Profitable Customer Relationships. *Industrial Marketing Management*, 18(1), 1-6.
Ulijn, J. M., & Lincke, A. (2004). The Effect of CMC and FTF on Negotiation Outcomes between R&D and Manufacturing Partners in the Supply Chain: An Anglo/Nordic/Latin Comparison. *International Negotiation*, 9, 111-140.
Usunier, J.-C. (2003). Cultural Aspects of International Business Negotiations. In P. N. Ghauri & J.-C. Usunier (Eds.), *International Business Negotiations (2nd Edition)*. Amsterdam: Pergaman.
Van de Vliert, E. (1984). Conflict - Prevention and Escalation. In P. J. D. Drenth, H. Thierry, P. J. Willems & C. J. De Wolff (Eds.), *Handbook of Work and Organizational Psychology*. Chichester: John Wiley & Sons.
Wall, J. A., & Callister, R. R. (1995). Conflict and Its Management. *1995*, 21, 515-558.
Walsham, G. (1995). Interpretive Case Studies in IS Research: Nature and Method. *European Journal of Information Systems*, 4, 74-81.
Walter, A., & Ritter, T. (2003). The Influence of Adaptations , Trust, and Commitment on Value-Creating Function of Customer Relationships. *Journal of Business & Insudtrial Marketing*, 18(4/5), 353-365.
Walther, J. B. (1992). Interpersonal Effects in Computer Mediated Interaction: A Relational Perspective. *Communication Research*, 19(1), 52-90.
Walther, J. B. (1995). Relational Aspects of Computer-Mediated Communication: Experimental Observations Over Time. *Organization Science*, 6(2), 186-203.
Walther, J. B. (1996). Computer-mediated Communication: Impersonal, Interpersonal, and Hyperpersonal Interaction. *Communication Research*, 23(1), 3-43.
Walton, R. E., & Dutton, J. M. (1969). The Management of Interdepartmental Conflict: A Model and Review. *Administrative Science Quarterly*, 14, 73-84.
Watson-Manheim, M. B., & Belanger, F. (2007). Communication Media Repertoires: Dealing with Multiplicity of Media Choices. *MIS Quarterly*, 31(2), 267-293.
Weber, M. (1947). *The Theory of Social and Economic Organization* (A. M. Henderson & T. Parsons, Trans.). New York: The Free Press.
Webster, J., & Trevino, L. K. (1995). Rational and Social Theories as Complementary Explanations of Communication Media Choices: Two Policy-capturing Studies. *Academy of Management Journal*, 38(6), 1544-1572.
Webster, N. (1983). *New Twentieth Century Dictionary (2nd edition)*. New York: Simon & Schuster.
Weitz, B. A., & Bradford, K. D. (1999). Personal Selling and Sales Management: A Relationship Marketing Perspective. *Journal of Academy of Marketing Science*, 27(2), 241-254.
Whitehead, P. A. (1986). Profitably Marketing Products Through Grocery Retailers. *European Journal of Marketing*, 20(6), 52-67.
Whyte, W. F. (1979). On Making the Most of Participant Observation. *The American Sociologist*, 14, 56-66.
Wilson, D. T. (1995). An Integrated of Buyer-Seller Relationships. *Journal of the Academy of Marketing Science*, 23(4), 335-345.
Wolcott, H. F. (Ed.). (1992). *Posturing in Qualitative Inquire*. New York: Academic Press.

Wong, A., Tjosvold, D., Wong, W. Y. L., & Liu, C. K. (1999). Cooperative and Competitive Conflict for Quality Supply Partnerships between China and Hong Kong. *International Journal of Physical Distribution & Logistics Management*, 29(1), 7-21.

Yates, S. J. (1984). Oral and Written Linguistic Aspects of Computer Conferencing. In S. C. Herring (Ed.), *Computer-mediated Communication - Linguistic, Social and Cross-Cultural Perspectives*. Philadelphia: John Benjamins B.V.

Yates, S. J., & Orlikowski, W. J. (1992). Genres of Organizational Communication: A Structurational Approach to Studying Communication and Media. *The Academy of Management Review*, 17(2), 299-326.

Yin, R. K. (2003a). *Applications of Case Study Research*. Thousand Oaks: Sage.

Yin, R. K. (2003b). *Case Study Research: Design and Methods (3rd Edition)*. Thousand Oaks: Sage.

Yoo, Y., & Alavi, M. (2001). Media and Group Cohesion: Relative Influences on Social Presence, Task Participation and Group Consensus. *MIS Quarterly*, 25(3), 371-390.

Zack, M. H. (1993). Interactivities and Communication Mode Choice in Ongoing Management Groups. *Information Systems Research*, 4(3), 440-457.

Zigurs, I., & Buckland, B. K. (1998). A Theory of Task-Technology Fit and Group Support Systems Effectiveness. *MIS Quarterly*, 22(3), 313-334.

Ziv, O. (1996). Writing to Work: How Using E-mail Can Reflect Technological and Organizational Change. In S. C. Herring (Ed.), *Computer-Mediated Communication: Linguistic, Social and Cross-Cultural Perspectives*. Philadelphia: John Benjamins Publishing.

Appendix A: Interview questions

- **Initial questions:**
  1. What is your role / position / job function in the company?
  2. Is this the first time that you have experienced…? (It is assumed that some specific events happened in the first three-month observation). [If so] What do you think? How do you feel? Did anyone influence your thinking and action? Why? How? Is their influence helpful to deal with…? [If not] Tell me what happened last time. What is the difference between this time and last time? How did you deal with the issues before? How did you feel? Why did it occur again?
  3. What kind of communication media did you use when the above events happened?
  4. Did you change the use of communication media to assist your conversation?
  5. How would you describe the communication media that have impacted on your work?
  6. What has been going on in your work? Has anything been changing / changed?
- **Intermediate questions:**
  1. Have you had any disagreement or argument about…with your customers or suppliers?
  2. Does it usually happen when you communicate in person or by any certain electronic communication tools, such as emails, telephone or…?
  3. Are there special cases that stand out in your mind? What are they?
  4. Could you give examples that some cases or events were tricky, unforgettable or important?
  5. Have you insisted on certain issues that had to follow the ways you suggested? What are they? Why?
  6. Tell me your feeling and thinking after experiencing the events?
  7. Who were involved in these events, if anyone? When and how did they get involved? How did you feel about their involvement?
  8. What were the results of experiencing the events?
  9. What is the positive / negative influence in your work after the events?
  10. Do you think the electronic communication tools influence your conversation positively / negatively?
  11. What is the most important lesson you have learned from the events?
- **Ending questions:**
  1. What do you think are the most difficult factors regarding your cooperation with people in different companies in different countries?
  2. What do you think are the most important factors that influence your collaboration with your customers or suppliers?
  3. Do you think anything in your organisation needs to be changed?
  4. Do you think any existing IS or electronic communication techniques are useless for your work? Why?
  5. Do you think more investments on specific IS in your company would be necessary? Why do you think they would be helpful?
  6. If you had enough power to change something in your organisation, what would you want to do?
  7. Is there anything else you think I should know?

Appendix B: Background information on key personnel

Case participated	Firm	Team member (Abbreviation)	Dept.	Position	Gender	Nationality	Language
T-COM/AK T-COM/BK T-COM/CK T-COM/DK	T-COM	SC	DQA	Senior Manager	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; Hardly speaks English
	T-COM	CC	DQA	Supervisor	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; Hardly speaks English
	T-COM	SW	DQA	Engineer	M	Taiwanese	Native: Mandarin Foreign: Awkward English writing and speaking
	T-COM	JL	DQA	Manager Assistant/ Engineer	F	Taiwanese	The researcher
T-COM/AK T-COM/BK	T-COM	NL	R&D Team I	Senior Project Manager	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; Awkward English speaking
	T-COM	BC	R&D Team I	Project Manager	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; Awkward English speaking
	T-COM	SCH	R&D Team I	Project Manager	F	Taiwanese	Native: Mandarin Foreign: Fluent English writing and speaking
	T-COM	SKU	R&D Team I	Project Manager	F	Taiwanese	Native: Mandarin Foreign: Fluent English writing and speaking
	T-COM	AHU	Purchase Team I	Senior Manager	M	Taiwanese	Native: Mandarin Foreign: Fluent English writing and speaking
	T-COM	SCU	Purchase Team I	Purchaser	F	Taiwanese	Native: Mandarin Foreign: Fluent English writing and speaking
	T-COM	LCH	Purchase Team I	Purchaser	F	Taiwanese	Native: Mandarin Foreign: Fluent Korean speaking Foreign: Fluent English writing and speaking
T-COM/AK T-COM/BK	T-COM	PC	R&D Team II	Project Manager	F	Taiwanese	Native: Mandarin Foreign: Fluent Japanese writing and speaking Foreign: Regular English writing; Awkward English speaking
	T-COM	TP	Purchase Team II	Senior Manager	M	Taiwanese	Native: Mandarin Foreign: Fluent English writing and speaking
	T-COM	MC	Purchase Team II	Purchaser	F	Taiwanese	Native: Mandarin Foreign: Regular English writing; Awkward English speaking
T-COM/CK T-COM/DK	T-COM	SUC	Purchase Team III	Project Manager	F	Taiwanese	Native: Mandarin Foreign: Regular English writing; Hardly speaks English
	T-COM	MIL	Purchase Team III	Senior Manager	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; Hardly speaks English
	T-COM	HOC	Purchase Team III	Purchaser	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; Hardly speaks English

Appendix B: Background information on key personnel (cont.)

Case participated	Firm	Team member (Abbreviation)	Dept.	Position	Gender	Nationality	Language
T-COM/AK	AK	SS	FAE Team I	Senior Manager	M	Korean	Native: Korean Foreign: Regular English writing; Medium Mandarin speaking
	AK	PT	FAE Team I	Engineer	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; hardly speaks any foreign languages
	AK	SL	FAE Team II	Senior Manager	M	Korean	Native: Korean Foreign: Regular English writing ; Fluent Mandarin speaking
	AK	JS	FAE Team II	Engineer	F	Taiwanese	Native: Mandarin Foreign: Regular English writing; hardly speaks any foreign languages
	AK	JB	CS	Senior Manager	M	Korean	Native: Korean Foreign: Regular English writing; Awkward Mandarin speaking
	AK	JC	CS	Manager	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; hardly speaks any foreign languages
	AK	LC	CS	Engineer	F	Taiwanese	Native: Mandarin Foreign: Regular English writing; hardly speaks any foreign languages
	AK	JEC	Sales	Manager	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; hardly speaks any foreign languages
T-COM/BK	BK	SK	FAE	Senior Manager	M	Korean	Native: Korean Foreign: Regular English writing; Awkward Mandarin speaking
	BK	TW	FAE	Engineer	F	Taiwanese	Native: Mandarin Foreign: Regular English writing; hardly speaks any foreign languages
	BK	CL	CS	Senior Manager	M	Korean	Native: Korean Foreign: Regular English writing ; Fluent Mandarin speaking
	BK	JW	CS	Engineer	M	Taiwanese	Native: Mandarin Foreign: Regular English writing; hardly speaks any foreign languages
T-COM/CK	CK	RL	CS	Senior Manager	M	Taiwanese	Native: Mandarin Foreign: Fluent English writing and speaking
	CK	JJ	Sales	Senior Manager	M	Korean	Native: Korean Foreign: Regular English writing ; Fluent Mandarin speaking
T-COM/DK	DK	KW	CS	Manager	M	Korean	Native: Korean Foreign: Fluent English writing and speaking
	DK	KS	CS	Engineer	M	Korean	Native: Korean Foreign: Fluent English writing and speaking

Appendix C: Overview of the sources of data collection

Case & team members	Observation of FTF meeting	Observation of video-conferencing	Observation of audio-conferencing	Telephone communication log	Email record	Interview (formal & informal)	Daily working log	Company documentation
T-COM/AK	**5 persons in 2 visits**	**None**	**5**	**Frequent**	**310**		**Everyday (Jun-Sep 2007)**	**8 new projects 1 engineering change**
Top Management					2			
Middle Management								
T-COM	V			V	V	Project Manager *2; DQA Senior Manager *8[9]		
AK	V			V	V	FAE Engineer *1; CS Manager *1		
Operational level								
T-COM	V		V	V	V	DQA Engineer *4; Purchaser *1		
AK	V		V	V	V	FAE*1		
T-COM/BK	**19 persons in 4 visits**	**None**	**None**	**Frequent**	**190**		**Everyday (Jun-Oct 2007)**	**6 new projects 2 engineering changes**
Top Management					1			
Middle Management								
T-COM	V			V	V			
BK	V			V	V	FAE Manager *1		
Operational level								
T-COM	V			V	V			
BK	V			V	V	FAE Engineer *1		

[9] The T-COM DQA senior manager was one of the key interviewees. Study of conflict in inter-organisational business was a sensitive topic in the companies. Most of the members avoided attending interviews but this manager was willing to be interviewed and helpful in sharing his thoughts and knowledge and as a consequence a total of eight interviews were carried out by this researcher with him.

Appendix C: Overview of the sources of data collection (cont.)

Case & team members	Observation of FTF meeting	Observation of video-conferencing	Observation of audio-conferencing	Telephone communication log	Email record	Interview (formal & informal)	Daily working log	Company documentation
T-COM/CK	**12 persons in 4 visits**	**None**	**None**	**Frequent**	**224**		**Everyday (Jul-Oct 2007)**	**1 new project**
Top Management	V							
Middle Management								
T-COM	V			V	V			
CK	V			V	V	CS Manager *1		
Operational level								
T-COM	V			V	V			
CK	V			V	V			
T-COM/DK	**2 persons in 1 visits**	**None**	**None**	**Relative infrequent**	**210**		**Everyday (Jul-Oct 2007)**	**1 new project**
Top Management								
Middle Management								
T-COM	V			V	V			
DK	V			V	V			
Operational level								
T-COM	V			V	V			
DK	V			V	V			
Total	**11 visits**		**5**	**Frequent**	**1359**			