

CRANFIELD UNIVERSITY

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**CHARACTERISTICS OF RECIPROCAL DYADIC SUPPLY
RELATIONSHIPS AND RELATED PEOPLE MANAGEMENT
PRACTICES: A CROSS-CASE COMPARISON OF AN INTER-
AND AN INTRA-FIRM CONTEXT**

SCHOOL OF MANAGEMENT

PhD THESIS

CRANFIELD UNIVERSITY

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PhD THESIS

Academic Year 2002/2003

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Characteristics of Reciprocal Dyadic Supply Relationships and Related
People Management Practices: A Cross-Case Comparison of
An Inter- and an Intra-Firm Context

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December 2002

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CHAPTER 1 INTRODUCTION

1.1 RESEARCH RATIONALE

“In the global economy, a well-developed ability to create and sustain fruitful collaborations can give companies a significant leg up” (Kanter, 1994 p96)

With this statement, Kanter argues that competitive advantage can be gained from an ability to recognise the benefits of going beyond the mere exchange. This implies getting something back for what you put in, into collaboration, which involves the creation of new value together. Achieving this “togetherness” is not an easy task, and this theme has inspired a large literature, which has provided various proposals to guide firms on the uncomfortable path towards collaboration. Indeed, as Kanter stresses in her seminal article, the fact that companies often fail to develop “Collaborative Advantage” testifies the intrinsic difficulty involved in acquiring and implementing the “Art” of managing relationships (Kanter, 1994).

Pressures towards collaboration are reinforced by new models of competitive strategy which highlight that value, which was traditionally seen as being created within the individual firm, is now increasingly viewed as taking place at the inter-organisational level. Indeed, there is a shift of the unit of competition from the individual company to the supply chain, so that competitive advantage is derived from the supply chain as a whole (1992). Resulting benefits that companies can expect from operating within supply chains include revenue growth, operating cost reduction, efficient use of capital and generation of shareholder value (Christopher and Ryals, 1999).

Conversely, in a context of heightened global competition, single organisations are at a disadvantage because a “go-it-alone” position leaves them, inter alia, with scarce resources and having to carry all the risks (Buono, 1991). On the other hand, alliances can be viewed as ways to make companies more flexible and allow them to focus on what they know how to do best: in other words, to develop their own core competences.

Joint value creation requires that firms combine their operations so that they can attain results that they could not achieve separately (Borys and Jemison, 1989). The intent is to leverage the strategic and operational capabilities of individual participating companies. One challenge of collaboration is that partners need to jointly coordinate their operations so that the conditions that exist within integrated organisations are replicated (Hunter et al., 1996). This requires that each partner commits resources outside of their own company boundaries to create a “third partner”, which has its own resource base (Lamming, 1993). Thus emerges the fascinating concept of the “quasi-firm” or the “hybrid” (Borys and Jemison, 1989), which has no legal entity, since there is no equity involved, but which nevertheless has its own requirements that are similar to those of a single organisation. The implications at organisational level are that partner firms need to provide, not only the resources but also the normative mechanisms to allow the “hybrid” to operate. These may pertain to goals, communication mechanisms, and people resources. At the individual level, working in the “relationship” can involve participating in a specific culture where the employee can feel more bound to this emerging structure than to his own legal employers (Lamming, 1996).

As firms become closer in order to collaborate and jointly create value, they have to drop the traditional “arm’s length” way of doing business, which sharply contrasts

“inside” versus “outside” and “us” versus “them”. Such close relationships imply a shift from single points of contact, typically between purchasing and sales, to a broader interaction. Thus, multiple functions and levels become involved in the relationship, whether at the level of the local operation or within the respective headquarters. This creates an intricate web of relations between the partner organisations. Under this scenario, the management of the channels of communications become critical. This pertains to inter-organisational links as well as to internal vertical communication flows that have to take place across the different hierarchical levels.

One challenge of close collaborations is that they require reconciliation of an inherent tension between two directions. On the one hand, partners have to recognise the need to provide the resources to allow the “relationship” to operate in its own right. On the other hand, they are drawn towards satisfying their own interests, which may be embodied in conflicting objectives. Again, this is made more complex by the multiple strata of interaction, which mean that good relations and clarity of goals at one level may not be reflected at other levels.

Thus, broad cooperation raises the problem of how to coordinate different operations, production philosophies or administrative systems between the partners to create value. The difficulty is compounded when the interdependence requires a mutual adjustment of the partners’ operations (Borys and Jemison, 1989). Indeed, this means going beyond the coordination of the physical product flows and associated information flows into a new mode of operation. This new mode requires both partners to adjust to each other and to learn about each other’s operations. Moreover, they need to progress beyond the exchange of explicit knowledge into sharing their tacit skills. Such a need to adjust may imply that partners have to adapt their people management systems and practices in order to support the relationship (Wilson, 1995).

This research defines the “hybrid” as:

A mutually oriented interaction between two interdependent parties, with the aim of jointly producing value.

Whilst the core of the research topic will refer to this definition, other terms will be used interchangeably in the course of the thesis, such as “reciprocal relationship” “strategic alliances”, “partnerships” or “inter-organisational relationships”.

1.1.1 THE INTRA-FIRM CONTEXT

“Clark (1961) defines vertical integration as the combination within a firm of functions that can be/usually are carried out by separate firms” (Ellram, 1991b).

The above citation highlights the need, within vertically integrated firms to combine different activities and functions in a similar way that this is necessary between organisations. Hence, to some extent, this raises the question of the relevance of the concept of “Collaborative advantage” for the internal supply chain.

Indeed, internal buyer-supplier relationships between manufacturing units of large multinational firms are as complex – and sometimes even more complex – than relationships between independent organisations. In the same way, they involve a focus on joint value creation to allow the operational capabilities of the different sites that participate in the manufacturing of strategic products to be leveraged. Such value creation is the result of a large number of employees having to interact across site boundaries - which may involve national or divisional boundaries. Vertical communication lines embodied in the headquarter-subsidary relations also interact

with the horizontal, inter-site interaction. Further, in the same way as the external supply chain, inter-site relationships are operationalised not only by the allocation of resources, but also by the existence of normative guidelines in support of the joint operation and coordination.

There is not much consensus in the literature as to whether a relational dimension is relevant within the intra-firm setting. Indeed, various authors argue that within vertically integrated firms, relationships are managed and controlled through ownership (Ellram, 1991b) and therefore, there is no need to use a relational approach to manage such relationships (Ring and Van de Ven, 1992).

However, authors have recently questioned the extent to which hierarchy is an efficient control mechanism, because it presumes too easily that authority can be a powerful influencer of people's behaviours (Ghoshal and Moran, 1996; Granovetter, 1985). Thus, other mechanisms, such as the relational or social interaction dimensions can be recognised as a source of value creation within large multinational corporations (MNC'S), in that they facilitate inter-unit resource exchange (Tsai and Ghoshal, 1998).

While external organisational boundaries can make it difficult to collaborate with external suppliers and customers, internal organisational boundaries can make it more difficult to collaborate. Hence, there may be a need to develop the elements of a "Collaborative Advantage" within the intra-firm context in a similar way to the inter-firm context.

1.1.2 PEOPLE ADVANTAGE

"Not only the alliance manager but all employees who interface across the company's boundaries on a regular basis, determine the success or failure of inter-company relationships. Therefore the company's responsiveness to their needs, as well as assurance and empathy about their role will constrain or enhance their perception of the partnership programme". (Christopher and Jüttner, 2000a p123).

With the shift to a broad relationship structure, there is a need to ensure the commitment of everyone across the different levels within both partner organisations. This means that specific people management activities may be required to support the partnership implementation.

People management (PM) activities are typically organised with the aim to satisfy the requirements of internal work organisation, whether this is determined by the wider organisational context of the firms or by the employee relations and local employment conditions at site or country level. Hence, when organisations – whether independent or belonging to the same corporate structure – have to be engaged in supply relationships, the focus of their PM activities may give little attention to the effects of internal practices on the external interaction.

Yet, people at each level of a relationship can constitute a barrier to value creation. This may be due, for example, to a failure to understand the inherent benefit for firms of working collaboratively, which can sometimes involve forsaking the short-term benefit of each partner. The difficulty to collaborate can also be at the inter-personal level, because there has not been an opportunity to develop good relations with counterparts from the other firm. Other barriers may be organisational, in that the success of the single organisation and the associated rewards for the people who work in it may be viewed as conflicting with the partner's success or with the partner's own reward system.

Thus, collaborative relationships are often at risk because of a lack of attention to people issues. Indeed, a lack of attention to the cultural or human resource aspects of alliances has been highlighted in the literature (Lajara et al., 2002; Schuler, 2001). Possible reasons for such neglect may be a lack of awareness or consensus that people issues are critical or the belief that they are “too soft” and therefore too difficult to manage (Schuler and Jackson, 2001).

Bartlett and Ghoshal (2002) argue that competitive advantage can be gained from viewing people as a resource that is central to the operations of the companies. Indeed, they argue that value creation takes place “in the heads of individuals at all levels and is embedded in the relationships of workgroups – those closest to the customers, the competitors and the technology” (Bartlett and Ghoshal, 2002 p. 36). Since, relationships involve generating value from the interactions between people on various levels in the partner firms (Iacobucci and Zerrillo, 1996), this research proposes that people management practices have a central role to play in the development of “Collaborative Advantage”.

This research studies “people management practices”, which are defined here as:

The range of formal and informal practices relating to the management of employees and managers that are involved, within a supply relationship, in jointly producing value.

While formal practices have been documented, the main focus is on the tacit, informal views of those involved in supply relationships.

1.2 RESEARCH PROBLEM

A large body of research exists on inter-organisational relationships and related concepts such as partnerships or strategic alliances. This is sometimes criticised for too much attention being paid to the antecedents rather than to the management stage. Thus, Spekman et al. (1998a) state:

“It would appear that while academics purport to understand the concept of alliance formation, the practice of alliance management continues to pose a significant challenge” (p.747).

Indeed, whilst a number of authors have proposed various dimensions to characterise supply relationships, there is a lack of understanding of the reality of management practices and techniques (Barringer and Harrison, 2000). Moreover, the literature on relationships has often adopted a polarised view that has contrasted the “rhetoric” of partnerships with the “realpolitik” of power relationships, whilst possibly overlooking more subtle effects at the level of the relationship process (Scarborough, 2000). Thus, research may not have paid enough attention to the complexity of the actual day-to-day management of relationships, and the difficulty of aligning around the common purpose of a joint relationship. A “joint relationship” involves employees and managers across functions and levels between the organisations, in jointly producing value. This raises the question of the extent to which the organisations, which participate in relationships, are able to support the interaction. On the one hand, this provides the benefits of joint collaboration, on the other, the frustration and conflicts associated with it.

The way that the literature on alliances has tackled people management (PM) limits our understanding of the phenomenon for three reasons. Firstly, it has emphasised the inter-personal relations, especially at the level of the alliance management at the expense of other levels of interaction (Hutt et al., 2000; Spekman et al., 1998a). Secondly, the study of PM practices within alliances or relationships has been largely

theoretical (Lajara et al., 2002; Lorange, 1986), hence lacking empirical evidence on the actual effects of PM practices on the relationships. Finally, a large part of the literature on PM within inter-organisational settings has been devoted to the study of relationships involving shared equity, such as international joint ventures (Pucik, 1988; Schuler, 2001). Whilst there is a plethora of studies on inter-firm relationships and a plethora of studies on multinational corporations (MNC's), no study could be identified that actually contrasted the management of supply relationships within the inter- and intra-firm contexts.

The methodology adopted in this research project involves a cross case comparison of two dyadic supply relationships: one between two closely interrelated partners in the chemical industry in the UK and the other between the French and English sites of a multinational pharmaceutical firm. The intent of the case study approach chosen is to allow the views of the managers and employees who work on both sides of the dyads to be understood. The contrast between the intra- and the inter-firm context aims to shed a light on the specific organisational requirements of supply relationships, whether they draw on a hierarchical or a relational approach.

1.3 EXPECTED CONTRIBUTION

This study is aimed at contributing to knowledge in:

a – the management of supply relationships

Various authors have sought to propose different dimensions necessary for investigating the success of partnerships, and have recommended specific characteristics as indicators of successful collaboration (Bessant et al., 1994; Mohr and Spekman, 1994; Monczka et al., 1998). This study intends to compare the reality of the management of eight dimensions (goal, information sharing, relationships structure, coordination mechanism, locus of decision making, top management commitment, time horizon and organisational compatibility) with characteristics of partnerships described in the literature. Additionally, it plans to explore PM issues that are related to each dimension.

b- the management of PM practices within supply relationships

After identifying PM issues in relation to each dimension of the relationship, the study links such PM issues to a set of PM practices thereby providing research-based evidence of the effects of PM practices on supply relationships in a practical setting. Moreover, the study intends to provide a theoretical framework for studying PM practices within supply relationships by building on two other studies. Firstly, assumptions from Hunter (1996) that partners may need to adapt their PM practices to the requirements of the relationship are investigated. Secondly, the study builds on Scarbrough's (2000) call for using an institutional perspective (Scott, 1995) to highlight the pervasive effects of PM practices in that they exhibit regulative, normative and cognitive facets within supply relationships. Such theoretical framework intends to contribute to the understanding of the management of PM practices within supply relationships.

c – comparing an inter- with an intra-firm supply relationship

Research on MNCs has largely been separate from research on supply relationships. This study uses an inter-organisational framework, the "hybrid" (Borys and Jemison, 1989) as common theoretical lens for studying both an inter- and an intra-firm relationship. Hence, it is expected that the study will contribute to the understanding of the similarities and differences between these two contexts.

1.4 DELIMITATION OF SCOPE

This study pertains to upstream product-based “supplier-manufacturer” relationships (Croom et al., 2000) and therefore it is not deemed relevant for a service-based “manufacturer-distributor” context. Moreover, this study draws on large multinational corporations with international sales and production sites around the world, which involve headquarter-subsidiary relations and therefore would not apply to a small and medium enterprise setting. Field research was located within the chemical or pharmaceutical industry, which involves complex, high technology manufacturing processes.

Whilst the research takes an implicit prescriptive stance by comparing actual characteristics of the supply relationships with specific ones derived from the literature, no attempt is made to assess either the performance of the supply relationships or to establish any link between PM practices and relationship performance.

Finally, the choice of the unit of analysis as being the “hybrid” (Borys and Jemison, 1989), also referred to as “the supply relationship” implies that the focus of the study will be on PM practices, both formal and informal, as they are experienced by the individual employees and managers who work together. Hence, the internal work organisation and PM practices from each partner are viewed as contextual consideration.

1.5 STRUCTURE OF THE THESIS

- Chapter 2 undertakes a focused review of the literature in order to develop a framework for studying people management practices within supply relationships. This requires firstly locating the research topic within the broader supply chain management (SCM) literature to understand its main components, and discussing the relevance of considering the internal supply chain as belonging to SCM. Secondly, Chapter 2 turns to a review of the inter-organisational relationship literature to provide a conceptual basis for studying supply relationships, with the aim to apply it within an inter- and an intra-firm context. From a review of the literature on partnerships and alliances, eight dimensions are identified as relevant for characterising reciprocal dyadic supply relationships. A tentative list of people management issues is also identified as being related to the eight dimensions. The last part of the review sets off with the literature on people management within inter-organisational settings that allows identifying a set of eight PM practices. Then a theoretical framework is devised that draws on two seminal studies pertaining to PM within relationships. Chapter 2 ends with the research gaps, research questions, conceptual framework and propositions.

- Chapter 3 details the methodological choices of the study, starting with the philosophical perspective, and the choice of a Realist approach. The details of the research design are enfolded, and justification made for a case research. The analytical methods are discussed. The Chapter ends with a discussion of the potential risks in the research design through a review of the potential traps inherent in the chosen methodology and the steps taken to counter such limitations.

- Chapters 4 and 5 describe the operationalisation of this research in two different case environments. The first (Chapter 4) describes the study at Wheatco-Chemco, which was originally intended as a pilot, and which indeed provided a setting for testing the conceptual framework and research methods. This case features an inter-firm context. It also provided a broad-base case, with rich evidence. Chapter 5 describes the

research at Tyrenco, which is located in an intra-firm environment and features the study of an inter-site relationship

- Chapter 6 analyses the results of the two cases and sets out to make cross-case comparisons. Results are compared with the research questions. The thesis ends with Chapter 7, which tests the findings against theory and analyses the limitations and contribution of the research, and the impact on future research.

1.6 POSTSCRIPT TO CHAPTER ONE

In my role as product line and supply chain manager within the European Health Care division and research centre of a large multinational American corporation, I have become keenly aware of the importance of the human side of internal supply chain relationships. Indeed, over the five years that I spent in this role, I experienced the impact on people of such barriers as conflicting objectives, lack of communication or non-aligned reward systems between functions and geographical areas. As a result of organisational change, I subsequently witnessed an alignment of the people management practices on a supply relationship. This resulted in allowing socialisation and teamwork across a broad base of employees between sites, shared training, improved role clarity as well as shared incentive schemes, which seemed to bring together the intra-firm supply relationship.

I became interested in researching how such people management practices could play a role within external supply relationships, especially in the context of reciprocal relationships.

CHAPTER 2 A FRAMEWORK FOR STUDYING PEOPLE MANAGEMENT PRACTICES WITHIN SUPPLY RELATIONSHIPS

2.0 INTRODUCTION

The aim of this Chapter is to develop a framework for studying people management (PM) practices within supply¹ relationships. Therefore, definitions of supply chain management (SCM) are first examined in an attempt to understand its main components. Then, an argument is developed for studying both the inter- and intra-firm contexts of SC relationships. The subsequent review of the inter-organisational relationship (IOR) literature aims to identify a conceptual framework for collecting dimensions of supply relationships and related PM issues. Finally, different PM practices are examined and a theoretical lens is proposed for studying these practices within supply relationships. The chapter concludes with the identification of research gaps, research questions, conceptual framework and propositions.

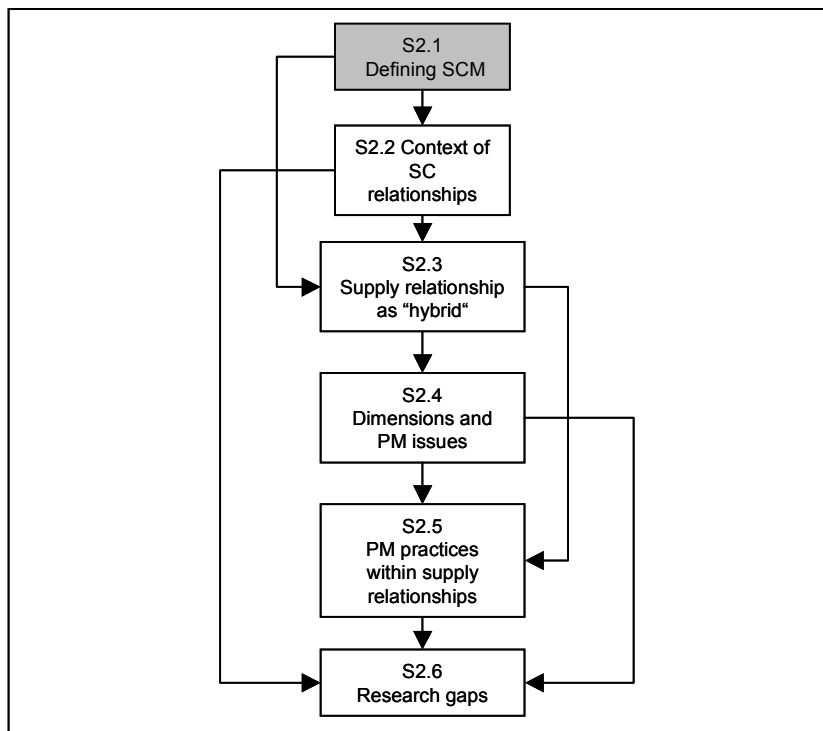


Figure 2-1 Road map of the literature review Chapter

Figure 2.1 provides a pictorial road map of the Chapter, which is set out into six sections:

A definition of SCM and its key components is provided in S2.1 and S2.2 develops a rationale for studying both inter- and intra-firm SC relationships. S2.3 identifies an IOR

¹ As explained in the introduction, this research refers to supply chain (SC) relationships where it is drawing on a broader supply “chain” perspective and refers to “supply” relationships where it is referring to a dyadic interaction.

framework for the supply relationship; section 2.4 identifies dimensions of supply relationships and related PM issues. Section 2.5 reviews the literature on people management (PM) practices and identifies a theoretical lens for studying PM practices within supply relationships. Section 2.6 discusses research gaps and proposes research questions, a conceptual framework and propositions.

This diagram will be developed at the start of each section in order to provide the logical thread for the argumentation of the whole Chapter.

2.1 DEFINING SUPPLY CHAIN MANAGEMENT

“The supply chain is the network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer”. (Christopher, 1992 p12)

Christopher’s definition of a SC can be interpreted to insist on three components related to the concept: (1) sequences of processes, (2) linkages and (3) value creation. The sample of definitions of the SC and of SCM, which is displayed in table 2.1, illustrates a plurality of views along these three elements.

Author	(1) Sequences of processes	(2) Linkages	(3) Value creation
(Ballou et al., 2000)	The SC refers to all activities associated with the transformation and flow of goods and services, including their attendant information flows. Management refers to the integration of all these activities both internal and external to the firm.	From the source of raw materials to end-users.	
(Bhattacharya et al., 1996)			SCM is seen as key to delivering higher customer satisfaction with reduced leadtimes and costs.
(Christopher, 1996)	Integration (of buyer-supplier processes) is achieved through greater transparency of customer requirements through the sharing of information.		SCM aims to achieve a more cost effective satisfaction of end-customer requirements
(Christopher and Ryals, 1999)	SCM encompasses both the internal management of the logistics processes that support the flow of product and related information,	as well as, the upstream and downstream linkages with suppliers and customers	
(Cooper et al., 1997)	The integration of business processes that provides products, services and information.	From end-user through original suppliers	Add value for customers
(Cooper and Gardner, 1993)	Manage the total flow of a distribution channel from the supplier to the ultimate user	An integrative philosophy	
(Cox, 1997)	Production of goods and services	Complex network of	

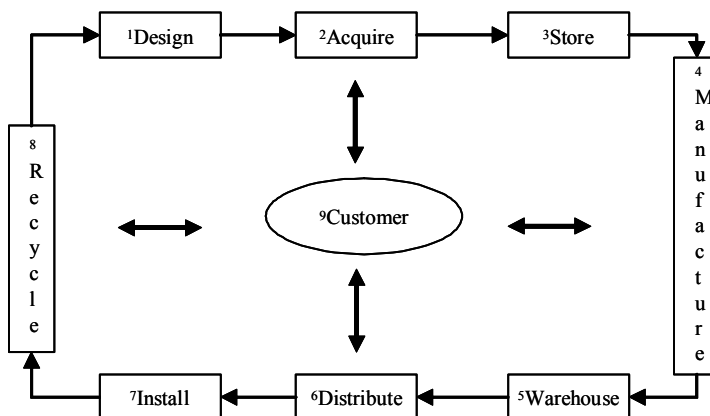
Author	(1) Sequences of processes	(2) Linkages	(3) Value creation
	to an end customer	business relationships, which exist between individuals and companies	
(Ellram, 1991b)	Deliver a product or service to the end customer	A network of firms. Linking flows from raw material supply to final delivery.	
(Handfield and Nichols, 1999)	All activities associated with the flow and transformation of goods as well as the associated information flows.	From the raw materials stage through to the end user. SCM is the integration of these activities through improved SC relationships to achieve a sustainable competitive advantage.	To achieve a sustainable competitive advantage.
(Mabert and Venkataramanan, 1998)	Performs the functions of product development, procurement of material from vendors, the movement of materials between facilities, the manufacturing of products, the distribution of finished goods to customers and the after-market support for sustainment	The network of facilities and activities	
(Lambert et al., 1998)	The integration of key business processes that provides products, services and information	From end user through original suppliers. SCM is the management of multiple relationships across the supply chain.	Add value for customers and other stakeholders
(Larson and Dale, 1998)	The coordination of activities within and between vertically linked firms		Serving end customers at a profit.
(Lee and Billington, 1992)	Procure raw materials, transform them into intermediate and finished products and distribute the finished products to customers	Networks of manufacturing and distribution sites	
(Scott and Westbrook, 1991)	The production and supply process	Linking each element of the chain from raw materials through to the end customer	
(Spekman et al., 1998b)	A process for designing, developing, optimizing and managing the internal and external components of the supply system, including material supply, transforming materials and distributing finished products or services to customers		Consistent with overall objectives and strategies
(Stevens, 1989)	The connected series of activities which is concerned with planning, coordinating and controlling material, parts and finished goods	From supplier to customers	

Table 2-1 A sample of definitions of the SC and SCM

A more detailed review of the above three components, namely sequence of business processes, linkages and value creation, allows us to further investigate the concept of SCM.

(1) The SC is seen as composed of a sequence of business processes. These are defined here as a collection of “tasks and activities that together – and only together – transform inputs into outputs” (Garvin, 1998 p33). Authors agree on the central role of information flows that are associated with the transformation of goods. However, they do not agree on the range of processes that are associated with a given SC. Whilst procurement, manufacturing and distribution have traditionally been the focus of the SCM literature (Bechtel and Jayaram, 1997), there have recently been calls in the literature for integrating the new product development process within the SCM concept (Bechtel and Jayaram, 1997; Cooper et al., 1997). Thus, Mabert and Venkatraman (1998) specifically refer to product development in their definition of SCM whilst other authors do not. Indeed, the concurrent design of a new product and its production process, both internally and through involving external suppliers, can contribute to supply chain performance (Cooper et al., 1997; Lee and Billington, 1995). Outsourcing of product development can be viewed as a way to free up resources and find externally the competencies that are not available in-house (Goffin et al., 1999; Millson et al., 1996).

Figure 2.2 shows the mapping of the different processes that are included in the SCM literature through an analysis of the content areas. The “design” phase is arguably what differentiates SCM from logistics processes (Bechtel and Jayaram, 1997; Cooper et al., 1997; Lambert and Cooper, 2000).

**Figure 2-2 Content literature areas within SCM literature (source: (Bechtel and Jayaram, 1997))**

(2) Linkages refer to the connections established amongst the organisations that participate in a given SC. Such linkages are depicted either along an “end-to-end” dimension, on a linear chain (Ballou et al., 2000; Cooper et al., 1997) or as networks (Ellram, 1991b; Lee and Billington, 1992; Mabert and Venkataramanan, 1998). Although the SC has been referred to as a ‘pipeline’ to highlight the possible presence of unnecessary lead-times and inventories (Scott and Westbrook, 1991), the use of the term “chain” is an oversimplification. The SC really represents a network (Ellram, 1991b) of interconnected business processes.

Whilst certain authors like Christopher and Ryals (1999) or Ballou (Ballou et al., 2000) refer to SCM as including the management of the internal SC, others like Ellram (1991b) define SCM only as the external SC. Section 2.2 develops the types of contexts that are relevant for the study of SCM. The relationship aspect of SCM is conceptualised in section 2.3.

(3) Value creation is the third element in the definitions of a SC. It is defined here as the provision of enhanced benefits to customers at lower cost (Christopher, 1992). It is argued that the profile of supply activities should be raised from an operational to a strategic level (Houlihan, 1988; Stevens, 1989). Sustainable competitive advantage is the purpose that can be achieved through provision of the best comparative value to customers, whilst improving the firm's profitability (Christopher and Ryals, 1999). Indeed customer satisfaction is a goal that unifies all efforts throughout the SC (Hines, 1993) in that good supply chain practice can drive service up and cost down simultaneously (Braithwaite and Samakh, 1998). However it is argued that maintaining superior cost and customer service performance will become increasingly difficult, therefore value maximisation requires an innovative approach that combines a fluid strategic focus with a strong customer and supplier portfolio (Anscombe, 1994). Table 2.1 shows that few authors clearly distinguish the definition of the SC from the definition of SCM (Ballou et al., 2000; Handfield and Nichols, 1999). For the sake of this research, the essential "management" function is concerned with generating value by integrating business processes through SC relationships, both internally and with external partners. This definition follows a view of SCM as an ideal concept or "integrative philosophy" (Cooper et al., 1997).

This research focuses on SC relationships, which pertain more specifically to the "linkage" part of the SCM concept, whilst also encompassing the business processes and value creation elements.

2.2 CONTEXT OF SUPPLY CHAIN RELATIONSHIPS

Figure 2.3 shows the outline of this section, which starts with a review of the existing classification criteria for conducting research on SC relationships and then develops an argument for studying both the inter- and the intra-firm contexts.

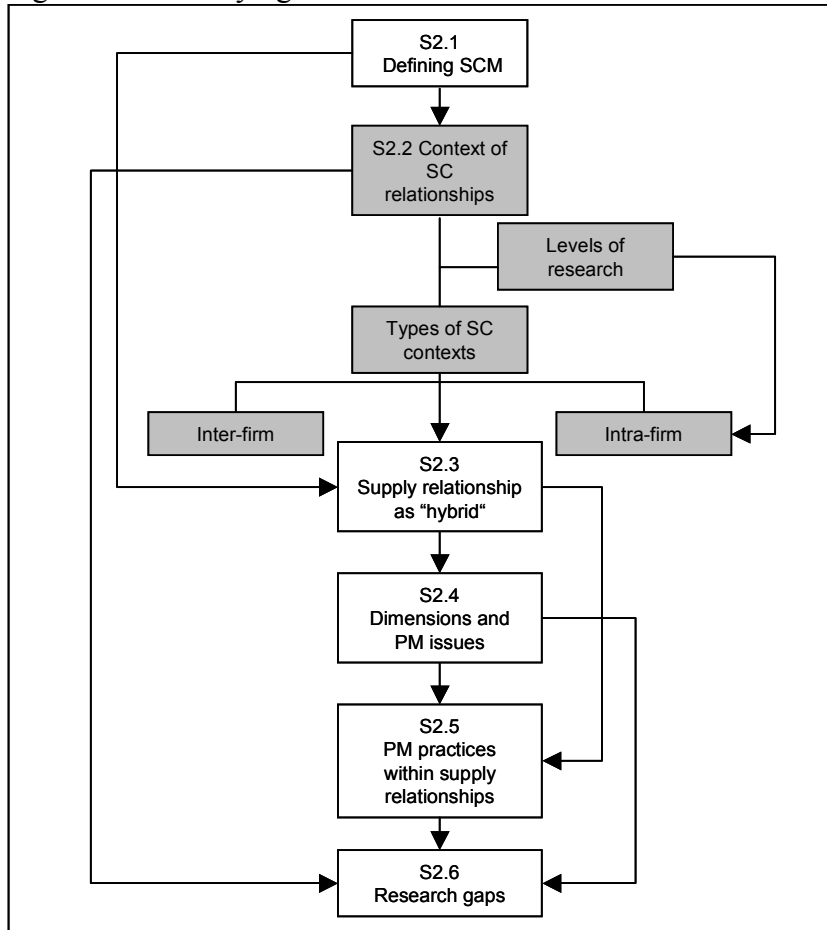


Figure 2-3 The inter- and intra-firm contexts

2.2.1 LEVELS OF RESEARCH IN SUPPLY CHAIN RELATIONSHIPS

Harland (1996) has argued that research on SC relationships has been conducted at several levels of analysis. This involves the single firm (level one), the dyad (level two), the chain (level three) and the network (level four). This is illustrated in figure 2.4.

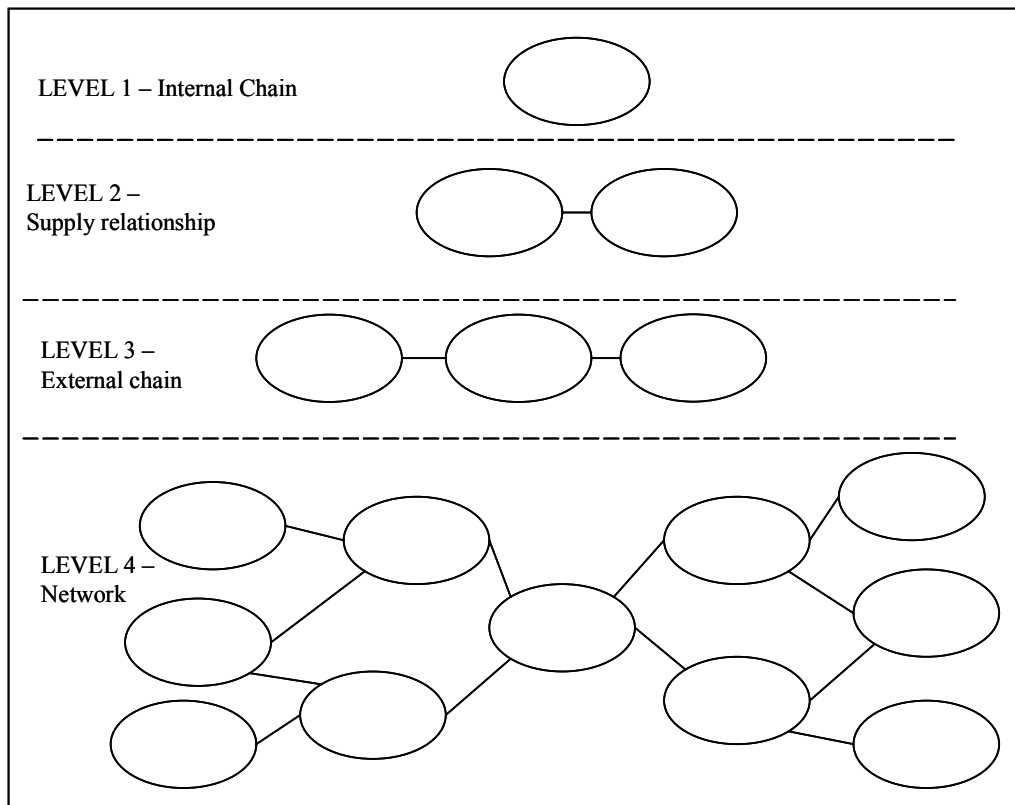


Figure 2-4 Levels of research in SC relationships (source: Harland, 1996)

Level one features the single firm, with a focus on the internal supply chain. This level can also represent a focal firm's view of the impact of relationships with external firms on the internal operations (Haokansson and Snehota, 1995; Iacobucci and Zerrillo, 1996).

Level two is the dyad, which Harland (1996) labels "supply relationship". It is argued that the interaction has an identity as a social unit, which is separate from the two collaborating firms (Ring and Van de Ven, 1994; Van de Ven, 1976), so that the joint relationship has character beyond the sum of the two individual firms (Iacobucci and Zerrillo, 1996). The dyad is the level where two companies tend to modify or adapt the products exchanged as well the operating routines (Haokansson and Snehota, 1995) and it is the level where the full phenomenon can be studied (Iacobucci and Zerrillo, 1996). Level three and four deal with the chain and the network. Whilst the chain level seeks to identify the interconnections with a linear perspective (Harland, 1996), the network level deals with the interconnectedness amongst a broader set of relationships, which can comprise a focal firm and its related customers and suppliers (Ritter, 2000).

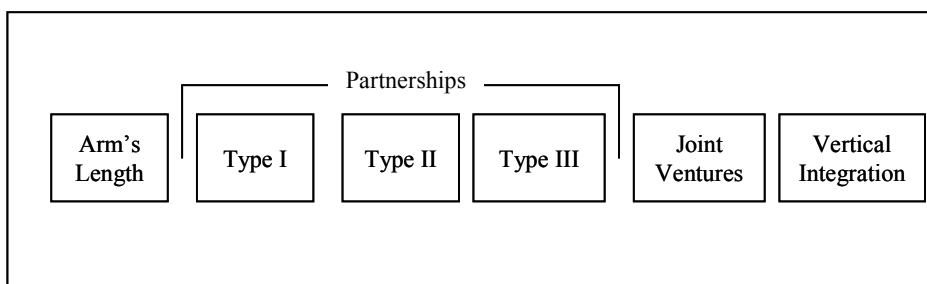
The above classification criteria, which help identify levels of analysis, are seminal in advancing our understanding of research in SCM. However, Harland (1996) and other authors (Croom et al., 2000) have explicitly focused on levels two, three and four and therefore have excluded from their studies level one, which deals with the management of the internal chain or intra-firm context. This, therefore, leaves open the conceptualisation of the management of supply chains of strategic products within vertically integrated firms.

2.2.2 TYPES OF SUPPLY CHAIN RELATIONSHIP CONTEXTS

The aim of this section is to review the argument for the need to consider SCM as relevant, not only in the inter-firm context but also in the intra-firm. Indeed some authors (Cooper and Ellram, 1993; Ellram, 1991b) argue that the concept of SCM does not apply to the management of the internal supply chain because, within vertically integrated firms, the supply chain is managed through ownership rather than through business relationships. However, other authors state that SCM also encompasses the management of the internal supply chain (Christopher and Ryals, 1999; Mabert and Venkataraman, 1998).

The relationships between organisations can range from arm's length relationships consisting of either one-time exchanges or multiple transactions to vertical integration of the two organisations (Lambert et al., 1996). This is illustrated in figure 2.5.

Figure 2-5 Types of Relationships (source Lambert et al., 1996)



At one end of the continuum, arm's length relationships refer to market transactions for standardised products that require no specific investments from the buyer or the supplier (Bensaou, 1999). Such relationships are characterised by a lack of joint commitment or joint operations (Lambert et al., 1996) with prices as the key means of communication (Powell, 1991). Cox (1996) argues that adversarial leverage based on competitive market criteria is appropriate for goods and services that have a low degree of strategic importance.

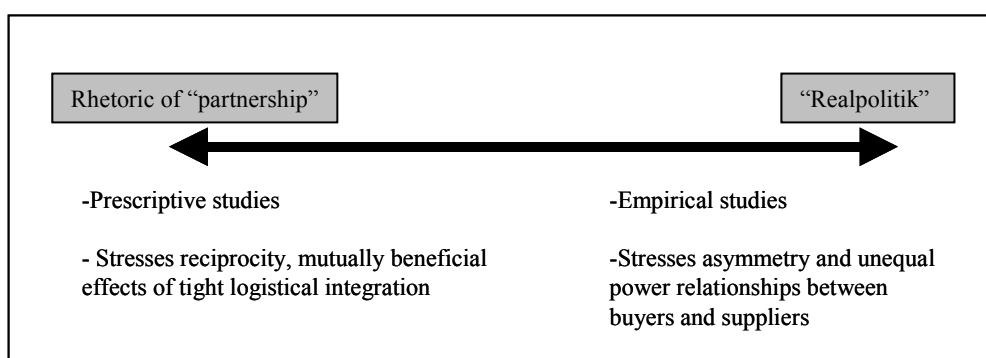
At the other end of the continuum, partnership relationships or vertical integration should be used to conduct transactions of higher strategic importance that can impact the ability of a firm to survive and prosper (Bhattacharya et al., 1996; Cox, 1996; Ellram, 1991b). Whilst vertical integration allows a firm to keep the differentiating competencies in house, partnerships enable firms to draw on the competencies of other firms and benefit from external technological developments (Bhattacharya et al., 1996). Thus the strategic nature of transactions shifts the traditional choice between markets and hierarchies ("make-or-buy") to a choice between hierarchy and various co-operative forms of inter-organisational relationships (Bhattacharya et al., 1996; Ellram, 1991b; Powell, 1991; Ring and Van de Ven, 1992).

The aim of the next two sections is to review the applicability of the concept of SCM within "co-operative forms of inter-organisational relationships", the inter-firm context, and within the "hierarchy" or intra-firm context.

2.2.2.1 The Inter-firm context

Harland (1996) argues that the worldwide recession of the late 1980s and early 1990s forced firms to design new strategies for adding value and reducing costs throughout their businesses. This has led them to reorganise their operations, not only within the boundaries of the firm but also outside.

Thus, vertical disintegration has been described as a way for firms to avoid the risk of being locked into inappropriate technologies by accessing them through external relationships (Harland, 1996). One example of this is the outsourcing of non-core operations (Prahalad and Hamel, 1990). Indeed increased product complexity means that firms tend to focus on a narrow set of specialised activities or core competencies in order to stay “at the cutting edge of the knowledge frontier” (Dyer, 2000 p29). Recent advancements in information technology allow for the increased inter-firm coordination that is necessary in collaborative networks (Dyer, 2000; Johnston and Lawrence, 1988). Involvement of the supplier firm with the buyer firm in the design of new products is referred to as “concurrent engineering” or “early supplier involvement in design” (Carter and Ellram, 1994 p15). The aim of early supplier involvement is to leverage the resources owned by other organisations, in order to innovate (Bidault, Despres, and Butler, 1998). Indeed significant lead-time advantage can be gained from harnessing supplier know-how in new product development (Christopher, 2000; Christopher, 2000; Clarck, 1989). This can allow early identification of potential problems and solutions as well as a reduction of time and cost of design effort (Ragatz et al., 1997). Globalisation is another explanation for inter-firm cooperation in as much as most firms have realised that they cannot operate their global operation without the support of local partners (Harland et al., 1999). Thus, the way is open to a range of collaborative arrangements, represented in Figure 2.5, which may involve joint ventures, which are SC relationships with some form of equity or ownership (Cooper and Gardner, 1993). Vertical integration is replaced by vertical co-operation where partnerships are formed within networks and “in place of the classic ‘make or buy’ decision, (companies) can now choose between ‘make or cooperate’ (Bidault, Despres, and Butler, 1998 p69). Reciprocity and collaboration can therefore be viewed as alternative governance mechanisms to markets and hierarchies (Powell, 1991). Scarbrough (2000) contends that the literature on SC relationships has taken a polarised perspective by either stressing the rhetoric of “partnerships” or the “realpolitik” of empirically investigated buyer-supplier relationships and illustrates this in terms of the HR implications of these relationships. This polar view is illustrated in figure 2.6 here



below.

Figure 2-6 A polar view of the literature on SC relationships (after Scarbrough, 2000)

The partnership literature views effective SCM as the establishment of close, long-term working relationships between customers and suppliers. In contrast to the traditional adversarial relationships associated with market transactions, a partnership can be characterised by a mutual commitment of the two parties, over an extended time period and by a sharing of information and of the benefits and risks associated with the

relationship (Ellram, 1990; Ellram, 1995a; Ellram, 1995b). In addition to sales volume, indicators of partnership success should include other measures such as cost, quality and access to partner's resources (Monczka et al., 1998). Normative guidelines are proposed to prescribe a staged approach for developing partnerships and emphasise the need for on-going progress evaluation (Ellram, 1995a; Ellram and Edis, 1996).

The rationale for setting up supplier partnerships stresses an increased efficiency linked with the smaller number of partners and the logistics and commercial benefits derived from the long-term commitment (Ellram, 1995a). The stringent specifications of JIT exchanges, focusing on the perfect coordination of logistics-manufacturing flows through waste elimination should be an incentive for firms to strive for "ideal" JIT relationships (Frazier et al., 1988). This is illustrated in Womack and Jones' (1996) "Lean Thinking" philosophy, which provides an insight into the practices that have made Toyota motor company the most productive automobile manufacturer. It emphasises a reduction of "muda" (waste) throughout the organization and externally with suppliers and possibly customers.

Whilst the literature on partnerships focuses on mutuality and reciprocity as key characteristics of the exchange, and tends to adopt a buyer's perspective, a stream of literature on buyer-supplier relationships has emphasised the political and exploitative nature of SC relationships (Scarborough, 2000), by focusing on the supplier's position (Bresnen, 1996; Bresnen and Fowler, 1998). Imrie and Morris argue that buyer-supplier relationships can reflect a power relation and show "a hierarchy of top-down control, with buyers dictating the terms" (1992 p645). This may involve a pressure for price reduction or an inducement to commit to specialised production systems, not readily transferable to other customers (Bresnen and Fowler, 1998).

In an era where supply chains are competing against supply chains (Christopher, 1992), there is a need to capture the synergy from the "network of multiple businesses and relationships", which builds up the supply chain (Lambert and Cooper, 2000). Indeed the mutual dependence among the members of the supply chain network requires the formation of a set of strategic partnerships along the chain (Ellram and Cooper, 1990). One implication of the growth in collaborative supply chain networks is that real competitive advantage is derived from the SC as a whole, rather than the individual components of it (Christopher, 1996).

Arguably, the performance of firms may be related to their ability to develop relationships, which may involve interdependence and a requirement for shared success (Haokansson and Snehota, 1995 p144). Such relationships are valuable assets, because they are difficult to reproduce and be emulated by others. But they require investments and any company should not attempt to manage all of its business interactions as close relationships (Haokansson and Snehota, 1995; Lambert et al., 1996). Thus, the level of integration between independent firms has been found to be greater than that within a formally owned relationship (Haokansson and Snehota, 1995). Such argument has been further developed, in that contracts between autonomous firms have been shown to contain elements that are very similar to internal, hierarchical mechanisms of control (Stinchcombe, 1985; Powell, 1987; Bresnen, 1996).

Lambert et al. (1998) argue that firms should clearly identify the level of integration that they want to establish with their business partners and the related amount of resources to be dedicated. Whilst key suppliers and customers need to be managed closely with high levels of resource investments, relationships pertaining to less critical linkages should be simply monitored through other business partners or not managed at all. This

allows the identification of the SC members and conversely the non-members, with which there is no need to invest in any form of relationship. This helps conceptualise the limits of the external SC, or inter-firm context.

Considering these various issues, it is proposed that the “inter-firm context” be defined as:

Two or more organizations that are involved through upstream and downstream linkages, in producing value in the form of products and services in the hands of the ultimate customer.

2.2.2.2 The Intra-firm context

Clarck (1961) defines vertical integration as the combination within a firm of functions that can be/usually are carried out by separate firms (Ellram, 1991b p14). Vertical integration may be explained as a way for firms to economise on the costs of carrying out exchanges with other firms. It may also be argued that firms wish to adjust their boundaries in order to retain control over those transactions that constitute their strategic core (Cox, 1996).

Ellram (1991b p14) claims:

“Vertical integration can be viewed as an alternative to SCM, in that it attempts to manage and control channel efficiency through ownership”.

This statement, which excludes the internal supply chain from the conceptualisation of SCM, can be discussed at two levels: the first one is the management task, and the second one is the issue of control mechanisms within vertically integrated firms. With regards to the management task, it may be argued that the problems of efficient planning and control of the material flows in a supply chain whose members are divisions of the same firm are similar to those of a SC, where no ownership links exist (Mabert and Venkataramanan, 1998). As companies become more vertically integrated, their supply chains consist of many sites organized in multiple levels, and the flows between sites form a complex network (Lee and Billington, 1993). Decentralised organisation structures add another layer of complexity to such a network, in as much as sites often have to work together to deliver product, while reporting to different divisions or business units within the corporation. (Lee and Billington, 1993). Hence, large multinational corporations (MNC) are vulnerable to information and data distortion throughout their SC as such supply chains increasingly require the management of a network of manufacturing units worldwide with autonomous entities involved in the production and delivery process (Davis, 1993). Large MNCs rely on integrated decision support systems to manage their production, distribution and vendor networks (Motwani et al., 1998).

The elements of the SCM task are therefore similar in an external and an internal setting (Mabert and Venkataramanan, 1998). Thus, the mapping and re-engineering of the internal supply chain is an appropriate starting point for firms considering a SCM initiative (Handfield and Nichols, 1999), especially in as much as internal processes are a major source of extended lead time within the supply chain (Christopher and Ryals, 1999). Such arguments stress the importance of conceptualising the supply chain as having equal applicability in large multisite firms and small single-location organizations (Mabert and Venkataramanan, 1998).

With regards to control mechanisms, it may be argued that there is no necessary relationship between ownership and control. Indeed multidivisional corporations often decentralise control over internal buyer-supplier relationships and adopt market-like

incentives to govern interdivisional supply relationships (Lee and Whang, 1999; Walker and Poppo, 1991). Thus, coordination within divisions can be favoured over coordination between them and relationships with external suppliers are found easier to manage than internal relationships (Eccles and White, 1988; Walker and Poppo, 1991). Other authors' perspectives provide an opposition to Ellram's (1991b) view of ownership as a management and control mechanism for internal supply chains. Thus Ring and Van de Ven's (1992) argument that hierarchical governance can replace the need for trust, which is necessary to manage relational contracts is put in a different light by the following statement:

“The ability to rely on trust in high-risk situations can lead organizations to consider relational contracting as a means of restructuring the hierarchy” (1992 p496).

This reinstates the role of a relational dimension within the intra-firm context. Indeed recently, authors have questioned the extent to which hierarchy is an efficient control mechanism, by criticizing the assumption that ownership implies automatic obedience or alignment to the interests of the firm by the employees (Granovetter, 1985). Hence, it may be argued that organisations fail when they are unable to create a shared purpose that induces cooperation and leverages the employees' ability to take initiative, cooperate and learn (Ouchi, 1980; Ghoshal and Moran, 1996). Thus relational or social interaction dimensions are recognised as a source of value creation within large multinational corporations (MNC), in as much as they facilitate inter-unit resource exchange (Tsai and Ghoshal, 1998). Synergy can be obtained by allowing smooth lateral inter-unit relationships that are aligned on horizontal business processes, thus seeking to combine interdependent units on a non-hierarchical basis (Juga, 1996). The above review supports the view that internal supply chains of strategic products require the management of an “intra-firm context” that this research defines as:

Two or more divisions/units of the same company that are involved through upstream and downstream linkages, in producing value in the hands of the ultimate customer.

2.2.2.3 Summary

The argument has been developed for considering SC relationships as pertaining to linkages within the inter- and the intra-firm contexts. However, this review has also shown that there are different views that have been expressed regarding the inter- and intra-firm contexts. These can be recapitulated along two different approaches, which have different assumptions:

- The hierarchical approach, which prevails within the intra-firm context, and which has also been referred to in respect to inter-firm relationships. This assumes that relationships are managed through authority, rather than through a relational approach.
- The relational or lateral approach, which prevails within the inter-firm context, and which is being argued to be also relevant within the intra-firm context.

Table 2.2 summarises the above arguments:

Approach	Inter-firm context	Intra-firm context
Hierarchical	<ul style="list-style-type: none"> - Elements of hierarchy can be incorporated into contracts (Stinchcombe, 1985) - Hierarchy of top-down control (Imrie and Morris, 1992) 	<p>Main assumption</p> <ul style="list-style-type: none"> - Channel efficiency is managed and controlled through ownership (Ellram, 1991b) - Dependence on maintaining good social relations can be virtually eliminated (Ring and Van de Ven, 1992)

Approach	Inter-firm context	Intra-firm context
Relational/lateral	Main assumption - Trust as the main mode of control within relational contracting (Ring and Van de Ven, 1992) - Mutual commitment over an extended period of time (Ellram, 1995a) - Interdependence, trust, valuable relationships (Haokansson and Snehota, 1995)	- Planning and control of the material flows within an internal setting require lateral coordination (Juga, 1996; Mabert and Venkataramanan, 1998) - Relational contracting as a means of restructuring the hierarchy (Ring and Van de Ven, 1992), efficacy of hierarchical power is overplayed (Granovetter, 1985). - Shared vision and goal congruence as bonding mechanisms for intra-firm (Ghoshal and Moran, 1996)

Table 2-2 Main assumptions underlying the inter- and intra-firm contexts

As illustrated in table 2.2, there appears to be a lack of unity in the literature as to the extent to which the hierarchical and lateral approaches are used in the inter- and intra-firm contexts.

The intent of the next sections is to develop a common theoretical background for studying these two contexts by drawing on inter-organisational relationship theory with a dyadic perspective. Hence, following Harland (1996), from now on, the research will refer to “supply relationships”, defined as “dyadic or two party relationships with immediate suppliers” (Harland, 1996 p14) in place of “SC relationships”.

2.3 THE SUPPLY RELATIONSHIP AS “HYBRID”

The aim of this section is to draw on the inter-organisational relationship (IOR) literature to conceptualise supply relationships and their possible link to people management.

“We believe that interorganizational theory, properly adapted, can provide new insights about a complex and geographically dispersed organizational system like the MNC” (Ghoshal and Bartlett, 1990 p603).

This research follows Ghoshal and Bartlett’s contention that the concepts and tools of IOR analysis can be applied to fit the case of the intra-firm context. Indeed, MNCs are physically dispersed and internally differentiated, and therefore relationships between units can be more appropriately conceptualised as an inter-organisational grouping rather than as a unitary organisation (Ghoshal and Bartlett, 1990). For that reason, this research follows the assumption that similar theoretical groundings can be developed for the conceptualisation of the slightly different but analogous cases of inter- and intra-firm supply relationships (Ghoshal and Bartlett, 1990; Ring and Van de Ven, 1994). Indeed, Tsai and Ghoshal (1998) argue in favour of a research design involving an intra- and inter-organisational comparison.

Since the focus of this research is a study of people management practices within supply relationships, where possible, an attempt will be made to link the theoretical perspective with the practice of people management. Figure 2.7 shows the organisation of this section, which starts with the conceptualisation of the supply relationship as having a separate entity (S2.3.1) and then discusses the concept of adaptation (S 2.3.2).

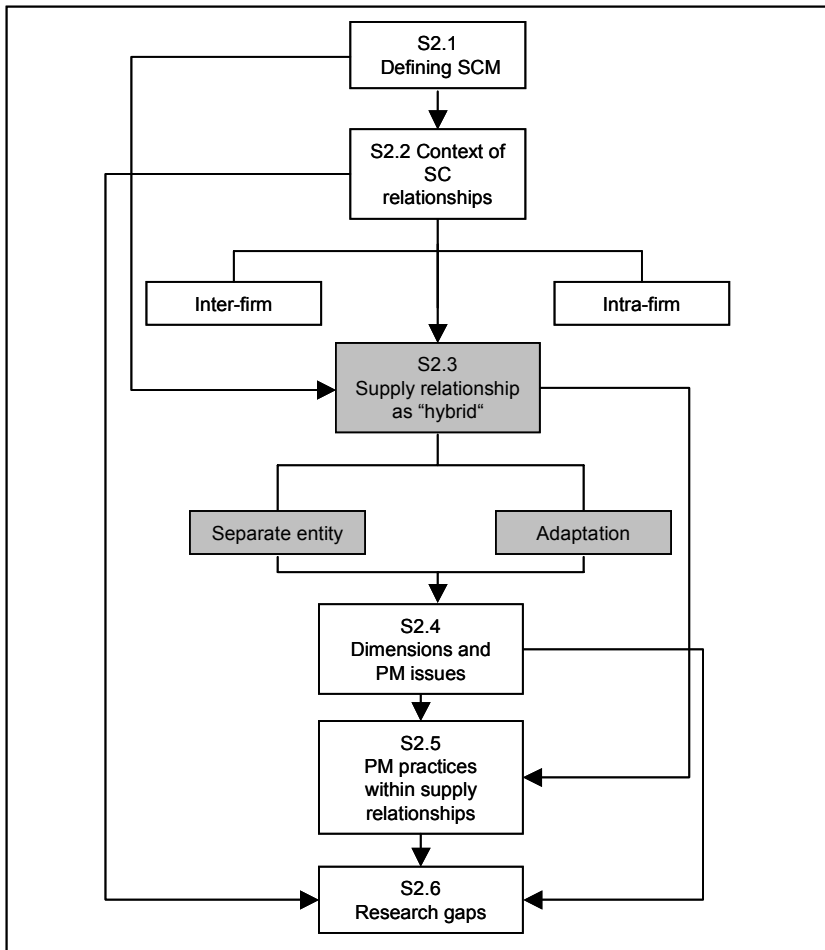


Figure 2-7 IOR framework for the supply relationship

2.3.1 THE RELATIONSHIP AS A SEPARATE ENTITY

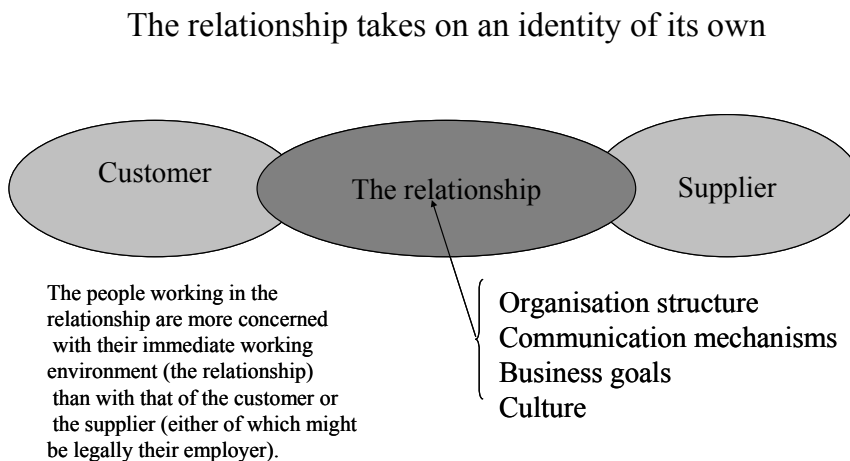
Van de Ven (1976) views the inter-organisational relationship as a social system, which has “its own unique identity separate from its members” (1976 p25). Indeed the interaction develops a set of collective events and activities, which cannot be explained by analysing the behaviour of member organisations. Van de Ven quotes Warren et al. as follows:

“One can describe and analyze as a single system of inter-action any group of organizations whose properties may differ from those of the interacting organizations themselves and cannot be reduced to properties of these individual organizations”(Warren et al., 1974).

The end objective of the organisations involved in the IOR is to attain goals they would not have been able to achieve on their own. The outcome dimension is one of the three dimensions identified by Van de Ven (1976) in his model of IORs. The other two dimensions refer to the organisation of the relationship, namely structure and process. Structure refers to administrative arrangements, such as the degree of formalisation (importance of rules and procedures for the governance of the relationship), the amount of centralisation (degree of freedom of decision of the members). The third element of structure is complexity, which reflects the number of elements (organisations involved

or tasks and activities) that the relationship will handle as a unit. Process refers to the intensity and the direction of the resource and information flows within the relationship. In a similar vein, Lamming's (1993);(Bessant et al., 1994) "lean" model specifies the formation of a "quasi-firm", which draws its resources from the two partner firms and therefore exhibits its own organisational characteristics (structure, communication mechanisms, goals and culture). The quasi-firm thus follows Van de Ven's (1976) conceptualisation of the relationship as a separate entity.

Figure 2-8 The supply relationship as a "quasi-firm" between customer and supplier (source:



Lamming, 1993)

Lamming's framework (Figure 2.8) focuses on the relationship itself, rather than on the internal policies of the individual partners. This raises the question of the benefits that may accrue from managing the relationship in light of its own requirements (Bessant et al., 1994).

Borys and Jemison (1989) conceptualise the hybrid as "a single organizational arrangement and a product of sovereign organizations" (1989 p235). Such definition encompasses various forms of organisational arrangements, such as joint ventures or supplier arrangements. They present four dimensions of hybrids, which are purpose, boundary definition, value creation and stability. Definition of the hybrid purpose requires that partners resolve the conflicts that may stem from different goals. The concept of purpose is important to hybrid functioning insofar as it clarifies what the two partners may expect from each other. A broad purpose may not be precise enough, whilst a narrow purpose may limit the scope of hybrid activities. Discussing hybrid purpose raises the issue of the extent to which negotiators are binding their own organisation. Boundary definition determines "which resources and obligations belong to (the hybrid) and which do not" (Borys and Jemison, 1989 p235). This involves identifying the hybrid members (people resource) as well as their level of authority and obligations. Perception of the hybrid as a differentiated entity can promote cohesion among the hybrid members, whilst encouraging them to work for the good of the hybrid. Value creation refers to the necessary coordination of activities within the hybrid. Stability mechanisms are developed, which can take the form of legal contracts or more normative forms, based on socialisation and trust.

Table 2.3 summarises the above review of the IOR literature and the implications for people management.

Author	Conceptualisation	Dimensions of the relationship	Link to people management
(Van de Ven, 1976)	Social system	<ul style="list-style-type: none"> - Ends: attain goals, unachievable independently - Structure: formalisation (rules, procedures), centralisation (locus of decision making), complexity (number of issues, activities) - Process: resource and information flows (intensity and direction) 	<ul style="list-style-type: none"> - Draw on resources and expertise from more than one organisation - Intensity of interaction
(Lamming, 1993)	Quasi-firm	<ul style="list-style-type: none"> - Organisation structure - Business goals - Communication mechanisms - Culture 	<ul style="list-style-type: none"> - Employee commitment to quasi-firm vs. individual partner
(Borys and Jemison, 1989)	Hybrid	<ul style="list-style-type: none"> - Hybrid purpose: developed from individual partner goals; locus of decision making - Boundary definition: determines resource allocation to the hybrid - Value creation: coordination of partners' operations within the hybrid - Stability mechanisms: contracts, norms and values 	<ul style="list-style-type: none"> - Human resources allocated to the hybrid - Level of co-operation from employees - Knowledge coordination within the hybrid - Socialisation mechanisms

Table 2-3 Types of conceptualisation, dimensions and link to people management

Whilst also drawing on the social system and “quasi-firm” views, this research refers to the “hybrid” as a conceptualisation for the supply relationship in that it explicitly refers to human resources as an element of the exchange. The view of the hybrid as a structure that emerges from two organisations joining together in an intimate relationship is arguably a powerful and compelling concept (Wilson, 1995). Such a conceptualisation of the relationship as a “hybrid” has two implications for this research:

The supply relationship will exhibit specific dimensions. A review of these dimensions will be performed in 2.4.

The concept of “hybrid” is in line with the theoretical framework developed for the study of PM practices within the supply relationship, discussed in section 2.5.

2.3.2 THE RELATIONSHIP AS ADAPTATION

A central problem for relationships is how to co-ordinate the heterogeneous partners' operations (Borys and Jemison, 1989; Hallen et al., 1991; Haokansson and Snehota, 1995). This may involve an adaptation through altering internal processes to accommodate the other party (Hallen et al., 1991; Wilson, 1995).

Inter-firm adaptation can be unilateral or reciprocal. It is a function of the level of dependence on the partner (Hallen et al., 1991). Although adaptation may imply investments that are not transferable to other business relationships (Hallen et al., 1991), motivation to adjust is derived from the perception of the benefits accrued from the relationship (Dwyer et al., 1987).

The outcome of the interaction within the hybrid is to create a “fit” between the partners' operations (Wilson, 1995). Borys and Jemison (1989) draw on Thompson's (1967) typology of technological interdependence to describe different levels of

operational fit required to co-ordinate the efforts pertaining to the value creation within the hybrid. Pooled and sequential interdependence requires a limited fit whereas reciprocal interdependence “generally calls for fit between a wider range of partner operations than the other types” (Borys and Jemison, 1989 p241). Thus, an understanding of the management of operational interdependencies is necessary to allow effective co-operation within the hybrid.

“Implementation of relationships requires changes in corporate culture and reward systems to reinforce the behaviors that generate trust, mutual goals and adaptation, and other critical variable in the creation of a strong hybrid relationship” (Wilson, 1995 p344).

With this statement, Wilson brings the scope of adaptation beyond the product and beyond the production and administrative processes (Borys and Jemison, 1989; Hallen et al., 1991; Haokansson and Snehota, 1995) into the arena of people management. The implication is that firms may see a need to alter their PM policies and practices in order to accommodate the requirements of the relationship. Indeed Wilson contends that reward systems can support relationship characteristics, such as goals or trust.

2.3.3 DISCUSSION

The above two sections have drawn on the inter-organisational literature as a way to conceptualise both the inter- and the intra-firm supply relationship. It has been argued that the concept of “hybrid” can have implications for a study of PM practices: The conceptualisation of the “hybrid” as having an identity of its own implies that the way people are managed within each partner will influence the way that they interact within the “hybrid”.

There may be an adaptation of PM practices by the partner to accommodate the requirements of the supply relationship.

These two elements are being referred back to in section 2.5, which intends to identify a theoretical framework for the study of PM practices within supply relationships.

2.4 DIMENSIONS OF SUPPLY RELATIONSHIPS AND PEOPLE MANAGEMENT ISSUES

The reasons for establishing inter-organisational relationships have an influence on the types of relationship that are formed (Oliver, 1990), therefore this section starts with a review of various contingencies of IORs as well as the way that the literature has dealt with implications for people management within these different contexts. Then various dimensions of relationships are reviewed, which are narrowed down to eight specific characteristics of reciprocal supply relationships and their related people management issues. Figure 2.9 locates the section within the overall Chapter.

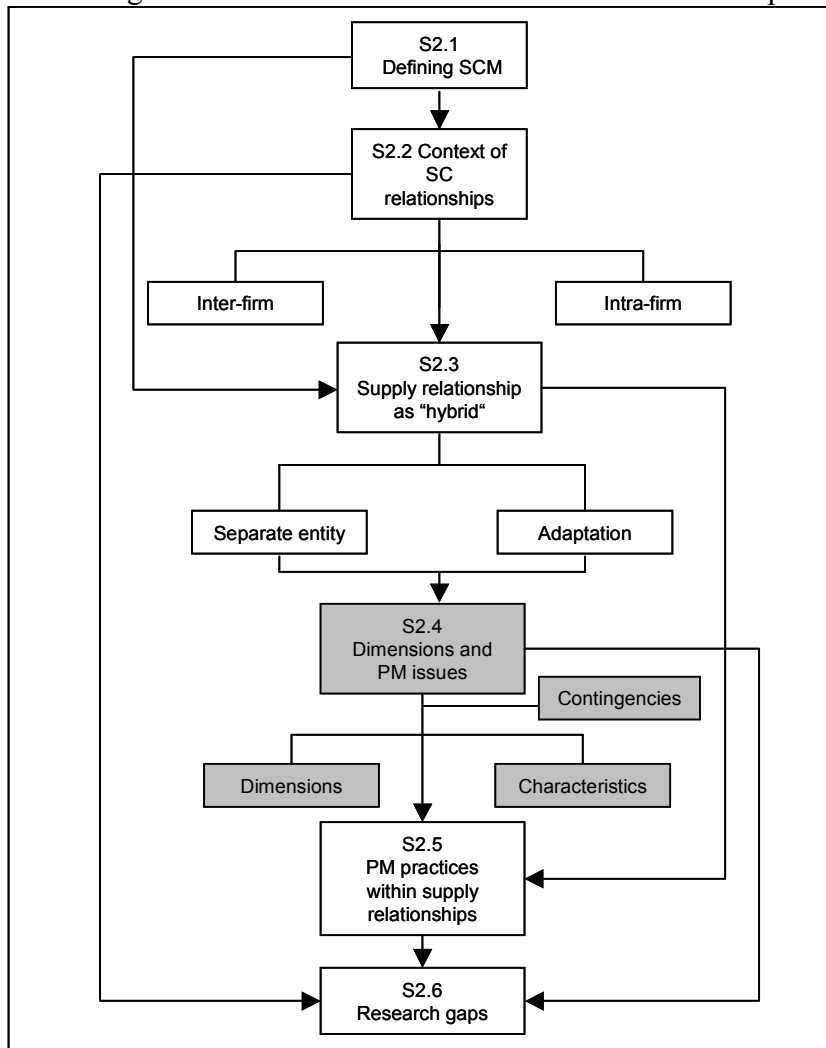


Figure 2-9 Dimensions of supply relationships and PM issues

2.4.1 CONTINGENCIES OF SUPPLY RELATIONSHIPS AND IMPLICATIONS FOR PM

Oliver (1990) reviews six contingencies that underpin an organisation's decision to form IORs: necessity, asymmetry, reciprocity, efficiency, stability, and legitimacy. The necessity contingency refers to "necessary legal or regulatory requirements" (Oliver, 1990 p243). Some forms of SCM, such as international joint ventures formed in

developing or regulated economies may be aimed at fulfilling such requirements (Contractor and Lorange, 1988). However, supply relationships generally imply a voluntary process of inter-firm collaboration, which limits the relevance of the necessity contingency (Cooper and Gardner, 1993).

The other causes of relationship formation identified by Oliver (1990) are reviewed below, together with their implications for people management.

Asymmetry

“The contingency of asymmetry refers to IORs prompted by the potential to exercise power or control over another organization or its resources” (Oliver, 1990 p243).

Asymmetry can involve demands by powerful buyers upon their suppliers to implement costly PM practices, which can disrupt the internal work organisation (Bresnen and Fowler, 1998; Imrie and Morris, 1992). Thus, buyers’ demands may involve technical changes or the implementation of training programmes, which are costly and can lead to increased worker pressurisation (Imrie and Morris, 1992). Buyers are also reported to get involved in the settlement of suppliers’ industrial relations issues in order to ensure reliability of supply (Blois, 1972; Imrie and Morris, 1992).

The extent to which buyer intervention brings about changes in the supplier organisation may however be limited in that internal work practices are changed only at a superficial level (Roper et al., 1997), thus appearing as insulated from SC effects (Scarborough, 2000). It has also been argued that suppliers generally report positive gains from the transfers of knowledge and new work practices (Hunter et al. 1996; (Bresnen and Fowler, 1998), which can positively impact their future capabilities (Bresnen and Fowler, 1998).

Reciprocity

“Motives of reciprocity emphasize cooperation, collaboration and coordination among organizations” (Oliver, 1990 p244). Oliver (1990) argues that most of the literature presents reciprocity as the basis for IOR formation. This contingency is grounded in exchange theory, which considers the norm of reciprocity as universal and as the basis for social exchanges. Ring and Van de Ven (1994) relate the construct of reciprocity with equity, which is, together with efficiency, a basis for their model of assessment of co-operative IORs. Mutuality is also associated with recognition of interdependence between the parties. The SCM philosophy of integration is rooted in the contingency of reciprocity and in the idea of co-operation for mutual long-term benefits, which provides a basis for partnership building.

Collaborative relationships are ways for customers to access supplier resources to complement their own needs. However suppliers may lack the required managerial systems and techniques, such as experience with teams (Hartley and Jones, 1997) or the necessary employee skills or training required to implement improvement ideas (Handfield and Monczka, 2000). PM related assistance provided by customers to suppliers might take various forms such as in-house training, provision of documentation, in-planting personnel in the supplier’s facility or encouraging joint visits and conferences (Beaumont et al., 1996).

Supplier development programmes can provide a basis for trust development and a way to limit the risk linked with a reduction of the supplier base (Hunter et al. 1996). In-depth audits are conducted, that may involve assessing supplier managerial and personnel capabilities (Blois, 1972; Handfield and Nichols, 1999; Hunter et al., 1996).

Indeed as the relationship becomes closer, there is a shift in the customer's focus, from looking at outputs to looking at inputs including quality commitment and employee involvement (Hunter et al., 1996). The changes that are required by the partnership may involve bi-lateral adaptation between customer and supplier (Hunter et al., 1996). The reciprocal contingency can provide a background for an adaptation of PM to fit the needs of the partner (Wilson, 1995). Scarbrough (2000) describes a situation where the buyer's assistance consists in providing support for the development of a customised production line in the factory. This has implications, in terms of employment relationship and work practices, which actually create a tension with the existing internal policies. Thus, partnerships may involve "tensions between process and hierarchy" (Scarbrough 2000:8).

Efficiency

"Efficiency contingencies are internally rather than externally, oriented" (Oliver, 1990 p245). At the core of the efficiency contingency is the internal need to optimise the cost/benefit ratio (Cooper and Gardner, 1993; Oliver, 1990). This involves making decisions as to what to make or outsource in order to economise on transaction costs. Internal performance is indeed impacted by the relationship as close integration is expected to reduce logistics costs (Lambert et al., 1996), or to allow a sharing of technological expertise (Lamming, 1993).

There may be a link between the quality of PM and efficiency of the supply relationship (Hunter et al., 1996; Scarbrough, 2000). Indeed, it may be argued that certain management and workforce capabilities are required to allow effective communication, participation in cross-functional teams and problem solving within partnerships (Hunter et al., 1996). Scarbrough (2000) stresses the importance of SC socialisation as a means of achieving greater efficiency. This involves training, team working and development of team leaders.

Stability

"Uncertainty prompts organizations to establish and manage relationships in order to achieve stability, predictability, and dependability in their relations with others" (Oliver, 1990 p246). Indeed Haokansson and Snehota (1995) report ten to twenty years as an average for relationship duration between main customers and suppliers. Such a time span involves a reduction of uncertainty but also entails the risk of institutionalisation of the relationship. This means the relationship is taken for granted and may lead to a loss of focus on the partner's requirements or to a power imbalance (Haokansson 1982).

Ring and Van de Ven (1994) argue that formal interactions between individuals in a relationship may evolve over time into informal ones, so that high people turnover can negatively impact the efficiency and flexibility of the relationship (Ring and Van de Ven, 1994). Conversely, if employees stay over the long-term in the relationship, there may be a risk of "side-changing" (Haokansson, 1982) or "going native" (Lei et al., 1997), which involves acting in the interest of the other company, and against their own, on the strength of their personal allegiances (Haokansson, 1982).

Legitimacy

"The enhancement of organizational legitimacy also has been cited as a significant motive in the decision for organisations to interconnect" (Oliver, 1990 p246). This involves adopting the practices of another more prestigious firm as a way to improve the organisation's reputation, and therefore can involve an homogenisation process

whereby organisations become increasingly similar (DiMaggio and Powell, 1983). Abrahamson (1996) argues that such process of mimicking may be a mere response to fashions or fads.

Thus suppliers may respond to “fashions” set by customer development programmes, which require implementation of new practices, such as employee attitude surveys, suggestion schemes or team working arrangements (Beaumont et al., 1996). Scarbrough (2000) cites Thompson and Wallace who argue that team working has implications on other practices such as worker empowerment, skill development and multiskilling, “In this perspective, the spread of team working and other new production practices from one firm to another advances the creeping institutionalisation of inter-firm relations” (Scarbrough, 2000 p6). Scarbrough (2000:6) actually refers to SC effects as being an “institutional innovation”.

Oliver (1990) argues that the different contingencies presented above may interact and occur concurrently. To some extent this has been illustrated in the review performed in this section, which has stressed on the one end that asymmetric buyer intervention could involve reciprocity in that it involved a balanced exchange (Bresnen and Fowler, 1998), whilst PM assistance also involved a reluctance to relinquish control (Scarbrough, 2000). Thus, a boundary may not be easy to draw between these different contingencies. However, a reciprocal contingency may be called for in order to allow a mutual adaptation of the two partners (Hallen et al., 1991).

2.4.2 DIMENSIONS AND PM ISSUES

Section 2.4.1 has provided a theoretical perspective on the way that supply relationships are managed together with implications of various contingencies in terms of people management. The intent of this section is to examine a set of variables identified in the literature in order to characterise supply relationships. Table 2.4 shows the dimensions identified; each of these dimensions is reviewed thereafter.

It should be recognised here that most of the research conducted on characteristics of relationships aims at better understanding how the different dimensions can either contribute to partnership success (Mohr and Spekman, 1994; Monczka et al., 1998) or provide managerial guidance for running such relationships (Cooper and Gardner, 1993; Ellram, 1995b). To some extent, this review follows such a path in that it aims to examine each of these dimensions and develop a rationale for identifying eight specific characteristics, together with their related PM issues. Hence, further to the review of contingencies performed within section 2.4.1, a reciprocal background is explicitly adopted here.

Author	(1) Trust	(2) Commitment	(3) Dependence	(4) Power	(5) Conflict	(6) Performance	(7) Time Horizon	(8) Compatibility	(9) Goals	(10) Information sharing	(11) Relationship structure	(12) Coordination mechanisms	(13) Locus of decision making	(14) Top management commitment
(Bessant et al., 1994)			X						X	X	X	X	X	X
(Cooper and Gardner, 1993)			X				X	X		X		X		
(ElIram, 1995b)								X	X	X	X			X
(Gardner et al., 1994)				X			X			X	X	X		
(Kanter, 1994)								X	X	X	X	X	X	X
(Lewin and Johnston, 1997)	X		X				X			X				
(Mohr and Spekman, 1994)	X		X						X	X		X		
(Monezka et al., 1998)	X		X							X				
(Whipple and Frankel, 2000)	X					X		X	X					X
(Wilson, 1995)	X		X	X		X			X		X			

Table 2-4 Dimensions for characterising supply relationships

(1) Trust

Definitions of trust are generally centred on two views: confidence in the predictability of one's expectations and confidence in another's goodwill (Ring and Van de Ven, 1994). The predictability view is illustrated by Mohr's (1994) definition of trust as "the belief that a party's word is reliable and that a party will fulfil its obligation in an exchange", whilst Wilson's (1995 p337) definition: "a belief that one relationship partner will act in the best interests of the other partner" highlights the goodwill side of trust.

Some researchers suggest that it is difficult to define and measure trust in a relationship (Whipple and Frankel, 2000; Wilson, 1995). Trust can either be seen as antecedent or as an outcome of other relationship dimensions. Thus trust is a necessary antecedent of mutual goals or information sharing (Whipple and Frankel, 2000) and of long term orientation (Lewin and Johnston, 1997). It is also an antecedent of contractual coordination mechanisms (Monczka et al., 1998). Indeed "if partners have trust, it may be unnecessary to cover all contingencies" (Dwyer et al., 1987 p23).

Trust can also be viewed as an outcome, in so far as it is the cumulative product of past interaction (Ring and Van de Ven, 1994), reinforced by social bonding (Wilson and Jantrania, 1993) and evidence of personal integrity (Frazier et al., 1988). Decision making ability is another source of trust (Whipple and Frankel, 2000).

(2) Commitment

"Commitment refers to an implicit or explicit pledge of relational continuity between exchange partners" (Dwyer et al., 1987 p19). Most definitions of the commitment construct refer to a long term orientation (Dwyer et al., 1987; Lewin and Johnston, 1997; Mohr and Spekman, 1994; Wilson, 1995). Committing resources to the relationship is another criterion of commitment (Dwyer et al., 1987; Monczka et al., 1998). A high level of commitment provides a favourable context in which both individual and joint goals can be achieved. Conversely, existence of mutual goals can be viewed as a necessary condition for a long term commitment to the relationship (Lewin and Johnston, 1997).

(3) Dependence

Mutual dependence is derived from the awareness that none of the partners can achieve their goals independently, therefore there is a perceived mutual benefit from maintaining the relationship (Lewin and Johnston, 1997; Mohr and Spekman, 1994). This is expressed through a willingness to help in difficult situations, in as much as parties are willing to accept short term losses, because each expects long-term benefits (Cooper and Gardner, 1993). The level of dependence can be assessed, based on the number of available alternative partners for the same level of quality (Wilson, 1995).

(4) Power

Power can be viewed as the ability to achieve intended effects or goals (Dwyer et al., 1987). Relative dependence on the other party for valued resources determines the balance of power within the relationship (Dwyer et al., 1987; Hallen et al., 1991; Wilson, 1995). Although a reciprocal contingency, identified in the previous section as relevant for this study, implies a balanced distribution of power, it follows from Oliver (1990) that there can be interplay of asymmetrical elements within the main reciprocal contingency.

(5) Conflict

Conflict, defined as divergence of goals and role preferences, is predictable within a relationship (Dwyer et al., 1987). Depending on the resolution technique chosen,

conflict can either have a constructive or a destructive role. Indeed domination or confrontation are counterproductive and suppression or avoidance of the conflict does not eliminate the problem. Conversely adoption of techniques, such as persuasion or joint problem solving means that more frequent communication take place, grievances are aired so that mutually satisfactory solutions can be reached (Dwyer et al., 1987; Mohr and Spekman, 1994; Monczka et al., 1998). Recourse to third party arbitration, whilst helpful for dealing with a particular conflict episode, is less effective than internal resolution over the long term (Mohr and Spekman, 1994).

(6) Performance

Meeting performance expectation requires definition and sharing of performance information. Performance assessment involves evaluating the extent to which each partner has carried out its obligations in relation to the relationship goals (Whipple and Frankel, 2000). Performance satisfaction includes both product specific performance and non-product attributes (Wilson, 1995). Joint appraisals reinforce the collaborative nature of the relationship (Frazier et al., 1988).

(7) Time horizon

Extendedness refers to the loyalty and long term expectations of the two parties (Cooper and Gardner, 1993). This is reinforced by joint positive outcomes gained from the relationship (Lewin and Johnston, 1997). The long-term characteristic of the relationship requires attention, beyond the short-term performance, for the long-term capabilities of the partner (Ellram, 1990). The long-term horizon of contracts allows payback time for investments (Cooper and Ellram, 1993).

Management of turn over is an important process in that people should not be allowed to work within the relationship for too long, to avoid the risk of “side changing” (Haokansson, 1982) or “going native” (Lei et al., 1997). Conversely, too frequent people turnover can be seen as detrimental to the maintenance of interpersonal relationships (Ring and Van de Ven, 1994).

(8) Compatibility

Sharing compatible values is an essential part of the relationship success (Lambert et al., 1996) in so far as they make it easier to set and achieve similar goals (Cooper and Gardner, 1993). However, operational and cultural differences can emerge after collaboration is under way. These differences can be related to authority and reporting styles (Kanter, 1994), and they can affect the partners’ ability to work together in the relationship (Whipple and Frankel, 2000). Indeed cultural disparity may increase the probability of friction, but “bridge building” minimizes the friction and smoothes operations (Cooper and Ellram, 1993), in as much as people involved in the relationship are willing to develop the necessary skills to bridge the cultures (Kanter, 1994). The lack of shared values and methods is enhanced when the partners are from countries, which are far apart culturally and/or geographically (Anderson and Weitz, 1989). A specific culture can develop within the relationship (Bessant et al., 1994; Lamming, 1993; Wilson, 1995)

Socialisation is a way to enable managers to familiarize themselves with their partner’s organizational culture (Das and Teng, 1998). Indeed close interaction is a way to achieve the aim of culture blending (Das and Teng, 1997) and understand each other’s operations (Cascio and Serapio M.G. Jr., 1991). Development of a specific language pertaining to the relationship can help overcome differences in technical terminology (Bessant et al., 1994). Compatibility of management style is important in that it can help avoid the “we-vs. them” finger-pointing (Slowinski, 1992).

(9) Goals

“Mutual goals are the glue holding a relationship together in times of stress” (Wilson, 1995 p341). Shared goals are a key factor for establishing successful relationships (Ellram, 1995b). They can only be accomplished through joint action and are a strong reason for relationship continuance (Wilson, 1995). Indeed divergent goals may be a source of conflict (Anderson and Weitz, 1989; Dwyer et al., 1987). Goals need not be the same, but each partner should have specific goals, which should not be incompatible (Das and Teng, 1997; Lambert et al., 1999). Joint participation in planning and goal setting is a way to clarify mutual expectations and define co-operative efforts (Mohr and Spekman, 1994).

Goals should be clear, both at strategic and operational levels, and need to be clearly communicated throughout the organisation (Bessant et al., 1994; Slowinski, 1992; Whipple and Frankel, 2000). Indeed, whilst the relationship can make sense at strategic level, this may not be obvious at an operational level, below top management (Kanter, 1994). Developing reward systems in support of the common goals should provide the incentive for people to achieve the relationship objectives (Wilson, 1995). Indeed, the question of pay has been identified as a potential source of tension within SC relationships (Scarborough, 2000).

(10) Information sharing

Two-way information sharing is a key factor in establishing and maintaining relationships (Ellram, 1995b; Wilson, 1995). Information sharing leads to information symmetry, and allows partners to identify and develop more commonalities (Das and Teng, 1998). Effective information sharing between the partners can be judged based on the quality of the information exchanged, namely its timeliness, accuracy and relevance. It can also be assessed based on the extent to which critical or proprietary information is exchanged (Mohr and Spekman, 1994; Monczka et al., 1998). Honest and open communication lines help strengthen the ties between the partners (Mohr and Spekman, 1994), in that issues are resolved through continuing dialogue (Bessant et al., 1994). Transfer of routine information between the parties can be facilitated by joint implementation of customised electronic communication (Cooper and Gardner, 1993; Gardner et al., 1994; Lambert et al., 1996). Beside information, which relates to easily codifiable, explicit knowledge, partners can share know-how, which refers to tacit, difficult to codify knowledge (Dyer, 2000; Dyer and Singh, 1998).

People management processes in support of information and knowledge sharing involve the development of specific organisational routines. Whilst meetings or forums can facilitate the exchange of information (Ashkenas, 1990; Cooper and Gardner, 1993; Jick, 1990; Kanter, 1994) intense interaction is necessary to foster the exchange of tacit knowledge (Dyer and Nobeoka, 2000; Lei et al., 1997; Wilson, 1995). Providing staff with clear guidelines about what information should be exchanged can help avoid risks of leakage of proprietary information (Lei et al., 1997).

(11) Relationship structure

According to the relationship marketing literature, organisations can choose between the bowtie and the diamond approaches to inter-firm relationships (Figure 2.10). These two approaches feature different degrees of ties between the companies (Carter and Ellram, 1994; Christopher and Jüttner, 2000a; Cooper et al., 1997).

The bow-tie approach characterises arm’s length relationships in that it shows the interface is confined to a single point of contact, traditionally sales and purchasing, with the majority of the two firm’s functions far from each other in terms of communication

and interaction (Kanter, 1989). On the positive side, this interface structure concentrates communications at one point within each firm, thus avoiding an overload of information and the confusion that may occur when different communication points are in contact (Carter and Ellram, 1994; Good and Schultz, 1997). On the negative side, other units may possess greater knowledge and information than the point of contact thus reducing the richness and efficiency of the inter-organisational communication flows (Carter and Ellram, 1994).

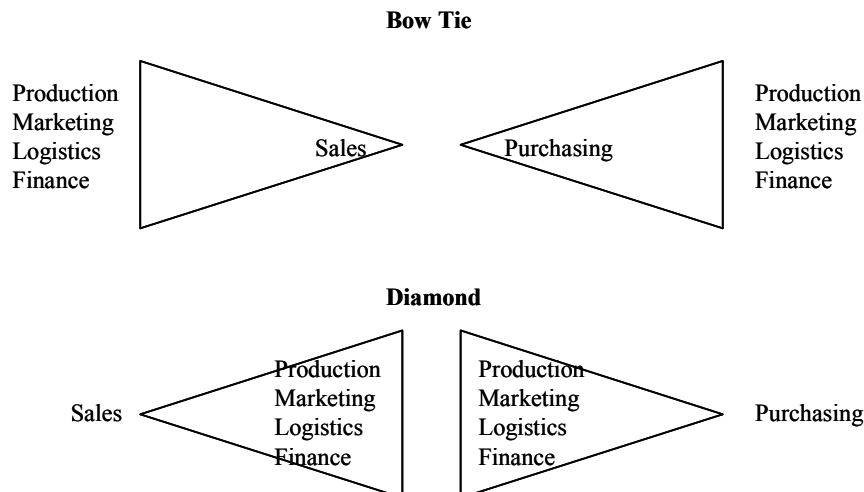


Figure 2-10 Bow-tie vs. diamond perspectives. Source (Cooper et al., 1997)

In a diamond relationship, which characterises close relationships, there are multiple functions and units, which are in contact across multiple levels in both organisations (Ellram, 1995a; Kanter, 1994; Lambert et al., 1996). Indeed the interpenetration can make it difficult to distinguish employees from one organisation from employees of the other (Kanter, 1989). Such a broad involvement provides a stable foundation for the relationship (Frazier et al., 1988).

The relationship structure is made up of staff drawn from both organisations, who need clear team roles and positions, objectives and targets (Bessant et al., 1994). The multiple points of interaction, which also encompass cross-functional teamwork, allow high flexibility, the development of mutual knowledge and active communications necessary to reach problem resolution. A major disadvantage of diamond relationships, however, concerns the effort that may be required to manage the exchange. It becomes more difficult to keep relevant parties equipped with timely information, and the multi-functional cross-organisational coordination becomes more costly in terms of time and other resources (Carter and Ellram, 1994). Setting up the partnership team may involve the difficulty of matching up of comparable levels and individuals across the partners' organisation (Jick, 1990).

Interpersonal relationships can be fostered by joint attendance to recreational and educational events (Kanter, 1989). These social bonds are a motivation for relationship maintenance (Wilson, 1995). Kanter (1989) refers to the importance of participative skills, such as gathering information, listening to others, seeking consensus. Personal compatibility of key individuals involved in the relationship is important. They need to be able to understand one another and develop a meaningful communication pattern as a basis for resolution of upcoming issues (Kanter, 1994; Spekman et al., 1996). Therefore frequent turnover can be disruptive, in that individuals can no longer rely on established

interpersonal ties (Das and Teng, 1997; Ring and Van de Ven, 1994; Spekman et al., 1996).

(12) Coordination mechanisms

The need to co-operate raises the issue of co-ordinating the exchanges between the partners (Boryst and Jemison, 1989; Cooper and Gardner, 1993; Mohr and Spekman, 1994). The mechanisms that regulate the collaborative efforts within a relationship can be based on rigid, formal contracts or on more flexible and informal mutual adjustments (Bessant et al., 1994; Frankel et al., 1996; Ring and Van de Ven, 1994; Sobrero and Schrader, 1998). Coordination mechanisms should ideally be aimed at nurturing rather than controlling the relationship (Kanter, 1994). Thus shared responsibility for results can be contrasted with an approach to coordination, which emphasises inspection and checking (Bessant et al., 1994). Whilst formal written contracts provide a legal mechanism for governing the relationship, they cannot substitute for the day-to-day interaction necessary to the actual process coordination within the relationship (Sobrero and Schrader, 1998).

Thus coordination involves a reliance on management control systems that necessitate investment in people management processes, such as training, regular visits (Hunter et al., 1996), face to face communication (Cooper and Gardner, 1993) as well as joint cross-functional teamwork (Kanter, 1994). The use of joint problem solving and of other improvement techniques signals a shared quality approach to coordination (Bessant et al., 1994).

Whilst co-operation should be fostered at operational level, which pertains to the management of day to day activities (Burnes and New, 1997; Das and Teng, 1997), this does not preclude the existence of competition at strategic level in respect to inter-firm learning (Das and Teng, 1997). Depending on the types of people management system, firms may or may not be in a good position to learn from their partner, or to protect their knowledge assets (Lei et al., 1997).

(13) Locus of decision-making

Relationships can be characterised through the amount of centralisation and degree of freedom of decision of the relationship members (Van de Ven, 1976). A clear mandate from management is necessary for the employees within the relationship to be empowered to make decisions on behalf of their firms (Ring and Van de Ven, 1994). When direct decision-making is supported, quicker, more visible and more effective decisions are made (Bessant et al., 1994). A certain level of autonomy can give managers the flexibility to adapt to the local requirements of the relationship (Kanter, 1994).

Relationships are more egalitarian than traditional hierarchies; they require consultation and an increase in co-operative decision-making. Thus, traditional roles may change and become broader to account for new business responsibilities and interaction with another firm. Therefore new types of managerial capabilities may have to be developed by those who work within the relationship (Kanter, 1989; Kanter, 1994; Lorange and Roos, 1991). Differences, which pertain to authority or levels of empowerment, reporting lines and decision making styles become all the more visible as the alliance is well under way. Such differences need to be worked out between the partners, in order to allow the smooth operational functioning of the collaboration. This requires a learning about these differences and an extensive communication to manage them (Kanter, 1994).

(14) Top management commitment

Top management support from both firms is identified as one of the key elements of success (or failure if it is missing) of relationships (Bessant et al., 1994; Ellram, 1991a; Ellram, 1995b), in as much as it provides the direction and resources needed for success (Ellram, 1991a). Top management involvement should not be limited to the early stages but should be maintained throughout the relationship (Kanter, 1989). Thus, comfortable personal relationships can develop between senior executives (Kanter, 1994).

Commitment to the relationship needs to permeate the organisation. Awareness of the relationship can be extended to many functions in the organisation through internal communication programmes (Bessant et al., 1994). Indeed a “hierarchy gap” may exist whereby there is broad agreement at the top, which is not carried on to the operational level (Buono, 1997). Senior management can show support by committing enough resources to the relationship, such as personnel or time (Whipple and Frankel, 2000). Some partners may not wish to assign their best people to the relationship, because they want to keep them for other projects (Kanter, 1994; Lorange, 1986). However the quality of the managers selected signals the seriousness of the partnership for each firm (Kanter, 1989; Kanter, 1994; Lorange, 1986).

2.4.3 SPECIFIC CHARACTERISTICS AND RELATED PM ISSUES

From the above literature review, a set of specific characteristics of reciprocal supply relationships can be derived, as well as a tentative list of related people management issues (Table 2.5).

The reason for narrowing down to eight dimensions, from the longer list reviewed in 2.4.2., is that constructs, such as trust, commitment, dependence, power and conflict can be viewed as connected to the inter-play of contingencies, such as reciprocity and asymmetry, whilst performance can be linked to the efficiency contingency (Oliver, 1990). Hence, these constructs, which are related to a theoretical perspective on the supply relationship, are expected to influence each dimension of the supply relationship. Thus, for example “goals” may exhibit a mixture of commitment (reciprocity), together with power and conflict (asymmetry) or performance (efficiency).

Dimension of the relationship	Specific characteristics of Reciprocal supply relationships	Tentative list of related People management issues
Goals	Goals are shared, explicit and clear at strategic and operational levels	Goal communication; rewards support the goals.
Information sharing	Open and prompt two-way information sharing	Development of specific organisational routines to support information sharing.
Relationship structure	Multiple levels and functions are in contact. Clear communication channels. Interpersonal relationships	Fostering social bonds. Frequent people turnover as disruptive
Coordination mechanisms	Formal as well as informal mechanisms govern the relationship	Training, visits, teamwork
Locus of decision making	Clear decision making process, mandate from top management	Empowerment of the teams; broader roles
Top management commitment	Top managers jointly support the supply relationship	Communication about the relationship; resource allocation
Time horizon	Long term	Management of people turnover.
Compatibility	Compatibility of organisational culture and management philosophy	Socialisation

Table 2-5 Specific characteristics of reciprocal supply relationships and related people management issues

Thus, the eight specific characteristics can be used as a diagnostic tool to study the way that the supply relationship is managed. The list of PM issues, displayed in table 2.5, is only tentative in that the link established with the relationship is tenuous, rather than the result of either theoretical or empirical evidence.

2.4.4 SUMMARY

The review of the literature on supply relationships has shown that there is no single framework that makes a link between dimensions of supply relationships and related PM issues. Hence, a set of eight dimensions has been identified together with their characteristics in relation to reciprocal supply relationships. A tentative link of these dimensions with PM issues has been attempted that would require further empirical grounding.

2.5 PEOPLE MANAGEMENT PRACTICES WITHIN SUPPLY RELATIONSHIPS

The intent of this section is to identify a conceptual grounding for the study of people management practices within supply relationships. Therefore, PM practices are investigated in section 2.5.1, in order to understand the specific issues that have been raised in relation to supply relationships and other forms of alliances. Then two possible conceptual frameworks are identified in 2.5.2 that may provide a theoretical backing for a study of PM practices within supply relationships. These two frameworks are in line with the concept of “hybrid” developed in 2.3.

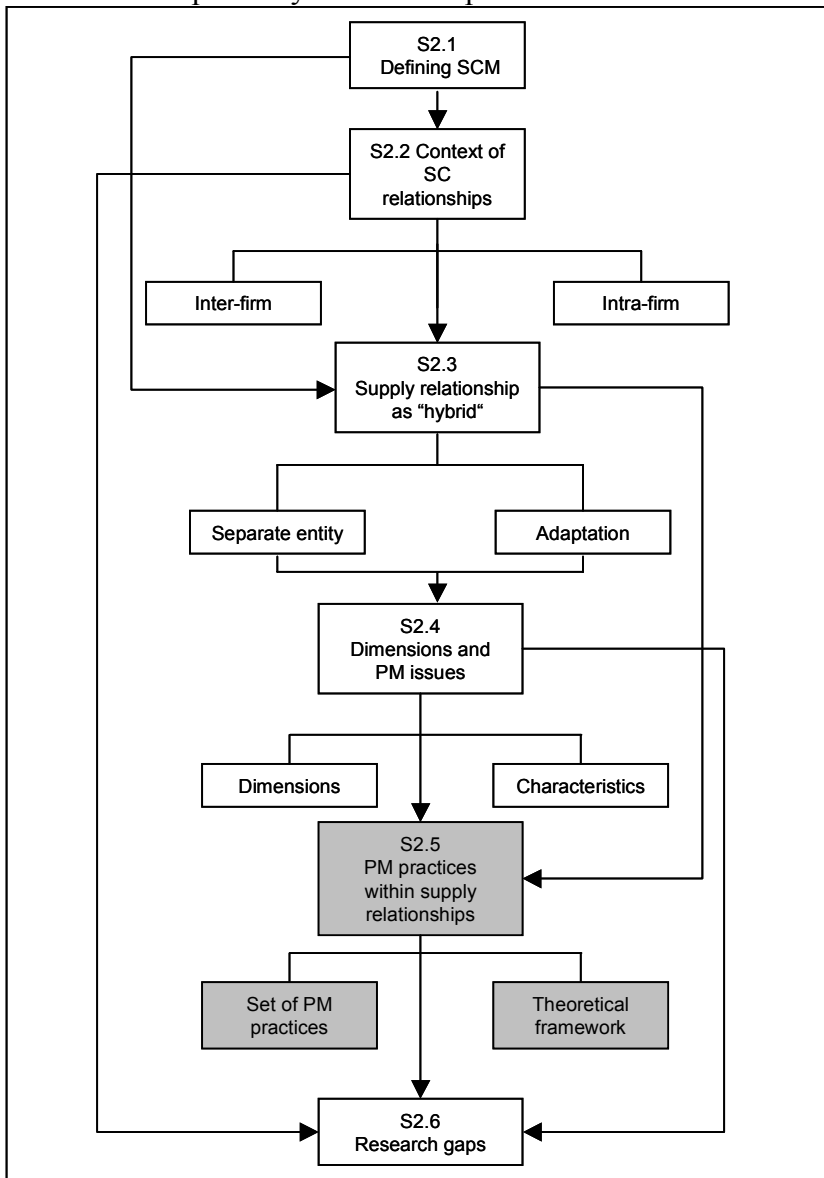


Figure 2-11 People management practices within supply relationships

2.5.1 SET OF PM PRACTICES IN THE CONTEXT OF SUPPLY RELATIONSHIPS

This review highlights specific guidelines that have been expressed about PM practices within supply relationships or other forms of alliance types. Indeed, such contexts generate their own particular sets of requirements in terms of PM practices that influence the way that firms interact (Lei et al., 1997).

Table 2.6 shows a sample of studies that have specifically discussed a set of PM practices in relation to the inter-firm context. A large number of these studies pertain to international joint ventures (IJV), because most of the conceptual and empirical research in the alliance area has dealt with IJVs (Schuler, 2001). Such literature is relevant for this study, in that joint ventures have been viewed as a form of SCM (Ellram, 1991b), and that such organisational arrangements are included in the concept of “hybrid” (Borys and Jemison, 1989).

Author	Staffing	Job design	Appraisal	Rewards	Training and development	Socialisation	Communication	Career	Other
(Cascio and Serapio M.G. Jr., 1991)	X	X	X	X	X			X	Labour management relations
(Christopher and Jüttner, 2000b)	X	X			X		X		
(Kanter, 1994)		X			X	X	X		
(Frayne and Geringer, 1990)	X		X	X	X				
(Lorange, 1986)	X	X	X					X	Transferability Loyalty issues
(Lorange and Roos, 1992)	X	X					X		
(Pucik, 1988)	X		X		X				HR planning Organisational design
(Schuler, 2001)	X	X	X	X	X	X	X	X	HR planning Employee welfare

Table 2-6 People management practices discussed within supply relationships or other forms of alliance types

This section examines each individual practice, and attempts to provide a definition in the context of the supply relationship.

Staffing

Choosing the appropriate persons for assignment to work in a relationship is not an easy task. Indeed the partners may have a different perception, not only of the needed skills and competencies for the job (Cascio and Serapio M.G. Jr., 1991; Lorange, 1986; Schuler, 2001), but also may differ in their appreciation of the skills and competencies of the individuals assigned (Lorange, 1986). Moreover, some partners may not wish to assign their best people to the relationship, because they want to keep them for other projects, so that the alliance becomes a dumping ground for sidetracked executives (Das and Teng, 1997; Frayne and Geringer, 1990; Lorange, 1986; Pucik, 1988). Yet it may be argued that the quality of the managers selected signals the seriousness of the partnership for each firm (Kanter, 1989; Lorange, 1986).

Managers' short tenures are an issue with respect to staffing an alliance, for two reasons: firstly, the short tenure means that they are not allowed to effectively accumulate experience, and this is to the detriment of the continuity of the alliance management (Das and Teng, 1997; Frayne and Geringer, 1990); secondly, that the intangible but valuable interpersonal ties across both partners are inevitably damaged (Das and Teng, 1997; Ring and Van de Ven, 1994).

The alliance management requires consideration of inter-personal relationships, especially with respect to alliance leadership. Compatibility in interpersonal styles can facilitate good communication and interaction (Christopher and Jüttner, 2000b; Dion et al., 1995; Lorange, 1986). The assigned people need to be able to understand one another and develop a meaningful communication pattern. This refers to the importance of participative skills, such as gathering information, listening to others, seeking consensus (Kanter, 1989), an ability to communicate and interact within an inter-organisational setting (Lorange, 1986).

Selection and motivation of the people who sit on the alliance team is a vital step in alliance planning. The aim is to ensure these people have relevant capabilities and are of adequate quality (Schuler, 2001) to ensure joint value creation. The required mix of competencies can be different depending on the strategic purpose of the relationship (Harvey and Richey, 2001; Lorange and Roos, 1992), but should reflect a balance of the interests of both partners of the IJV (Schuler, 2001).

Alliance managers need to display specific skills and competencies not only to carry out their assignments across the boundaries of the partners' organisations (Harvey and Richey, 2001; Spekman et al., 1998a) but also to make PM judgements on team effectiveness and contribution towards goals (Harvey and Richey, 2001; Lorange, 1986). Such skills involve an ability to be at the same time a "networker and a facilitator who links functions, areas, people and partners", whilst also ensuring that the relationship goals and objectives are met (Spekman et al., 1996 p353). Whereas certain skills, such as business knowledge or interpersonal skills can be taught, other competencies needed by alliance managers, such as virtual thinking, are innate (Spekman et al., 1996). Thus alliance managers need to develop skills beyond those of traditional managers (Schuler, 2001), and this involves as well an ability to juggle with the politics of different parties on which they do not have direct control (Buono, 1991), hence this draws on more diplomacy and negotiation abilities than power (Christopher and Jüttner, 2000b; Kanter, 1994).

Staffing is defined here as:

The choice of appropriate persons to work within the supply relationship.

Job design

Management of the relationship involves allocating time both to the operational and to the strategic side and this also means that sufficient people resources need to be allocated to both types of activities (Lorange, 1986; Schuler, 2001). Managers may be more concerned with their future in the parent organisations than with conducting their activities within the alliance (Kanter, 1994). Indeed, pressures and work demands can easily compete for managers' and employees' time and attention, so that they are drawn away from the relationship tasks (Kanter, 1994; Lorange, 1986; Lorange and Roos, 1991). A common understanding and a clear division of roles across the partners helps ensure that enough time is spent on strategic activities (Lorange, 1986; Lorange and Roos, 1991).

In preparation for the alliance, documentation of the way that activities are to be executed may also address plausibly possible job security issues (Lorange and Roos, 1992).

Staff involved in alliance activities need new types of managerial capabilities (Kanter, 1994) that involves dealing with ambiguity and displaying a mature attitude (Lorange and Roos, 1991). This also can involve new, enlarged role (Kanter, 1989). A joint approach involving learning from each other's strengths and weaknesses can facilitate the redesign of jobs and the creation of new roles (Cascio and Serapio M.G. Jr., 1991; Kanter, 1994).

Job design is defined here as:

The process of combining tasks and responsibilities to form complete jobs and the relationships of jobs within the supply relationship.

Performance appraisal

Even though the partners may have different objectives, it is generally possible to develop a set of consistent criteria for appraising the employees working on the IJV (Frayne and Geringer, 1990). Joint assessment of the team contribution allows a judgement on performance, which is as free as possible from individual partner bias (Lorange, 1986). Managers with a short tenure or with short-term goals are appraised based on immediate results rather than on their ability to develop long-term performance through learning (Pucik, 1988). Indeed performance appraisal criteria can include processes of socialisation such as team performance and cooperation as well as output measures that are task driven (Lei et al., 1997; Schuler, 2001).

Performance appraisal is defined here as:

A formal system to provide information about how well jobs are being performed and objectives are being met within the relationship.

Rewards

Explicitly tying an employee's bonus to the attainment of the IJV's long-term strategic objectives is a way to encourage the employee to develop an allegiance to the IJV. (Frayne and Geringer, 1990). Indeed, executives assigned to a partnership are often rewarded based on a limited business area, thus not supporting the global strategy (Pucik, 1988), so that they end up opposing the alliance or undermining it because it conflicts with their local interests (Kanter, 1994). Similarly, within large MNCs, because of organisational barriers, sites are not encouraged to commit resources, in order to help each other or to allow improvements at overall chain level. Therefore,

organisational incentives should be redesigned and new performance systems developed at overall company rather than site level (Lee and Billington, 1992).

Reward systems can either emphasise qualitative factors, such as team performance, cooperation with other people or units or on the other hand, they can place a greater premium on achieving quantitative measures of performance at the expense of the relational aspect. Whilst the latter performance-based systems can be useful for managing short-term result-oriented relationships, they are a hindrance in the context of long-term relationships. Indeed the short-term pressure for delivering objectives does not allow the “luxury of time” to allow long-term learning (Lei et al., 1997).

Reward is defined here as:

Rewards are exchanged by organisations for the contributions of their employees and may pertain to the relationship.

Training and development

Training is a mechanism for knowledge and information transfer (Schuler, 2001). A key element of training is orientation of new employees. This involves a focus on developing the technical skills needed for the job as well as being prepared to deal with the social context of their job and coping with insecurities and frustrations that may pertain to it (Cascio and Serapio M.G. Jr., 1991). Training programmes can be used to develop relation-specific skills, either in terms of control systems and procedure or pertaining to softer abilities, such as inter-personal or team working skills (Hunter et al., 1996).

Training can serve the purpose of organisational socialisation through orientation and on-the-job-training, which can improve the employee’s understanding of the partner’s business practices. This may involve training in inter-personal skills, in negotiation or conflict resolution skills (Frayne and Geringer, 1990). Indeed knowledge of the business cannot compensate for a lack of understanding of the local national culture or a lack of language ability (Pucik, 1988). Temporary exchanges between the partners is an effective way of learning, however such exchanges should not only be uni-directional (Pucik, 1988). Participating in each other’s training programmes is a way to develop a common technical vocabulary (Kanter, 1994).

Training is defined here as:

Attempt to improve current or future employee performance by increasing (through learning) their ability to perform within the relationship.

Socialisation

A central mechanism for working across firms is the setting up of joint teams that can enable collaborative problem solving and sustained relationship building (Jick, 1990). Indeed setting up formal working committees signals commitment from both partners to the relationship and frequent face-to-face meetings are ways to build trust and inter-personal relationships that can pertain to multiple levels within the two firms (Ellram, 1995b; Spekman et al., 1996). Such interaction should not be limited to top management but also involve other managers and employees (Kanter, 1994). Specific forums to exchange ideas help companies import lessons from partners (Kanter, 1994; Lei et al., 1997), whilst allowing normative integration through group socialisation (Das and Teng, 1998).

Immersion in the partner organisation can allow a sharing of tacit knowledge, which is in essence opaque and difficult to transfer (Lei et al., 1997). Indeed learning a tacit

know-how involves a day-to-day contact with a skilled person (Lei et al., 1997; Nonaka, 1991).

Socialisation is defined here as:

Process by which employees and managers from both partners learn about and adapt to jobs, roles involving the other organisation's workplace. This encompasses face to face interaction related to teamwork as well as to more extended processes of interaction within the relationship.

Communication

Because alliances often take place within a competitive environment, top management do not always clearly communicate its strategic goals (Das and Teng, 1998; Pucik, 1988), so that the alliance may not always make much sense at operational level (Kanter, 1994), thus potentially creating resistance to the relationship (Christopher and Jüttner, 2000b; Lorange and Roos, 1991). Boundaries of cooperation may not be clearly articulated (Pucik, 1988). This can be done by providing staff with clear guidelines about what information to exchange (Lei et al., 1997).

Communication at an early stage is important with key internal stakeholders who can determine the success or failure of the alliance. Later, communication is extended to managers and other people who will have an active role, in order to ensure their commitment or buy-in and provide them with a clear understanding of the tasks ahead. (Lorange and Roos, 1992). Addressing job security issues is also part of the communication about the alliance (Lorange and Roos, 1992; McIvor and McHugh, 2000)

Communication is defined here as:

The provision of information to employees concerning all aspects of their employment and the wider issues relating to the organisation in which they work, with an emphasis on the relationship to which they take part.

Careers

People working within relationships should feel secure about their future career prospects. This involves having a sense of job security and a formal career planning for after the relationship is over (Kanter, 1989; Lorange, 1986). Long assignments to work with a partner may cause loyalty issues or "defections", hence it may be advised to rotate people on a regular, scheduled basis to avoid such issue (Lorange, 1986).

Career is defined here as:

Development of a career plan that encompasses the assignment to the supply relationship.

Conclusion

This review has demonstrated the need for identifying a set of practices that may have an effect on the supply relationship. Moreover, the review has highlighted three points. Firstly, as shown in table 2.6, there is no consistent set of PM practices, which has been found relevant for the study of supply relationships. Secondly, the review has not found much empirical evidence to document the way that these PM practices influence the supply relationship. Thirdly, the above review provided little guidance as to a theoretical grounding to guide the study of PM practices within supply relationship. Hence, the intent of the next section is to develop such a theoretical framework.

2.5.2 THEORETICAL FRAMEWORK

Whilst there are numerous studies that refer to the way that supply relationships are impacting the internal work organisation (Bresnen and Fowler, 1998; Imrie and Morris, 1992), few studies have attempted to develop an understanding of the influence of PM practices on supply relationships through empirical studies.

This research draws on two studies (Beaumont et al., 1996; Scarbrough, 2000), which provide possible theoretical avenues to support a study of PM practices within supply relationships. These studies are in line with a conceptualisation of the supply relationship as a “hybrid” (Borys and Jemison, 1989), which has an identity of its own and may involve an adaptation (Hallen et al., 1991).

Hunter et al (1996) argue that supply relationships may involve an adaptation (Hallen et al., 1991; Wilson, 1995) of PM practices. Another theoretical avenue is provided by Scarbrough’s (2000) call for an institutional perspective, which views PM practices as exhibiting regulative, normative and cognitive facets within supply relationships (Scarbrough, 2000; Scott, 1995).

2.5.2.1 Adaptation view

“The two organisations will still be subject to independent governance but will have in common a similar set of governance procedures and mechanisms specific to their joint working relationship, thus replicating in some measure the conditions within an integrated organisation” (Hunter et al., 1996 p244).

Hunter et al. take the view that partners within the supply relationship may be able to develop a common set of control mechanisms to operate the joint relationship by adapting their internal practices. The authors propose three levels of supplier development, with the third level being linked to a process of trust deepening, whereby the customer is able to shift the focus from checking supplier outputs to monitoring the nature and quality of their inputs, through the use of management control systems, which are similar to their own. Such changes may be imposed by the customer as a non-negotiable practice or be adopted at the supplier’s own initiative as a means of upgrading its internal system and business performance. Whilst the initiative for the change is generally customer-led, adaptation may not be unilateral in that customers may also have to alter their existing systems. (Hunter et al., 1996).

There is conflicting evidence in the literature as to whether or not such adaptation pertains to PM practices, or whether these remain relatively insulated from SC effects (Scarbrough, 2000). Thus Roper et al. (1997) found that new procedures and training, required within a supply relationship, received only cosmetic attention and were only adopted on the surface. Scarbrough (2000) contends that there is a conflict between the external requirements from supply relationships, which aim at tighter integration and the internal hierarchical work organisation. His argument is that some PM practices such as training, team working and socialisation may be more easily adapted than hierarchically determined conditions of employment, work rules and payment systems, which have to do with the organisation as a whole.

Theoretical arguments are present in the literature to support the fact that firms may be willing to adapt – whether as a unilateral or a mutual process (Hallen et al., 1991).

Indeed, it has been argued in section 2.3.2 that such adaptation may be an integral part of the coordination of the relationship (Borys and Jemison, 1989; Wilson, 1995).

Differences in the empirical evidence may call for a better understanding of the way that

firms adapt their PM practices to accommodate the requirements of their supply relationships.

2.5.2.2 Institutional view

“Patterns of interaction, expectations and roles are established which are not explicable in terms of the choices made by individual firms. As a result, supply chain effects look (...) like an institutional innovation, producing stability and meaning through novel structures and activities (...) this view links the development of the supply chain to the creation of new cognitive, normative and regulative structures at an inter-organisational level” (Scarbrough, 2000 p6-7).

Here, Scarbrough (2000) adopts Scott’s (1995) view of “institution” to characterise SC relationships:

“Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behavior” (Scott, 1995 p33)

Such a view is in line with the conceptualisation of the supply relationships as a “hybrid” (Borys and Jemison, 1989), which also involves a social system with an identity of its own (Van de Ven, 1976) (see section 2.3.1). Indeed, although constructed by individual actors, institutions “assume the guise of an impersonal and objective reality” (Scott, 1995 p34). Thus, it may be inferred from Scarbrough (2000) that PM practices would contribute to the supply relationship being an institutional innovation, possibly in that these policies and procedures may act as “carriers” (Scott, 1995 p52) for the regulative, normative and cognitive facets. Indeed these three elements need to be viewed as contributing concurrently to the institution:

“One possible approach would be to view each of these facets as contributing, in interdependent and mutually reinforcing ways, to a powerful social framework” (Scott, 1995 p34).

Following is a short review of each facet, together with a working definition.

Regulative facet (1995)

Scott argues that institutions can constrain and regularise behaviour through rule setting, monitoring and sanctioning activities using coercive mechanisms. This facet explicitly refers to the use of rewards and sanctions as ways to attempt to influence future behaviour. For the sake of this research, a regulative facet is defined as:

Formal rules and procedures, which aim to constrain and regulate behaviours and which may involve the use of rewards or sanctioning power.

Normative facet (Scott, 1995)

The emphasis here is placed on normative rules, which prescribe how things should be done. Normative rules define goals and objectives but also designate the appropriate ways to pursue them. Norms and values are embodied in roles as well as in the expectations, which prescribe what the actors are supposed to do. Thus, external pressures to conform are exerted, which, to varying degrees become internalised by the actors. Whilst imposing constraints on social behaviour, normative rules also empower and enable social action. Processes of socialisation are associated with this facet. For the sake of this research, a normative facet is defined as:

Norms and values, which prescribe behaviours and which may involve socialisation.

Cognitive facet (Scott, 1995)

This facet stresses the rules, which constitute the nature of reality and the frames through which the meaning is made. This refers to the construction and on-going transformation of common frames of meaning through a repeated process of interaction. The cognitive facet is rooted in information-processing activities, which also highlight the importance of language.

For the sake of this research, a cognitive facet is defined as:

Taken for granted assumptions and the construction of a common framework of meaning, which involve an interpretation.

Whilst Scarbrough (2000) provides broad guidelines for the use of the institutional perspective for a study of PM practices within supply relationships, more empirical data would be required to further develop his conceptualisation.

2.6 GAPS, RESEARCH QUESTION, CONCEPTUAL FRAMEWORK AND PROPOSITIONS

The intent of this section is to bring together all the elements from this literature review Chapter in order to identify research gaps, question and conceptual framework.

The logical flow that leads to this section is shown in Figure 2.12

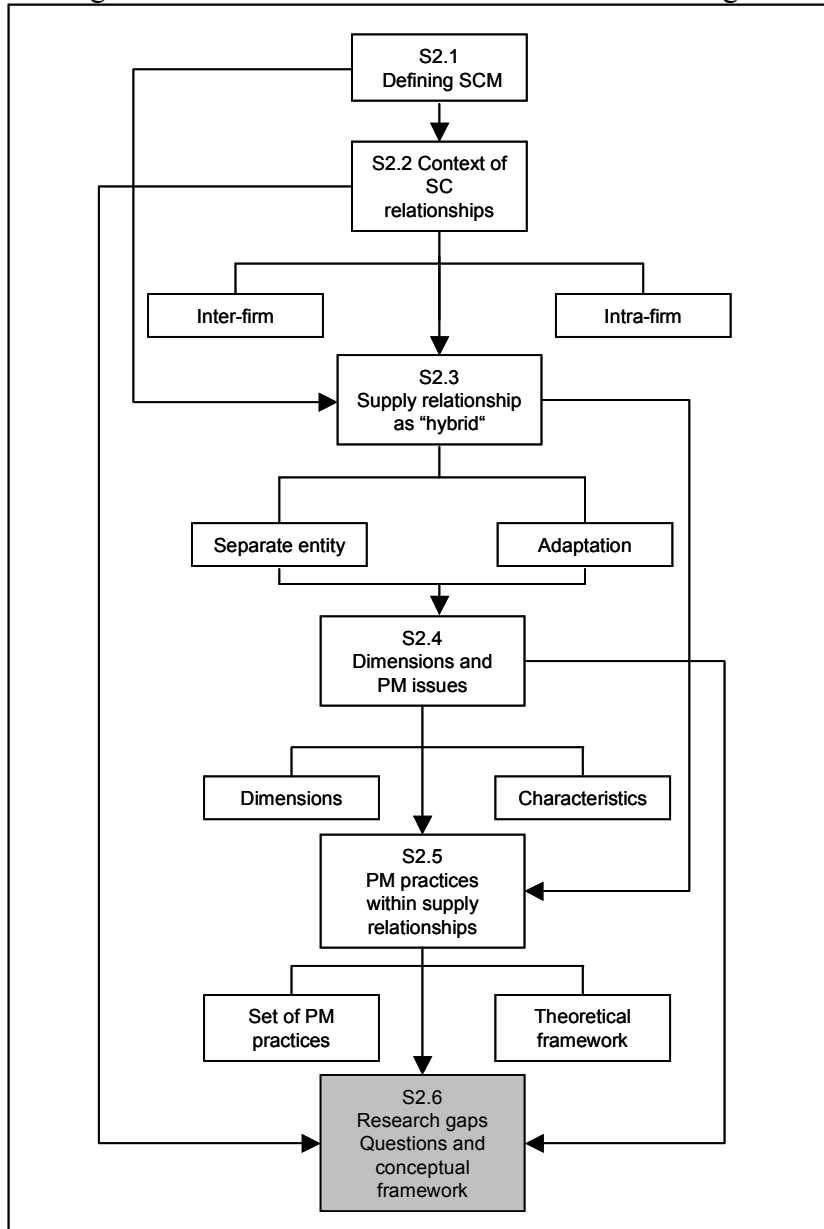


Figure 2-12 Research gaps, question and conceptual framework

2.6.1 RESEARCH GAPS

This review has highlighted a number of gaps in the understanding of the management of dyadic reciprocal supply relationships. These are briefly examined here under:

There is a gap in our understanding of the way that the inter- and the intra-firm contexts of SC relationships can be compared.

Section 2.2 has identified the level of the internal supply chain as being explicitly excluded from research on SCM and SC relationships (Harland, 1996), so that there is a lack of understanding of the conceptualisation of the management of strategic products supply chains within vertically integrated firms. A case has been made for the relevance of studying the intra-firm together with the inter-firm contexts. Thus the “hierarchical” and the “lateral” approaches have been identified, together with a lack of understanding of the extent to which these two approaches are being used in the inter- and intra-firm contexts.

There is a gap in our understanding of dimensions of reciprocal supply relationships, their characteristics and related PM issues, to support a comparison between theory and empirical evidence.

In line with other authors (Ghoshal and Bartlett, 1990), this research has drawn on the inter-organisational relationship literature to conceptualise the inter-firm as well as the intra-firm contexts. Thus, section 2.3 has identified the “hybrid” concept, which involves a separate entity and an adaptation process, and which may be relevant for the conceptualisation of PM practices within the supply relationship. Then section 2.4 has narrowed down this research to a reciprocal contingency and has examined dimensions of supply relationships to identify a set of eight characteristics of reciprocal relationships and their related PM issues.

There is a lack of empirical evidence on the way that PM practices influence supply relationships.

Section 2.5 has started with a review of the literature on PM practices within supply relationships and other forms of alliance types. However, this review has shown gaps from three perspectives. Firstly, a large part of this literature pertains to international joint ventures and therefore has overlooked the study of PM practices within non-equity alliances. Secondly, this literature has shown a bias towards studying PM practices that pertain to alliance management level. Finally, this literature has provided little empirical grounding for the actual effects of such practices.

More evidence should be collected to review in what ways firms adapt their PM practices to accommodate the requirements within reciprocal SC relationships.

The conceptual framework of the “hybrid” has provided a basis for viewing supply relationships as involving an adaptation, which may be extended to PM practices. However, there is conflicting empirical evidence as to whether or not this is taking place in practice. Moreover, a lot of the literature that has discussed such adaptation has pertained to asymmetric, rather than reciprocal relationships.

More evidence would be required to support the view of PM practices as exhibiting regulative, normative and cognitive facets.

Scarbrough (2000) has proposed that an institutional view be adopted as a theoretical perspective for studying PM practices within supply relationships. Whilst this view can be seminal for future research, it would need more empirical data to further develop its conceptualisation.

2.6.2 IDENTIFYING THE RESEARCH QUESTIONS

The above review leads us to formulate the following research questions:

- (1) *“In what ways do supply relationships exhibit “specific” characteristics of reciprocal supply relationships and related PM issues?”*
- (2) *“In what ways do PM practices influence supply relationships?”*
- (3) *“In what ways do firms adapt their PM practices to accommodate the requirements of their supply relationships?”*
- (4) *“In what ways do PM practices exhibit regulative, normative and cognitive facets?”*
- (5) *“How do the inter- and intra-firm contexts influence the supply relationship?”*

2.6.3 CONCEPTUAL FRAMEWORK AND PROPOSITIONS

The concepts embraced by the research questions are represented in the conceptual framework at Figure 2.13 and the enfolding propositions.

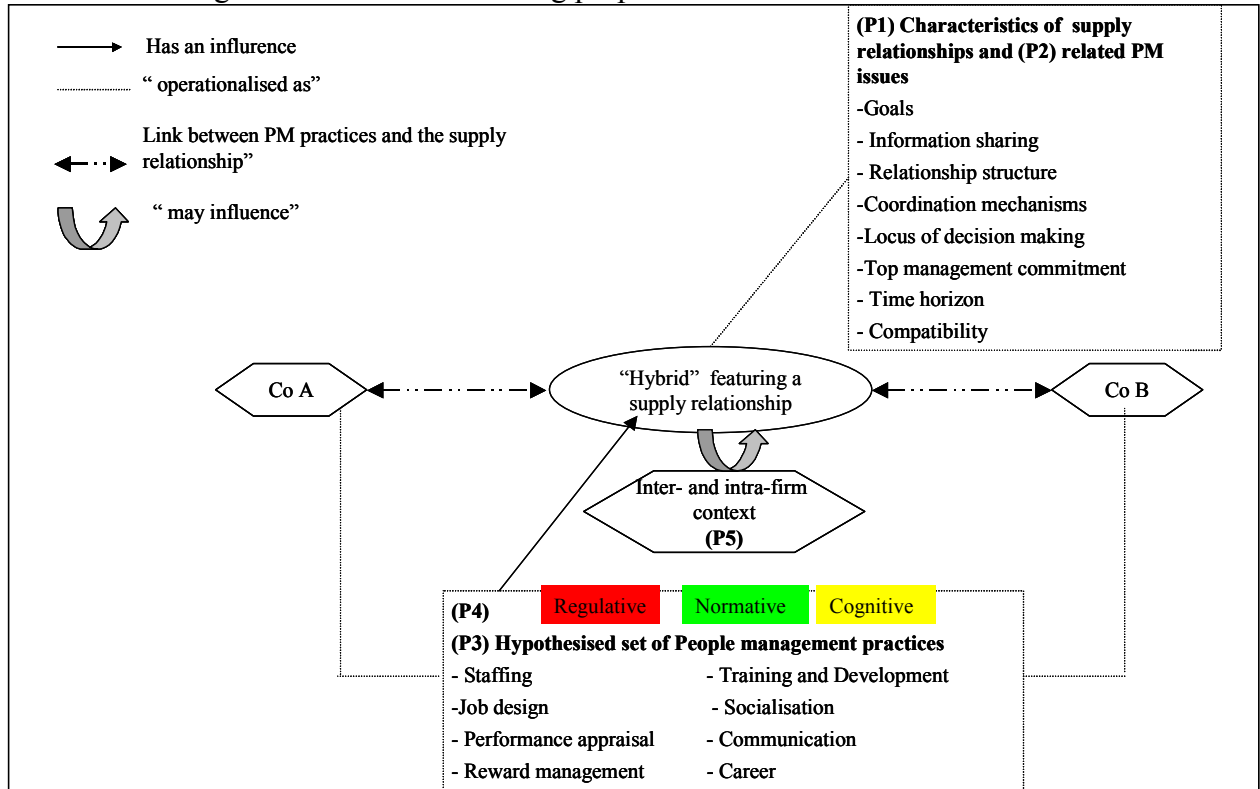


Figure 2-13 Conceptual framework

The following propositions will guide data collection:

(P1) Within the "hybrid", the eight dimensions (goals, information sharing, relationship structure, coordination mechanisms, locus of decision making and top management commitment, time horizon and compatibility) will match to a greater or lesser extent the "specific" characteristics of reciprocal supply relationships .

(P2) Different PM issues will be related to each characteristic

(P3) A hypothesised set of PM practices will influence the "hybrid". It will involve an adaptation process or be insulated.

(P4) PM practices may be conceptualised as exhibiting regulative, normative and cognitive facets.

(P5) The inter- and intra-firm relationships will involve to different degrees hierarchical and lateral mechanisms.

CHAPTER 3 RESEARCH METHODOLOGY

3.0 INTRODUCTION

The aim of this chapter is to make explicit the researcher's assumptions in terms of philosophical stance (S3.1) and research strategy (S3.2), to explain the role of theory (S3.3) and to develop the rationale of the research design (S3.4), with the choice of case study as a methodology. The stages of the research process are reviewed (S3.5), together with the data collection techniques (S3.6) and analysis methods (S3.7, S3.8). Finally, the potential limitations and quality requirements of the research design are discussed (S3.9). Figure 3.1 provides the logical argument for this chapter.

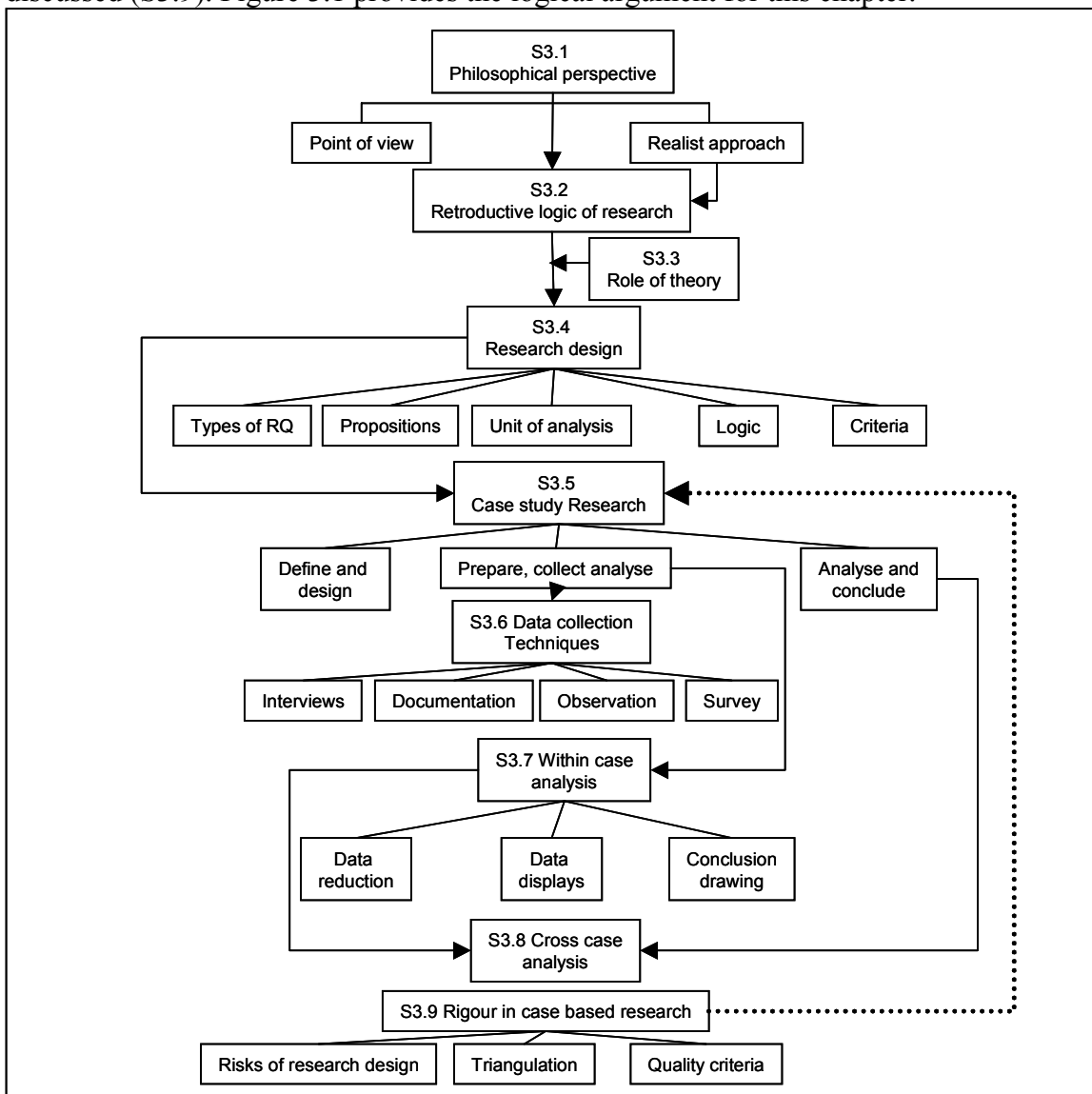


Figure 3-1 Outline of Research methodology

3.1 PHILOSOPHICAL PERSPECTIVE

It is good medicine, we think, for researchers to make their preferences clear. To know how a researcher construes the shape of the social world and aims to give us a credible account of it is to know our conversational partner (Miles and Huberman, 1994 p4).

Clarifying one's preferences means that the researcher is explicit about her beliefs about the nature of social reality (the ontology) as well as the ways that it is possible to gain knowledge about this reality (the epistemology). The reason why it is important to clarify these assumptions is that they shape the way that the researcher conducts the whole research effort, therefore it is necessary to communicate these assumptions before engaging in any debate about methodology or methods (Morgan and Smircich, 1980). The aim of this section is firstly to review what elements influence the point of view adopted in this study, secondly to present the researcher's choice for a Realist approach, which is justified together with its implications for this research.

3.1.1 POINT OF VIEW

The choice of a philosophical perspective and research strategy may be driven by the researcher's own worldview or, more pragmatically, be matched to the nature of a particular research project (Blaikie, 1993). Hence, the following section is an exploration of the elements in the researcher's viewpoint, as well as in the research topic, which influence the positioning of this dissertation.

A dual background has shaped the researcher's worldview: as a practicing manager, trained in business studies, she favours a results-oriented, rather positivist view of management reality. Conversely, her background as a linguist drives an interest for a more subjective approach of understanding "from the inside", i.e. through the individual's own view point and language, their motives, goals or choices. The possible tension from this duality may be expressed in terms of ontological and epistemological assumptions: a certain management reality exists (ontology) and the way to access this reality is through understanding the perceptions, meanings and interpretations of the individual actors (epistemology).

The aim of this dissertation is to better understand the management of supply relationships and how these are influenced by PM practices. This could have been achieved by focusing on the physical and technical aspects of the flow of materials and, possibly, by attempting to show a factual link between PM practices and various elements of relationship performance, hence assuming that "the social world is a hard, concrete, real thing 'out there'" (Morgan and Smircich, 1980 p495). Thus this research could have adopted a rather positivist approach, giving prominence to quantitative methods, which arguably correspond to an attempt to "freeze the social world into structured immobility and to reduce the role of human beings to elements subject to the influence of a more or less deterministic set of forces" (Morgan and Smircich, 1980 p498).

It is argued here that the theoretical approach taken of studying supply relationships as a social system, with an identity of its own, suits a view of the social world as an "evolving process, concrete in nature but ever-changing in detailed form" (Morgan and Smircich, 1980 p495). Indeed, the "hybrid", as an institution, has been described as assuming "the guise of an impersonal and objective reality" (Scott, 1995 p52), yet this reality can only be accessed through the different actors' representations (such a people working within the different organisations). Hence, in that perspective, individuals may

be seen as “adaptive agents”, who influence and are influenced by their context or environment. Therefore, the conceptualisation of the supply relationship as a “hybrid” requires an in-depth exploration of the actors’ own representation of that social system, an interpretive view that “society is both produced and reproduced by its members” (Blaikie, 1993 p59). It is contended here that an exploration of PM practices within supply relationships requires an approach, which does not attempt to gather knowledge objectively but rather privileges a more subjective path to uncover the “crucial, hidden slice of reality” (Parkhe, 1993 p237).

3.1.2 CASE FOR A REALIST APPROACH

Bhaskar (Bhaskar, 1978 p27) states, “If there were no science, there would still be a nature”. The justification he presents for his ontological argument that reality has a life of its own, independently of humans, is originally rooted in the natural sciences. However it is argued that the nature of the material phenomena differs from the social phenomena, in that the laws of the natural world are not affected by their own operation (Blaikie, 1993). Indeed society does not exist independently of human activity inasmuch as it is reproduced and transformed by people so that society is both a condition and an outcome of their activity (Blaikie, 1993). Still people do not create society: it always pre-exists them (Bhaskar, 1989).

For the purpose of this research, the researcher adopts a posture, which is aligned on Bhaskar’s Realist approach, and matches her own worldview and the research topic. This research will therefore assume that social reality exists, in the form of supply relationships, and that their existence is independent of the researcher’s activity. Realism looks at reality as consisting of three overlapping domains (Blaikie, 1993), which can be interpreted as follows:

- The “domain of empirical” consists of experiences, i.e. events, which can be observed. This is the area where positivists concentrate (Blaikie, 1993). Such events could for example consist of evidence showing the extent to which joint PM practices are elicited by firms within the supply relationship (such as the number of visits from one operating group to another).
- The “domain of actual” encompasses events, whether they are observed or not, i.e. taking the previous example, this could refer to an individual informant’s reflection on the effect that work socialisation can have on his relations with his counterpart from the other firm.
- The “domain of real” consists of the underlying mechanisms, the “unobservables” which make up reality and produce events within the other two domains. They are the object of scientific inquiry (Lewis, 1996). Unobservable objects that pertain to the domain of the real are structured in the sense that they are irreducible to the events of experience and intransitive in the sense that they exist and act independently of their identification (Lewis, 1996). These may consist of the deeply rooted causal structures and processes that explain how sets of PM practices can influence supply relationships, possibly through an adaptation or through their regulative, normative or cognitive facets. Thus, the aim of this research is to attempt to postulate some of these underlying mechanisms and uncover some layers of Bhaskar’s overlapping domains of reality. The Realist philosophy sees knowledge as a social product. This view that social reality is pre-interpreted suits the research topic in as much as it requires relying on the actors’ accounts of their perceptions of the supply relationship and their interpretation of the

effects of PM practices in order to understand the underlying links between these two fields.

3.2 RETRODUCTIVE LOGIC OF RESEARCH

“The Retroductive research strategy involves the construction of hypothetical models as a way of uncovering the real structures and mechanisms which are assumed to produce empirical phenomena.” (Blaikie, 1993 p168).

Realism does not simply view models as having a heuristic function, as a psychological help to arrive at and present theories. Models are seen as hypothetical descriptions of actually existing structures and mechanisms, which are unavailable to observation. Thus theory construction involves model building, and the difference between theory and models is that models may refer to a relatively early stage in the process of theory-building where the status of the model as a correct representation is still highly speculative (Keat and Urry, 1976). The Realist approach involves adaptation of models and concepts, “borrowed” from existing theories (Brown, 1999).

The retroduction strategy is based on a cyclical process of constructing hypothetical models of reality, testing them against empirical data and based on the results, either modifying the models or, if confirmed, attempting to move deeper into reality’s “ontological depth” (Blaikie, 1993). In this study the original model is the conceptual framework, developed from the literature review, which has evolved in the course of the research, from the original version displayed in figure 2.13 to the revised conceptual framework in chapter 7, thus visually representing the modified research focus. Model building approach is appealing, as it is “one way of making theoretical propositions clearly explicit and explicitly clear” (Whetten, 1989).

3.3 ROLE OF THEORY

It may be argued that there is no distinction between a model and a theory (Whetten, 1989). Hence the model building is really a theory-building process, which entails a combination of induction (theory is derived from data) and deduction (theory exists prior to data), to which Langley (Langley, 1999) adds inspiration, driven by the researcher’s creativity and insight. Hence, the question may be raised as to the rationale for choosing one or the other end for closing the gap between data and theory.

The research objectives contain elements of exploration, since little empirical connection has been established so far between sets of PM practices and supply relationships. Therefore, the case may be made for a “grounding” of the theory in the data (Glaser B.G. and Strauss A.L., 1967), which advocates a very close connection between the emerging concepts and the perspectives and behaviours of the people being studied.

But it may be argued that such closeness to the observed data may limit the access to the wider context and henceforth to the underlying mechanisms, which a Realist approach attempts to uncover (Blaikie, 1993). Other arguments may be raised against the use of a grounded theory approach. Indeed relevant field contact depends upon a prior understanding – a theory of what is being studied (Yin, 1994), which enables the researcher to “collect specific things systematically” (Mintzberg, 1979 p585) and is useful for ordering fieldwork data (Layder, 1993). A focus of this research is to compare an inter- with an intra-firm supply relationship, and prior theory and construct definition

allows easier cross-case comparison (Miles and Huberman, 1994). Prior theory can also be used as triangulation (Perry, 1998).

A middle position may also be advocated whereby there is no strict adherence either to “no theory ideal” or to “strong a-priori explanation”, but rather a continuous interplay between the two (Parkhe, 1993). In this doctoral work, the conceptual framework, developed from the literature review, and which also drew on inductive elements from the researcher’s own professional experience, has provided a first list of constructs, which has loosely guided the data collection process. Following a theory building process, this initial framework was modified based on empirical data from the first study. Additionally, new hypothetical models or abstract conceptualisations have emerged, which attempt to “speculate as to possible underlying mechanisms, which could offer a theoretical explanation” (Partington, 2000) for the way that PM practices can influence supply relationships.

3.4 RESEARCH DESIGN

“A research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of a study” (Yin, 1994 p18). It may be thought of as an action plan for getting from here to there, a “logical model of proof”, and it also defines the domain of generalizability.

After Yin (1994), a research design has five especially important components: a study’s questions, its propositions, its unit of analysis, the logic linking the data to the propositions and the criteria for interpreting the findings. These five elements are reviewed and justification is provided for the chosen strategy, i.e. case study research.

3.4.1 TYPES OF RESEARCH QUESTIONS

Various types of research questions can be asked within social science research:

“‘What’ questions are concerned with the exploration and description of some phenomenon, ‘why’ questions are concerned with understanding or explaining some characteristics of the phenomenon (...) and ‘how’ questions are concerned with practical outcomes, with ways in which change might be brought about” (Blaikie, 1993:4).

There are five questions underpinning this research:

- (1) *“In what ways do supply relationships exhibit “specific” characteristics of reciprocal supply relationships and related PM issues?”*
- (2) *“In what ways do PM practices influence supply relationships?”*
- (3) *“In what ways do firms adapt their PM practices to accommodate the requirements of their supply relationships?”*
- (4) *“In what ways do PM practices exhibit regulative, normative and cognitive facets?”*
- (5) *“How do the inter- and intra-firm contexts influence the supply relationship?”*

The first two questions are concerned with practical outcomes (How?) of the supply relationships, in as much as question (1) seeks to compare actual with specific characteristics and PM issues and (2) attempts to discover the link between PM practices and supply relationships. Questions (3) and (4) seek to explain the impact of

PM practices by understanding (Why?) the extent of the adaptation and the underlying facets. Finally, the last question investigates the similarities and differences between the inter- and the intra-firm contexts and this is expected to allow deeper-seated mechanisms to emerge (Why? Question).

Yin (1994) provides a pathway for selecting a research strategy, which analyses three criteria: the form of research question, the level of control on behavioural events and the temporal focus (Table 3.1)

Strategy	Form of Research question	Requires control over behavioural events?	Focuses on contemporary events
Experiment	How, why	Yes	yes
Survey	Who, what, where, how many, how much	No	yes
Archival analysis	Who, what, where, how many, how much	No	Yes/no
History	How, why	No	no
Case study	How, why	No	yes

Table 3-1 Relevant situations for different Research strategies (Source (Yin, 1994 p6)

The focus for this study is to better understand supply relationships through “how” and “why” types of question, which, following Yin’s categorisation, appear to favour the use of history, experiment or case study research. The discussion below seeks to document further selection criteria.

The research questions do not meet the criteria of “history” strategy, in that the study aims to understand contemporary events, the “here and now” of the existing practices and current perceptions of individual actors, and this would not fit a historical approach as a main research strategy. However, it does not exclude the study of archival records to describe the evolution of the supply relationship, as indeed “antecedent conditions shape the present and the emerging future” (Pettigrew, 1990 p270).

Finally, the research questions do not meet the criteria of an experiment strategy, as they do not require any manipulation of behaviours. Indeed they aim to study the phenomenon (the supply relationship) in its “real life context” (Yin, 1994 p13), and implies a focus on “messy”, “eclectic”, “complex” process data, which Langley defines as: “sequences of ‘events’: conceptual entities that (...) often involve multiple levels and units of analysis whose boundaries are ambiguous” (Langley, 1999 p692).

The above analysis of the type of research questions argues for the use of a case study approach, which “investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 1994 p13).

3.4.2 PROPOSITIONS

At the end of chapter 2, the following five propositions have been enfolded in support of the research questions and conceptual framework:

(P1) Within the “hybrid”, the eight dimensions will match to a greater or lesser extent the specific characteristics of reciprocal supply relationships.

(P2) Different PM issues will be related to each characteristic

(P3) A hypothesised set of PM practices will influence the “hybrid”. It will involve an adaptation process or be insulated.

(P4) PM practices may be conceptualised as exhibiting regulative, normative and cognitive facets.

(P5) The inter- and intra-firm relationships will involve to different degrees hierarchical and lateral mechanisms.

The role of propositions is to help identify the relevant information to be collected, and thus narrow down and guide the data collection process (Yin, 1994). Having a well defined focus enables the researcher to collect specific kinds of data systematically (Mintzberg, 1979), thus avoiding “data asphyxiation” (Pettigrew, 1990). Thus, proposition (P1) and (P2) would focus the data collection on developing empirical data on dimensions and PM issues and on a set of PM practices, in comparison with the literature. (P3) would seek to understand the extent to which the firms take into account the supply relationship when eliciting PM practices. Whilst (P4) ascertains the relevance of an institutional perspective through the three facets, (P5) refers to the pattern found in the literature, in section 2.2.2, that contrasts hierarchical with lateral approaches.

3.4.3 UNIT OF ANALYSIS

This study focuses on the “hybrid”, defined in section 2.3.1 as “a single organisational arrangement and a product of sovereign organisations” (Borys and Jemison, 1989).

Therefore one difficulty of the study is to define the unit of analysis (the “heart” of the study) from the edge of the case, or what will not be studied (Miles and Huberman, 1994). This involves having a clear description of the unit of analysis in terms of its conceptual nature (the “hybrid”), its social size (the individuals who participate in the relationship), its physical location (the locations where the main activities pertaining to the hybrid take place) and its temporal extent (Miles and Huberman, 1994).

Figure 3.2 illustrates the loose boundaries between the “hybrid” and its “context”, i.e. firstly, the organisations, which participate in the supply relationship and adopt the PM practices, and secondly, the individual employee who either works within the “hybrid” or more or less directly relates to it (such as for example HR personnel).

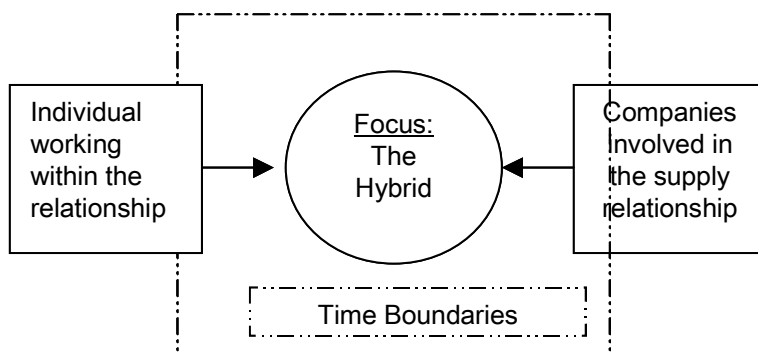


Figure 3-2 Bounding the unit of analysis relevant for this research

Considering this context involves discussing the following three levels of analysis:

- The hybrid: the definition of the “hybrid”, as the main unit of analysis is in line with recommendations from the literature to focus on the relationship (Lamming, 1993). The “hybrid” encompasses the team or group of employees who interact within the supply relationship. Bounding this unit of analysis involves identifying, beyond the immediate project team(s), those people, for example at corporate level, who are essential for

understanding the local supply relationship, thus providing a view of the case from interconnected levels of analysis (Pettigrew, 1990).

- The organisations, which participate in the supply relationship and adopt the PM practices. Defining the “hybrid” as the main unit of analysis helps determine how much of their internal context, which drives the PM practices should be taken into account. Thus, for example, this research does not look at the specifics of the recruitment process of the individual organisations, but rather at the way that staffing decisions, such as people turnover, can influence the “hybrid”.

- The individual employee who either works within the “hybrid” or more or less directly relates to it. This study is located at the organisational level of analysis, and as such draws upon informants’ reports to understand, for example, the characteristics of the supply relationship. It is not the intent of this research to explore how individual actors relate to each other on a personal basis across the supply relationship.

How the unit of analysis affects the design of the case is summarised in Table 3.2.

Data Collection Source			
Data Collection	From the individual	From the hybrid (QF)	From the organisation(s)
About an individual	Only as it relates to the “hybrid”		
About the “hybrid”	Yes	Yes	Yes
About the organisation(s)	Only as it relates to the “hybrid”		

Design

Table 3-2 Design versus data collection: Different units of analysis (adapted from (Yin, 1994 p72)

- The time boundaries of the research. Various authors argue for the inclusion of the time dimension as an aid for the comprehension of the social phenomenon (Avital, 2000; Pettigrew, 1990). This involves considering the effects of time from three perspectives: 1) when to begin and to end the data collection, 2) how to take into account the change process that takes place over the course of the research, 3) decide to what extent a historical perspective is required to shed light on current events. These three considerations are discussed in relation to each case study.

3.4.4 LOGIC FOR LINKING DATA TO PROPOSITIONS

In this study, propositions involve concepts (Whetten, 1989), which have been developed further to the literature review. Thus table 2.5 (Chapter 2), which shows the specific characteristics of supply relationships and related PM issues, provides a guide for collecting data on the characteristics and some guidelines for investigating PM issues.

Therefore, the a-priori specification of constructs (Eisenhardt, 1989) provides the main logic for linking data to propositions. Yin (1994) argues that theory development before the conduct of data collection is one point of difference between case studies and related methods such as ethnography. However it is argued that pre-ordained theoretical perspectives and propositions may bias and limit the findings, therefore the researcher should make a conscious attempt at approaching fieldwork with an attitude as close as possible to “a clean theoretical slate” (Eisenhardt, 1989 p536).

3.4.5 CRITERIA FOR INTERPRETING THE FINDINGS

The criteria for linking and interpreting the research data to the original questions are represented in the data display matrices in the appendices, the cross case analysis and discussions on the research findings (Chapters 6 and 7).

“There is no one-to-one correspondence between data and theory. The data do not generate the theory - only researchers do that - any more than the theory can be *proved* true in terms of the data.”¹ (Mintzberg, 1979 p584)

Criteria to interpret research findings involve a mixture of insight (Langley, 1999), “detective work” and “creative leap” (Mintzberg, 1979). Strong reliance on quality criteria is also required to ensure that the criteria for interpreting the study’s findings are explicit and valid (Miles and Huberman, 1994).

In this study, the writing up of a report at an intermediary stage (interim case reports) (Miles and Huberman, 1994) and at the end of each case study has played a key role in the process of interpreting the findings. Indeed this has allowed the researcher to get feedback from informants, as a means of verifying the major findings from the studies (Miles and Huberman, 1994; Yin, 1994).

3.5 CASE STUDY RESEARCH

Yin (1994) develops a case study method, which is articulated around three main stages. Figure 3.3 provides the timetable for this research project, which has roughly followed the three stages, described here below.

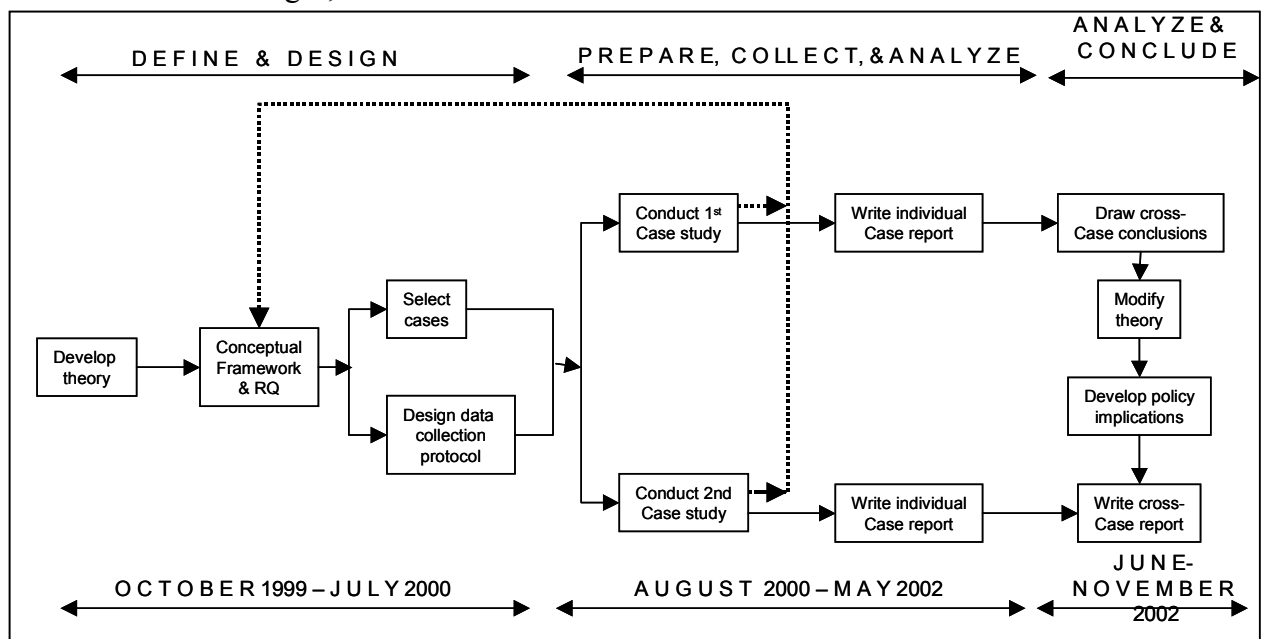


Figure 3-3 Calendar and stages of case study method (Adapted from Yin, 1994)

3.5.1 STAGE ONE: DEFINE AND DESIGN

Oct 1999 – July 2000: Consisting of literature review and identification of relevant theory; development of research questions, conceptual framework and propositions (the

¹ Emphasis in original text

conceptual framework was added to Yin's framework); Selection of the cases; design of data collection protocol as a result of the first doctoral review paper.

3.5.1.1 Case study design

Yin (1994:39) specifies four types of research designs, based on the dimensions of single/multiple-case and single/multiple units of analysis. This research is positioned as multiple units of analysis (embedded), with multiple-case design. Indeed evidence from multiple cases is considered more compelling and the overall study more robust (Yin, 1994). Multiple-case design requires that each individual case be considered as a "whole" study in which facts are gathered from various sources and conclusions drawn on those facts. Such designs are guided by replication, rather than sampling logic. The outcome of a replication logic can either be "literal" (similar results) or "theoretical" replication (contrasting results for expected reasons) (Yin, 1994). This study has argued that the intra-firm research could be conducted using an inter-firm framework, hence it is expected that similarities will emerge between the two cases. However, contrasting results are also expected, which are rooted in the different approaches that pertain to the inter- and intra-firm contexts (theoretical replication).

A rich theoretical framework is an important step in the replication procedure. The focus on the "hybrid" as the main unit of analysis is therefore a central feature of the research design. However, other embedded, units of analysis also need to be considered, such as the partner organisations, the specific units that are in contact (manufacturing units), the individuals. This drives the logic for the embedded (multiple unit of analysis) design (see 3.4.2). One danger of embedded units of analysis is the failure to go back from the sub-unit to the main unit of analysis (Yin, 1994). As explained in Chapter 5, the Tyrenco research has involved such a "sidetracking", which could only be countered by keeping the research question firmly in mind (Miles and Huberman, 1994).

3.5.1.2 Case selection

Within multiple case studies, generalisation takes place from one case to the other, based on a match to the underlying theory, not to a larger universe. Indeed unlike survey design, case studies are selected on the basis of theoretical rather than statistical reasons (Miles and Huberman, 1994; Yin, 1994).

An important element in case-based research is to select cases from an appropriate population in order to avoid, as much as possible, extraneous variations (Eisenhardt, 1989). This involves considering the potential effects of industry, organisation size, manufacturing processes and inter-organisational effects (Stuart et al., 2002). This study focuses on strategic supplier-manufacturer relationships, involving large multinational companies, in the chemical industry (Wheatco and Chemco) and in the closely related pharmaceutical industry (Tyrenco). The second case was selected based on a contrast with the first case: i.e. intra-firm instead of inter-firm, separate location rather than geographically close. This meets the criteria of being exemplary rather than representative (Stuart et al., 2002).

Pettigrew (1990) suggest three criteria for case selection:

(a) Go for extreme situations: the selected cases could be considered as providing "extreme" contrast, inasmuch as the inter-firm supply relationship is geographically very close (fence line relationship), whereas the intra-firm is geographically separate (one site in France and one site in UK).

(b) Go for polar types as a way of disconfirming patterns from one case study to the other. This study contrasts an inter- with an intra-firm relationship.

(c) Go for high experience levels in that there is evidence of a concern for the strategic supply relationship. In both cases, the researcher came at a point in time where the supply relationship had been in place for a rather long time (5 and 10 years) and had recently received a lot of managerial attention as a result of quality crisis situation. Pettigrew (Pettigrew, 1990 p274) describes as “planned opportunism” the practicalities of the process of choosing and gaining access to research sites. The researcher’s background as past employee of Wheatco facilitated the access to first case, whilst privileged contacts between Cranfield University and Tyrenco enabled access to the second case study.

3.5.1.3 Case study protocol

The case study protocol contains the instruments, procedures and rules that should be used in using these instruments (Yin, 1994). The protocol is a major tactic in increasing the reliability of case study research and is intended to guide the investigator in conducting each individual case. According to Yin (1994) the case study protocol has four points, to be determined at the beginning of the research project:

- An overview of the case study project (project objectives and auspices, case study issues, and relevant readings about the topic being investigated). The first doctoral paper, which was presented to a review panel in July 2000, presented the relevant literature, identified research gaps, preliminary research questions and conceptual framework.
- Field procedures (credentials and access to the case study “sites”, general sources of information, and procedural reminders). In both cases, access was provided, after sending a research proposal, describing the project and methodology. Additionally, a one-page research brief was sent to the sponsors of the study, specifying the requirements in terms of interviewing, meeting attendance as well as the gathering of other sources of information.
- Case study questions (the specific questions that the case study investigator must keep in mind in collecting data, potential sources of information for answering each question). Although the detailed wording of the research questions has evolved, the main question posed *to the investigator*, which aims to keep her “on track” (Yin, 1994) remained very consistent throughout the research, focusing on the management of supply relationships and how these are influenced by PM practices. Similarly, the likely sources of evidence and the questions asked of the case were identified in the case study protocol, in line with the conceptual framework and propositions.
- Guide for the case study report (outline, format of the narrative, and specification of any bibliographical information and other documentation). Both case study reports follow the same structure, in line with the research questions and conceptual framework.

3.5.1.4 Pilot case

Yin (1994) distinguishes between “pilot tests” and “pre-tests”. He views the former as helping the researcher to redefine the data collection plan with respect to both the contents of the data and the procedures to be followed. On the other hand, the “pre-test” is a “dress-rehearsal” in which the intended data collection plan is used as faithfully as possible.

The Wheatco-Chemco case has served both the role of a pilot test and a pre-test. Because the researcher had spent 15 years in a Wheatco site in France, she was familiar with the company as well as with the local setting of the WTC plant in UK. Thus, prior personal contacts provided the background for a “low-risk” approach to this research. Hence the case could serve different aims. Firstly, it was used, during the early phase of the study, as a platform for testing the practicability and feasibility of the data collection plan, learning on conducting interviews and testing the data analysis methods. Secondly, at a later stage, it served to improve the conceptualisation (and confirm the relevance) of the elements of the conceptual framework, such as the “hybrid”, the characteristics of the supply relationship and PM practices. Indeed, as indicated by Yin (1994), the pilot case study can provide the opportunity to cover a wide array of issues and to observe the phenomena from different angles. The broad access given at Wheatco (and subsequently at Chemco) provided the opportunity to develop research methods, not originally included in the research design, such as a survey of operators, which provided the benefit of combining a quantitative method with the qualitative part of the study

3.5.2 STAGE TWO: PREPARE, COLLECT, ANALYSE

August 2000-May 2002: The conduct of the first case study at WTC-Chemco, was followed by the writing up of a case study report and presentation to a group of informants from both firms. Henceforth the conceptual framework was modified (from eight to six characteristics, and a set of PM practices was defined). The methodology was presented to a doctoral review panel.

The conduct of second case study at Tyrenco (April 2001 – May 2002) also included the writing up of a case study report, reviewed by key informants.

3.5.3 STAGE THREE: ANALYSE AND CONCLUDE

May 2002- November 2002: A cross-case report and conclusions were written as part of the thesis writing up and are presented in the last two Chapters.

3.6 DATA COLLECTION TECHNIQUES

This study draws on four data collection methods: semi-structured interviews are the main instrument, supplemented with documentation analysis, and observation.

Additionally, in the course of the field research at Wheatco-Chemco, the opportunity was identified to organise a questionnaire survey, which fulfilled two purposes: collect data that was not available from other sources, and cross-check information

Each type of data collection has its strengths and weaknesses; these are summarised, for each of the 4 methods used, in table 3.3 and later commented upon in more details.

Source of Evidence	Strengths	Weaknesses
Interviews	<ul style="list-style-type: none"> - Targeted: focuses on the case study topic - Insightful: depth, subtlety, personal feeling - Provides perceived causal inferences - Can suggest sources of corroboratory evidence and initiate access to these sources 	<ul style="list-style-type: none"> - Researcher induced or respondent induced bias - Reflexivity – interviewee gives what the interviewer wants to hear - Problem of poor recall, poor articulation - Lack of factual details
Documentation	<ul style="list-style-type: none"> - Provides facts, is exact (names, references..) 	<ul style="list-style-type: none"> - Elective deposit and survival hence

Source of Evidence	Strengths	Weaknesses
	<ul style="list-style-type: none"> - Stable – can be reviewed repeatedly - Unobtrusive – not created as a result of the case study - Broad coverage: time, events, settings 	<ul style="list-style-type: none"> low retrievability - Biased selectivity if incomplete - Access may be deliberately blocked - reporting bias – reflects unknown bias from the author
Direct observations	<ul style="list-style-type: none"> - Reality, covers events in real time - Contextual: covers context of events 	<ul style="list-style-type: none"> - Selectivity unless broad coverage - Reflexivity – event may proceed differently if observed - Time consuming
Survey	<ul style="list-style-type: none"> - Describes the incidence or prevalence of the phenomenon - Allows statistical generalisation - Can indicate relationships not obvious from qualitative data 	<ul style="list-style-type: none"> - Lack of in-depth analysis of the phenomenon

After Pettigrew (1990), Yin (1994), Eisenhardt (1989), Parkhe (1993)

Table 3-3 Strengths and weaknesses of four data collection methods

3.6.1 INTERVIEWS

The main source of data was from interviews. All interviews were taped and as much as possible conducted in privacy within the individual person's own premises (office or meeting room). This provided an opportunity to meet with the interviewee within his/her own setting. Additionally, for practical reasons, a small number of interviews were conducted by phone, either because of the interviewee's location, away from the local site (corporate managers) or for other practical reasons.

3.6.1.1 Choice of informants

Qualitative sampling should be based on conceptual/theoretical rather than statistical rationale. Indeed the aim is to collect data, which is "pluralist", i.e. describing competing versions of reality (Pettigrew, 1990). This research has sought to adopt a multi-perspectival approach (Tellis, 1997) and avoid "elite-bias" (Miles and Huberman, 1994) by drawing on the perspective of informants at various levels in the relationships, from operator level, through engineers, local and corporate management. The rationale for the choice of informants was therefore to have a broad range of interviewees from each of the units involved in the supply relationships, as well as a broad representation of the key functions (manufacturing, QA, HR, Technical), across levels. The approach was to start with key managers in charge of the relationship, then follow the leads from interviewees. Especially interesting was the pointing to key informants on the other "side" of the relationship.

The main wave of data collection was complemented with subsequent interviews in order to check evidence through "peripheral sampling" (Pettigrew, 1990), or to gather new knowledge on the way some individuals saw the relationship evolve over the course of the research. Interviews with corporate informants provided a view of the relationships in the broader inter- and intra-organisational context as well as access to an alternative perspective on the local situation.

In each case study, individuals from each “side” of the relationship played the role of key informants. They were identified as “key contacts” and constituted throughout the research, a resource, in order to access data or get feedback on emerging ideas.

3.6.1.2 Interview guide

The interview guide evolved over the course of the research. It is argued that such changes usually reflect a better understanding of the setting (Huberman and Miles, 1994). The guide was finalised after the study at Wheatco-Chemco.

The length and protocol for conducting interviews tended to evolve over the course of the research. Indeed, at an early stage in data collection, interviews tended to be rather informal and long (from 2 to 3 hours), and to be very open-ended in order to provide a rich picture of the context and gain an in-depth understanding of the research settings. Conversely, interviews that took place at a later stage tended to be more focused and structured, in as much as they were intended to provide specific additional evidence or verify earlier research findings (Pitman M.A. and Maxwell, 1992). In addition, telephone interviews tended to be more focused and time-bounded than face-to-face interviews.

All interviews were taped, and transcribing was done either by the researcher or (in most cases) by a native English speaker, with corrections thereafter by the researcher. Here is the general structure that most interviews followed:

Introductory phase: Presentation of the researcher’s background and key objectives of the research, with possible reference to credentials. Highlight of the type of “aggregated” research output that would protect the anonymity of the interviewee.

Part one: Informant’s role in the supply relationship and interface with the other firm; contextual information about the relationship, especially with respect to corporate influence.

Part two: Perception about the other organisation in the relationship (overall).

Investigation of relationship (hybrid) characteristics. It should be noted here that PM issues were not prompted, since the intent was to allow these to emerge from informants’ reports.

Part three: Requirements of the relationship in terms of PM practices.

Conclusion: At the end of the interview, informants were asked whether they had “anything else to add”. The respondents were thanked. Several of them felt the need to say that they were hoping that this research would indeed help improve the supply relationship.

An interview brief from the second case study at Tyrenco is displayed in appendix.

3.6.2 DOCUMENTATION

Documents were classified into three categories:

- Specific documents, directly relevant to the topic of the study. A core source of data was the joint meeting minutes from the various teams involved in the relationship. These were used to identify specific reference to dimensions or PM issues, to confirm meeting frequency etc. Other pieces of evidence pertained to contract agreements, PM policies and procedures, contract agreements, other standard operating procedures, copies of operator log as well as day to day memos or mail. Whilst recent documents were generally available as electronic files, older ones were in paper copy.
- Contextual documents at company level, consisting in company brochures or data from internet sites provided an understanding of the company background and provided

hints as to possible broad differences or similarities between the partners at corporate level.

- Contextual documents at site level, consisted in records, such as organisation charts, map of the sites, and telephone lists.

3.6.3 OBSERVATION

This research has involved a total of eleven weeks spent on fieldwork (5 at Wheatco-Chemco and 6 at Tyrenco), over an eighteen-month period. This means the researcher was present sporadically over a period of time (Easterby-Smith et al., 1991). This gave her an opportunity to achieve familiarity with the setting (Lofland and Lofland, 1995), whilst avoiding to get over-involved (Pettigrew, 1990) or “go native” (Hammersley, 1992). Thus, observation could be combined with interview data.

Direct observation of the sites was useful to understand the context, within which members of the supply relationship were interacting. In her role as observer, the researcher made no secret of her research focus. During her stays on site, she had opportunities to form relationships with people on an informal basis. Through repeated interaction with the field, the researcher could develop an understanding from the inside, which allowed her to become herself an instrument of data collection, through reflective inquiry about the research process itself (Pitman M.A. and Maxwell, 1992). Field notes are a means of reflecting on the research process (“What am I learning”), as well as on the researcher’s own stance.

3.6.4 SURVEY (WHEATCO-CHEMCO)

The WTC-Chemco relationship was characterized by a high involvement from operators, who had to be in contact in order to operate the joint production process on a continuous basis. Due to the size of the population (43 operators), the opportunity was grasped to organise a survey of their perception of the other site, as a triangulation for the qualitative data.

Details of the survey (objectives, questionnaire design, administration, analysis and validity) are tackled as a part of Chapter 4 (Wheatco-Chemco case study)

3.7 WITHIN CASE ANALYSIS

Discussed in more details in later Chapters (4,5), this section summarises the analytic strategy used in the case studies. A characteristic of the nature of qualitative analysis is that the analytic process interacts with the nature of the data, which is collected, and vice versa. This overlap between data collection and data analysis is a characteristic of case-based research, which allows researchers freedom to adjust their data collection process in order to take advantage of such opportunities as probing new themes or the addition of unplanned data sources (Eisenhardt, 1989).

An iterative, cyclical process characterises this interaction between data collection and the three components of data analysis: data reduction, data display and conclusions drawing (Figure 3.4). This cyclical and iterative approach is in line with the retroductive strategy discussed in section 3.2.

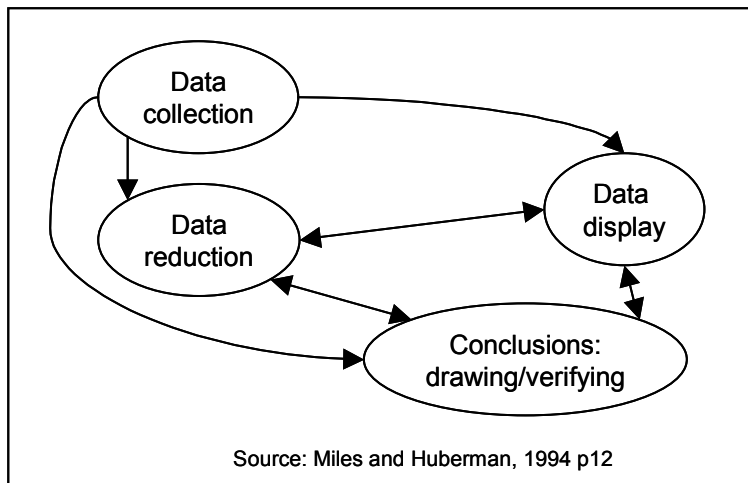


Figure 3-4 Components of data analysis – Interactive Model (Huberman and Miles, 1994)

Data analysis consists of examining, categorising, tabulating, or otherwise recombining the evidence of a study such that every investigation should have a general analytic strategy to guide the decision regarding what will be analysed and for what reason (Yin, 1994). In this research, data analysis relies on the conceptual framework around which the data collection and analysis are organised.

3.7.1 DATA REDUCTION

Data reduction is part of the analysis activity. It refers to the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in written-up field note or transcriptions. This form of analysis sharpens and organises the data in preparation for conclusion drawing and verification (Miles and Huberman, 1994).

This is a continuous process, which is anticipated at an early stage of the project with the definition of the research questions, of the conceptual framework, of the cases and data collection techniques. During and after data collection, the reduction/transforming activity consists in coding, writing summaries, identifying themes, clusters (Miles and Huberman, 1994).

In this research, a computer-assisted qualitative data analysis software (CAQDAS) was used as support : N’Vivo¹ allowed storage and retrieval of the qualitative data, coding, memo writing, sorting and searching facility. The use of the software throughout this research warrants a short review of strengths and weaknesses of CAQDAS as well as presentation of the specific benefits and limitations in the context of this study.

3.7.1.1 CAQDAS: pros and cons

Following is a brief review of the arguments generally advanced either in favour or against the use of computers as a support for qualitative research.

Richards and Richards’ (1994) arguments in favour of using computers for qualitative analysis are based on practical and theoretical grounds. Indeed, software packages allow an effective management of rich and complex data, with easy retrievability and provide support for theory emergence through an easy process of “coding and retrieval”. The

¹ N’Vivo is a software package to aid qualitative data analysis designed by QSR. Its full title is NUD.IST Nvivo®. For this doctoral work, version 1.2 and 1.3 were used

authors state that an ability to view all the text coded to the same topic supports the development of new insights, and that such insights or the analytic concepts that derive from them, can in turn be considered as data. Thus, the software is a tool that supports an iterative and cyclical process – which was identified as critical in the retroductive strategy – which is engaged between data and emergent theory.

Concerns expressed by adversaries of CAQDS are diverse. They argue that the use of software may alienate the researcher from the data (Kelle, 1997) inasmuch as the researcher’s attention may centre on the tool rather than on the analysis. However, this criticism seems to apply to early rather than more recent and sophisticated software versions (Barry, 1998). Another critique pertains to the fact that these software may encourage quantitative treatment of qualitative data (Richards and Richards, 1994)– though it may be argued that such an approach started prior to software usage (Barry, 1998). It can also be said that the style of software may coerce a project (Richards and Richards, 1994), thus guiding researchers in a particular direction. The outcome could be a homogenisation of research methods. However many researchers only use the tool partially (Welsh, 2002) and not all in the same way (Barry, 1998).

A word of wisdom is expressed by Richards and Richards (1994), who as developers of N’Vivo (among other software tools), speak in favour of a “light touch” approach, where the researcher does not try to force the use of any feature, unless it is appropriate for a particular project.

3.7.1.2 Use of N’Vivo in this research

The use of software is all the more appropriate when the amount of data is rather large (Welsh, 2002). In this study, eighty-four interviews, lasting between 1 to 3 hours, have been conducted, and more than a hundred other electronic documents have been collected. Therefore, from the point of view of data management, software package was very relevant.

Table 3.4 summarises the key uses of N’Vivo in this research as well as its relevance. Indeed, as indicated in the previous section, the use of N’Vivo was tailored to the specific needs of the project.

Analytical Step	N’Vivo type	Details	Value to research
Storage and retrieval	Documents	Interview transcripts, electronic documents available from various sources, field notes.	Accessibility; traceability of documents (owner, date, time, location, background)
Coding	Nodes	- Code structure and a-priori definition of constructs - New emergent themes - Easy move back and forth from coded “chunks” to full-text	- Hierarchical code structure representing the conceptual framework and including new themes. - Iterative, cyclical process of building up each construct from empirical data - Avoiding “context-stripping”
Memoing	Documents	Specific comments/ annotations within the document Separate memos are coded like other documents	- Support for on going stream of consciousness - Analytic data cycled back as “raw data” to raise conceptual level.
Searching	Nodes	Systematic way of complementing coding – but requires manual tracking of related words and subsequent review for validity.	- Quick and easy data retrieval - Enhance coding accuracy - Review coding status

		Matrices help analyse the coding status or cross-reference coding	
Data Linking	Documents	Linking documents, memos	Forming clusters or networks of information

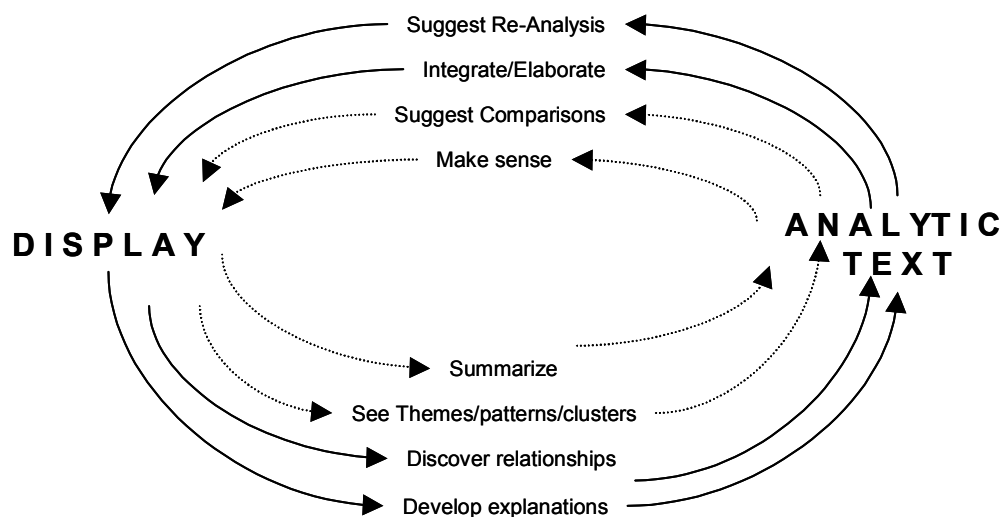
Table 3-4 Main uses of N’Vivo in this study

Two key features of N’Vivo were particularly useful in this research. Firstly, the ability to review the properties (description) of each coding category (“node”) in the process of coding allowed an iterative, cyclical process of comparing the a-priori construct definition with the empirical data. Secondly, the easy, immediate access from the coded text, stored in the nodes to the full interview transcript or to parts of it provided a way for the researcher to go back and forth, to ensure the data was always kept in context (Miles and Huberman, 1994). Thus, the coding was experienced as an iterative process. One concern expressed about computer-supported coding is the tendency to “code-for-ever” because coding is so easy to do (Welsh, 2002). In this research, the number of codes was consciously limited, in order to avoid dispersion of data. A limited use was made of the modelling facility available in N’Vivo, thus showing that the extent of use of the software was customised to the researcher’s profile.

Whilst this research contends that software use can provide pay-off in terms of enriched data analysis and more comprehensive development of coherent theoretical ideas, the researcher follows Barry’s (1998 §2.12) statement that it is “Just another tool, with faults and with benefits”.

3.7.2 DATA DISPLAYS

Data displays consist in information, which is organised and condensed in such a way as to permit conclusion drawing and action. They require the researcher to keep her research question firmly in mind in order to select the relevant data, fully analyse it without ignoring any relevant information, and present it in a focused, coherent way. This allows the researcher to concentrate on a reduced set of data as a basis for thinking



Source: Miles and Huberman, 1994

about its meaning (Huberman and Miles, 1994).

Figure 3-5 Interaction between display and analytic text: (source: Miles and Huberman, 1994)

The displays help the researcher see patterns. Then the process of writing up conclusions calls for further analytic moves in the data displays, which in turn drive further conclusions. Thus displayed data and the emerging written text influence each other (Figure 3.5). Focused and coherent data display is a way to support the presentation of conclusions – allowing the reader to retrace the logic of these conclusions (Miles and Huberman, 1994).

Following Miles and Huberman, matrix displays were used extensively in this study as a way to reduce the data and make sense out of it. The purpose was to follow the analytic progression from the descriptive, which aims at making a clear account of the phenomena, through to the explanatory, which seeks to show how concepts fit together, thus allowing some theoretical insights to emerge (Miles and Huberman, 1994). Starting from the raw data, i.e. the node in NVivo (from the coded texts), intermediary tables were produced in order to reduce and categorise the main themes within the node (following a cluster tactic in Miles and Huberman, p248-252). Several iterations were required before developing the final displays. The matrix data was kept as close as possible to the in-vivo text, in order to ensure the context was well rendered.

3.7.3 CONCLUSION DRAWING AND VERIFICATION

Matrices helped draw conclusions, using various tactics, such as counting or making contrasts/comparison (for example to compare views from one company to another or between roles). Chapter 4 and 5 provide the within-case conclusions.

Interim case reports were used in both cases. This analytic technique forces the researcher to “digest the materials in hand, to formulate a clearer sense of the case, and to self critique the adequacy of the data that have been collected” (Miles and Huberman, 1994 p80). These reports were kept at a high level of detail in order to avoid changing the informants behaviours or perspectives (Miles and Huberman, 1994 p275). Interim reports proved helpful for three reasons. Firstly, they provided a synthesis of the case, stressing what remained to be found out, secondly a short summary was presented to key informants, from both “sides” of the relationships, as a means of corroborating these early findings. Finally, at Tyrenco the outcome was to enhance the credibility of the research and to enable access to corporate informants – access that had so far been declined.

An early version of the case study report for WTC-Chemco was developed in December 2000 as a teaching case; it was useful to provide a first synthesis of the case (Eisenhardt, 1989). A draft WTC-Chemco case study report was written mid April 2001, and finalised end of May 2001, including a return to the literature to tie back the findings. A similar approach was used for Tyrenco. Findings from WTC-Chemco are presented in Chapter 4 and Chapter 5 presents the Tyrenco report.

3.8 CROSS CASE ANALYSIS

The aim of comparative research is to understand, explain and interpret the phenomenon of interest by identifying similarities and differences across cases. Indeed, “it is not difficult to make sense of an individual case (...). The challenge comes in trying to make sense of the diversity across cases in a way that unites similarities and differences in a single, coherent framework” (Ragin, 1987 p19).

One characteristic of comparative research is that cases need to be viewed as “combinations of characteristics” and investigated as wholes (Ragin, 1987). This involves as well understanding and comparing the contextual elements of the cases,

which Pettigrew describes as encompassing a “vertical level” including the higher and lower levels of analysis as well as the time dimension, labelled “horizontal level” (Pettigrew, 1990).

The aim of Chapter 6, which presents the cross-case analysis, is to seek patterns across cases (Ragin, 1987 p20). Thus, one pattern may be identified, whereby both cases show a mix of elements, which pull the partners in two polar directions: “together” and “separate”. One outcome may be to confront this general pattern, by trying to unravel the intricacies of situations where the pattern is contrasted between the inter- and the intra-firm context.

Eisenhardt (Eisenhardt, 1989) suggests that an essential feature of theory building from case study research is comparison of the emerging concepts, theories or hypothesis with the literature. This involves asking what is similar to, what does it contradict, and why. A key to this process is to consider a broad range of literature. Identifying literature, which conflicts with the emergent theory is important because it represents an opportunity to reconsider the research findings and thus force a more creative, frame braking stance. Considering confirmatory literature is also important because it increases the researcher’s confidence in the findings. Chapter 7 includes a comparison of the research findings with the literature.

3.9 RIGOUR IN CASE-BASED RESEARCH

An honest reporter should recognise that all methods have their flaws, and that these flaws affect the confidence in research results – to a greater or lesser extent.

Consequently, the intent of this section is, first, to review the limitations of the chosen research design and then to present the steps taken to attempt to counter such weaknesses.

3.9.1 RISKS INHERENT IN THE RESEARCH DESIGN

Challenges to case studies as a research tool involve the sheer volume of data that researchers have to deal with, which may lead to over-complex theories – rich with details but lacking the simplicity of overall perspective. This also involves the difficulty to assess what is important from what is idiosyncratic (Eisenhardt, 1989). Indeed, it is argued that depth and scope of case studies are not sufficient to state anything at large about the subject studied (Maaloe, 2001 p7). Hence, it may be difficult to tie back the findings to propositions derived from previous research (Orum et al., 1991). Thus, the risk may be that the theory describes a very idiosyncratic phenomenon that prevents the researcher to raise the generality of the theory (Eisenhardt, 1989). The very weaknesses of case studies is derived from their strengths, which point to the richness and creative insights that can be gained from the juxtaposition of contrary or paradoxical evidence (Eisenhardt, 1989), which provide the basis for a strong dialogue between theory and evidence. Cases studies also arguably produce strong constructs, which have been verified repeatedly in the course of the theory building process. Finally the resultant theory is grounded in the evidence, in the intimacy with the data and therefore is empirically valid (Eisenhardt, 1989).

Another potential weakness of the chosen design pertains to its reliance on qualitative research, which is dependent on the researcher herself as an observant agent, and therefore is prone to be impregnated by the researcher’s personal bias (Maaloe, 2001). The specific issues pertaining to qualitative research are presented in section 3.9.3. Before that, the use of triangulation as a method of confirming findings is discussed.

3.9.2 ROLE OF TRIANGULATION

One specificity of case studies is that they provide an opportunity to use many different sources of evidence (Yin, 1994). The aim of triangulation is to have greater accuracy from the multiple viewpoints and possibly uncover new, deeper dimensions, which can provide fresh insights on the phenomena being investigated (Jick, 1979).

This study draws mainly on triangulation by data source, which can include persons, times, places as well as triangulation by method (interviews, survey, documentation, observation). This is achieved through interviewing people at multiple levels, in various functions within each partner firm of the supply relationship. Thus different perspectives can be drawn on the same phenomenon (Miles and Huberman, 1994).

Conducting interviews at different times (at an early stage and later stage of the research) also contribute to triangulation.

The outcome of triangulation is either convergence or non-convergence. Whilst convergence can be viewed as increased reliability, non-convergence can be seen as springboard for further elaborating findings or taking a completely new line of thinking (Miles and Huberman, 1994). This research has tried to adopt the perspective that “triangulation is not so much a tactic as a way of life” (Miles and Huberman, 1994 p267).

3.9.3 CRITERIA FOR VERIFYING QUALITATIVE RESEARCH

Miles and Huberman stress the multi-faceted issues related to the ‘quality’ of qualitative research:

“How will you, or anyone else, know whether the finally emerging findings are good? That term has many possible definitions: possibly or probably true, reliable, valid, dependable, reasonable, confirmable, credible, useful, compelling, significant, empowering...” (1994 p277).

Miles and Huberman have attempted to summarise the various views on “goodness” of qualitative research into five main, somewhat overlapping standards. These standards draw on traditional criteria from the positivist view of research quality, whilst including requirements, which suit a Realist epistemology. These criteria are presented in Table 3.5.

Traditional Criteria	Other criteria within a Realist epistemology	Description of the criteria within a Realist epistemology
Objectivity	Confirmability	Relative neutrality and freedom from unacknowledged researcher bias.
Reliability	Dependability, auditability	Consistency, stability over time and across researchers and methods. “Quality control”.
Internal validity	Credibility, authenticity	“Truth value”, credibility of the findings. Pertains to four types of understanding: descriptive, interpretive, theoretical and evaluative. Also emphasizes the need for “verisimilitude” or “plausibility” of narrative reports.
External validity	Transferability/fittingness	Are the conclusions from the study transferable to other contexts? How far can they be “generalized”? Can the findings be connected to broader theories beyond the immediate study?
	Utilization/application/action orientation	These criteria are in addition to more traditional views of goodness. They refer to “pragmatic validity”, and how the study helps develop “more intelligent action”.

Table 3-5 Standards for the quality of conclusions (After (Miles and Huberman, 1994)

The above set of criteria can be complemented with Yin's (1994) test of "construct validity". This involves "establishing correct operational measures for the concepts being studied" (Yin, 1994 p33) in order to avoid subjective elements guiding the data collection. This criterion does not appear as such in Miles and Huberman's list, although it may be argued that construct validity contributes both to the "objectivity" and to "internal validity" standards.

Miles and Huberman propose a set of relevant queries that pertain to each criterion, and that consist in useful questions that have guided the researcher in her quest for quality. Whilst it is not the intent of this review to go into the details of each query, following are the key challenges to case study and steps taken to attempt to counter such limitations.

Understanding vulnerability to bias

The researcher is both the measuring instrument, the interpreter and processor of data, and this may lead to an over-emphasis of certain aspects at the expense of others research (Maaloe, 2001). Using a research diary has been an important tool for reflecting on the possibility of such biases, which are presented in more details within the methodology section of each case study chapter. Getting feedback from informants also was used as a way for the researcher to check her biases.

Potential traps in quality control

The underlying issue is whether the process of the study is consistent, reasonably stable over time, across researchers and methods (Miles and Huberman, 1994). Using a case study protocol to guide the data collection has contributed to making it consistent. The design of the cases is based on a broad base of informants, from both sides of the dyad, across different levels and functions and over time. The N'Vivo software package allows easy retrievability and auditability of the data.

Exploring whether the evidence presented is a fairly valid reflection of the explored reality

This raises the issue of credibility of findings. Access to "thick" data is provided through display matrices containing in-vivo quotations that can be traced back to individual informants coded number. These are available in appendix, as a way to complement the case study report. Conscious attempts have been made to seek disconfirming evidence and to see the "outlier as a friend" (Miles and Huberman, 1994) and use triangulation.

Applicability to other domains

This deals with the already mentioned issue of generalising conclusions of the study to other contexts. As shown in the later chapters, the diversity of the two cases, which are both "extreme" in that the inter-firm case is very integrated and the intra-firm case very separate, may shed a doubt on the relevance of the findings. However, it may be argued that such contrasting evidence is also a means of gain a rich understanding of what is going on, even if it is at the expense of achieving a "law of the great numbers" (Maaloe, 2001).

3.10 CONCLUSION

This Chapter has outlined the realist philosophical approach taken, and has explained the rationale for the research design. It has dealt with the various steps involved in case-based research and the data collection techniques used in this research. The analysis step, which has drawn on computer-assisted qualitative analysis, has been described in some details in order to show how the software has interplayed with the analysis task. Finally, the quality criteria and limitations of case based research have been acknowledged, with their requirements on the enfolding of the research project. Next, the thesis moves on to examine the findings of this research. These are presented in three chapters, Chapter 4 on Wheatco-Chemco, Chapter 5 on Tyrenco and Chapter 6 on cross-case analysis.

CHAPTER 4 WHEATCO - CHEMCO CASE STUDY

4.0 INTRODUCTION

The first case study was initially intended as a pilot, to provide confirmation of the conceptual framework, to refine the research design and to test the data collection techniques. As indicated in the methodology section, this case, which has been carried out between August 2000 and February 2001, ended up providing rich evidence that allowed an in-depth, pluralist analysis of the supply relationship. Hence, the initial pilot was extended to a full case study with similar status to the Tyrenco case described in chapter 5.

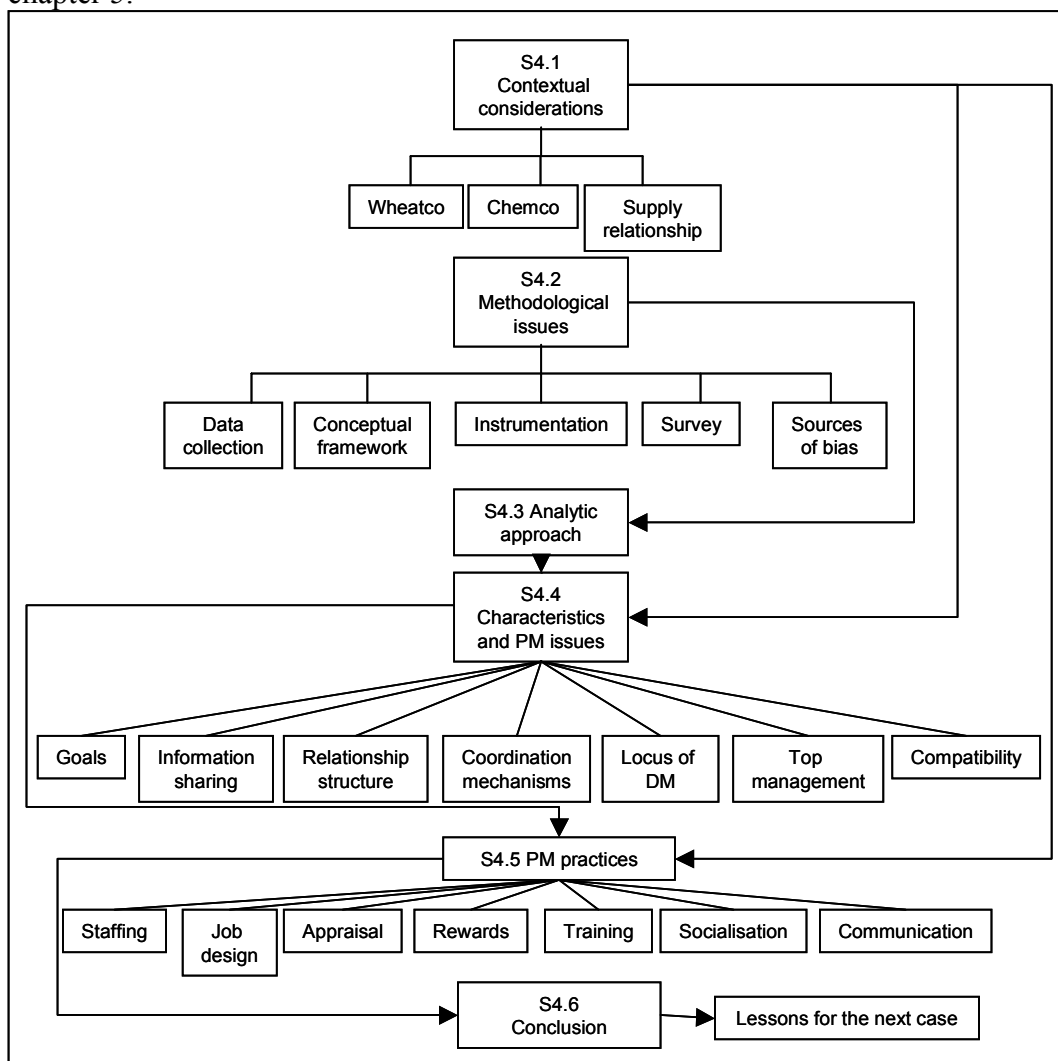


Figure 4-1 Outline of Chapter Four

Refining the data collection plan has consisted of developing a logical approach for dealing with such issues as defining the unit of analysis, developing a logic for the sampling of informants, and dealing with the change process that took place over the course of the research. The data collection was guided by the conceptual framework, and the empirical data provided a basis for modifying the conceptual framework, by confirming or disconfirming the relevance of its constructs.

Figure 4.1 shows the outline of the chapter, which starts in Section 4.1 with a description of the context, by briefly introducing each partner firm, at corporate and local levels and by presenting the local relationship. Section 4.2 discusses the specific methodological issues encountered during this case and section 4.3 describes the analytic approach used to draw conclusions. Findings are presented following the conceptual framework structure, namely: section 4.4 relationship characteristics, 4.5 PM practices. The chapter ends in S4.6 with concluding comments and lessons drawn for the next case.

4.1 CONTEXTUAL CONSIDERATIONS

Providing the context for the case involves considering the vertical and horizontal levels of analysis (Pettigrew, 1990). The vertical level deals with interdependences between the higher and lower levels of analysis. This involves presenting the two partner firms and providing the background for the local relationship, its operations process and people management context. The horizontal level of analysis refers to the evolution of the supply relationship over time.

4.1.1 WHEATCO

Established in the early 1940's, the organisation, which will be referred to as "Wheatco" is a joint venture of two large US corporations, both of which own equal shares. A pioneer in the development of its specific chemical compounds, Wheatco is viewed as a world leader in its technology. With a turnover of approximately 2 billion US dollars, Wheatco employs 8000 people across the world. Its specific technology has broad-ranging applications in different industries, such as automotive, aerospace, chemicals and materials manufacturing and mould-making. With manufacturing sites in many countries, Wheatco emphasises its concern for safety and the environment: "What we think about before doing anything else" (Wheatco brochure).

The Wheatco UK plant was established during the 1950's and after undergoing a large expansion project during the 1990's is now Wheatco's largest manufacturing facility and arguably "the most technologically advanced" (chemical compounds) facility in the world" (Wheatco brochure).

4.1.2 CHEMCO

The second organisation in this first case will be called "Chemco", a US global specialty chemicals company. Unlike Wheatco, Chemco is publicly traded and as such exhibits a strong focus on shareholder value (Chemco website).

Chemco employs 4000 people throughout the world with a turnover of approximately 1.5 billion US dollar. Its core business strategies are: 1) to drive out costs and manage capacity intelligently and 2) to utilize technological expertise and customer knowledge to create and sell differentiated, value-added products, and to build new businesses" (Chemco website).

Chemco has primary operations in four specialty chemical businesses. The chemical additive, which is manufactured in UK, is the second largest business at Chemco. This additive is used as a reinforcing agent in rubbers, adhesives, coatings and sealants.

The Chemco UK plant is a new facility, which was built in 1990 as an "across the fence neighbour" to the Wheatco UK site. The proximity of operations enables Chemco to obtain feedstock used in its manufacturing operations from Wheatco. Wheatco, in turn, obtains the chemical additive from Chemco for use in its rubber manufacturing process.

The key features of this exchange, referred to as a “closed loop”, will be presented in the next section, which depicts the local supply relationship.

4.1.3 THE SUPPLY RELATIONSHIP

Wheatco and Chemco are thus two US corporations, which have quite a lot of common ground. They are both in the chemical industry; both are leaders in their chosen activities. This case study deals with the partnership that these two companies established ten years ago in UK, with the strategic objective of gaining competitive advantage through mutual access to low cost raw materials.

4.1.3.1 Local actors

The Wheatco UK plant employs about 700 people, while the Chemco facility currently has about 70 employees. The supply relationship described in this case study involves the Chemco facility and two manufacturing units of the Wheatco plant, namely Basics and Rubber. The Chemco site is dedicated to the production of a chemical additive, which is referred to as ‘A1’, used in the production of rubbers, paints and other compositions. The TCS building, located in the Basics unit, was built in 1990 (at the same time as the Chemco facility), with the sole purpose of supplying the feedstock used in the Chemco process. The manufacturing process of the additive A1 generates a gas ‘B3’ as by-product, which is recycled back into the TCS feedstock process. The “closed loop”, referred to in the previous section is illustrated in Figure 4.2 below, which shows how the two firms are both customer and supplier of each other.

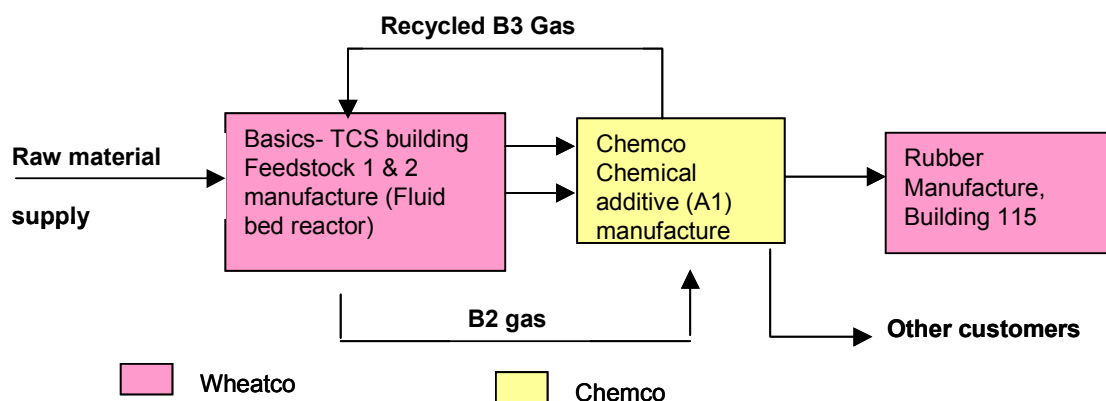


Figure 4-2 Outline of the production process

Half of the additive A1 made on the Chemco site is sold to the Wheatco Rubber unit, and the rest to other customers in Europe and the USA. World capacity for A1 is limited, so Chemco can sell all that it can make. Chemco capacity was extended in 1995 from 8,000 to 13,000 tonnes per annum. Another extension project is currently under discussion, which would bring Chemco capacity up to 20,000 tonnes within the next two years.

Basics is the unit where the Wheatco UK site expansion took place in the mid 1990's. It is the largest production unit in the whole site and comprises five manufacturing areas or “buildings”. Among these is TCS, which supplies feedstock to Chemco. One hundred people are employed in Basics, of which only a few are in contact with Chemco. The TCS building is geographically distant from the rubber manufacturing area (“building

115”), which is Chemco’s customer and which employs about fifty people. The two units belong to different industry business units (IBU’s). Basics is part of the Basic Chemicals IBU, and Rubber is part of the Specialities IBU. There is little interaction between employees of these two units, although their unit managers have regular meetings at site management level.

4.1.3.2 Joint production process

Wheatco receives the raw material from an external supplier. This material is a fine powder, which is heated up to 300°C together with the gas B3 supplied by Chemco. The powder is suspended in a fluidised bed reactor in order to allow good mixing and reaction process. The reactor is about 2m diameter and 9m high, with close temperature control. The result of the reaction process is a mixture of three components: feedstock 1, feedstock 2 and another gas ‘B2’.

Next, feedstocks 1 and 2 are purified, refrigerated and condensed into a liquid, which is supplied to Chemco via pipeline. The ‘B2’ gas is also purified, and shipped direct to Chemco via another pipeline. It is important to maintain the ratio of feedstock 1 and 2 in the ratio 40/60. Any variation to this ratio will negatively impact the quality of the additive A1 produced by Chemco. For the same reason, ‘B2’ gas has to be extremely pure.

The rate at which the two feedstocks are produced is key to ensuring that a constant blend is maintained, and hence consistency of the batches of A1. Another component of the feed to Chemco is a by-product of the Wheatco chemical compound manufacture. The storage capacity of the feedstock tanks, when they are full, gives Chemco no more than 15 hours of production in the event that the Wheatco process is stopped. At Chemco, the feedstocks are mixed with gas B2 in a high temperature process in order to produce the additive A1. The additive is a low-density powder, which is stored in silos and blown via pipeline to the Rubber production unit (Building 115). Temperature is a critical parameter in the chemical reaction: problems in the reactor can produce overheating, which creates variations in the feedstock, which in turn negatively impacts the quality of the A1 additive. The final properties of the additive A1 are therefore the result of process control within Chemco as well as within Wheatco TCS.

In order to avoid unnecessary investment, Wheatco supplies Chemco’s utilities - such as water, electricity and compressed air. Wheatco also handles Chemco’s waste products. Similarly the overall costs for the Wheatco-Chemco supply relationship are reduced to a minimum with very little buffer stock both upstream (TCS to Chemco) and downstream (Chemco to Rubber). This creates a total interdependence between the members of the ‘closed loop’ supply chain.

4.1.3.3 Coordination of the relationship

The relationship structure of the supply relationship featured here was multi-faceted, with interactions taking place at many levels. Locally it included plant management, engineers and operator levels. In the US, an executive contact was appointed by each firm in order to manage the relationship at a strategic level, especially in regard to the global agreement, which bound the two firms contractually.

Locally three multi-functional, cross-organisational teams were officially appointed to manage the joint activities:

- A Steering Committee, which operated since June 2000. It included five people: the Chemco facility manager, the Chemco operations manager, the Basics unit manager, the Basics technologist, and the Rubber unit manager.
- A technical team (PACE), aimed at the upstream joint manufacturing process.
- A product quality improvement team (QIT), which was mainly directed at the downstream (chemical additive) supply relationship.

The production processes were operated on a round-the clock basis and there was very little buffer stock within the supply chain loop. This close interdependency of the process meant that the three operating teams, who worked in shifts, were in contact on a 24 hour basis: TCS with Chemco and Chemco with the rubber unit. There was a direct telephone link between TCS and Chemco operators. This allowed easy communication by either side in order to warn of any changes occurring in either of the processes (such as the production rate), or to inform of any shutdowns or production breakdowns. In the best case, shutdowns only lasted for an hour or so and did not induce downstream problems. In the case of longer shutdowns (five hours or more), the process start-up needed to be synchronised, with no certainty that the process would start up again without further hitches.

There was a bridge, which provided an easy shortcut from one plant to another. This allowed short meetings “at the gate”, in order to pass samples or for brief information exchange. Selected employees were also able to pass freely by means of swipe card access.

4.1.3.4 Contractual agreement

A first contract was signed in 1989 in order to cover the various agreements, which pertained to the setting up of the supply relationship, such as:

- The “framework agreement” dealing with the Chemco and TCS construction. It specified the formation of a joint co-ordinating committee (the Steering committee, QIT and technical teams were defined contractually). It contained as well a confidentiality agreement, pertaining to technical and commercial information. This framework agreement specified that no “joint-venture” was intended between the two parties.
- Commercial agreements pertaining to the supply of feedstock, chemical additive and utilities.

The terms of the above contract were revised in December 1999, capturing the terms of the relationship on a global basis. Indeed, since 1998, a similar fence-line plant was set up in the USA, with the same supply relationship as shown in Figure 4.2. A tolling agreement captured the sales of feedstock to Chemco for the chemical additive production and the sales of Gas B3, which was recycled back into the TCS process. Market prices were then quoted for sales of feedstock for production of the chemical additive for other Chemco customers and for sale of Chemical additive.

4.1.3.5 People management processes at the Wheatco site

The context for the people management side of the WTC-CH relationship is presented here for the WTC side of the dyad.

The WTC HR organisation was recently reorganised into five processes, namely staffing and recruitment, compensation, learning and development, SAP process workflow for administrative data and organisation effectiveness and performance management. The latter process encompassed individual performance management, internal work organisation and employee relations. There was a dual reporting line, for

HR staff, who reported into the US director in charge of the specific HR process as well as into the local HR manager. Thus, the site HR policies were implemented with a mix of overall corporate directions and local modifications to follow the UK legislation requirements.

The classification of site employees and managers was based on four types: industrial (operators), staff, office administration and professional or managerial staff.

The compensation philosophy aimed to “attract, retain, recognise and reward employees for skills and values that contribute to the success of the organisation” (Source: WTC HR documentation). There were seven company values in support of the compensation programme:

- 1) Demonstrating integrity through ethical conduct.
- 2) Realising the potential of employees, in a context of fairness, self-fulfilment, teamwork and dedication to excellence.
- 3) Establishing long-term partnerships with customers.
- 4) A quest for quality performance.
- 5) Technology through advancement of chemistry and related sciences in chosen fields.
- 6) Commitment to the safe keeping of the natural environment.
- 7) Commitment to safety.
- 8) Long-term profit (Source: WTC intranet, 2000).

Compensation involved a base salary, which was benchmarked on a UK national basis for professional staff and on a regional basis for industrial staff. Beside the base salary, there was merit increase (which did not apply to operators) and a variable incentive programme (which applied to all employees). The variable incentive was a site-wide programme, with a combination of local site goals, industry business unit goals and overall corporation profit measure. The site goals for 2000 were a mix of productivity improvement results pertaining for example to the management of overtime or implementation of “appraisals for all” (namely also for operators) or employee suggestion scheme. Benefits such as sickness policy, holiday entitlements or pensions were common to all employees.

The performance management system involved the setting up of “SMART” (specific, measurable, aligned, reachable and time-driven) objectives, with periodic and annual reviews. The process also involved planning of skills and capabilities to meet the needs of current position and career planning, at the employee’s own initiative. Performance appraisal drove compensation (merit increase), employee development and succession planning - except for operators.

Operator appraisal, which recently received an additional emphasis (part of the 2000 site goals), was not based on objectives but on behaviours, which encompassed teamwork, “can do” attitudes, safety awareness, environmental awareness, and housekeeping. These appraisals were conducted by team leaders, who supervised, for example in the case of Basics area 1, fifteen operators, five lead operators and four engineers (See organisation charts in appendix).

There was no link between operator performance and salary, although good performance could influence the rate of promotion levels through operator ranks and facilitate access to other operator positions on site. Operator positions were documented through job descriptions. Thus, a Basics process operator position involved as prime responsibility:

- To operate all production units in the area to defined production rates and quality specifications, whilst meeting safety, environmental and regulatory requirements (Source: Basics process operator job description- December 1999).

Hence, a key feature of such positions was that it involved operating several processes, with a shift complement of four other process operators and one lead operator, to follow a cross training programme, which was being implemented in the area. Other key responsibilities, in the job description, involved ensuring that priority was given to safety and environmental standards. Other performance standards pertained to teamwork, the running of the operations (such as notifying other units, like CH, of any plant problems that could affect them) and continuous improvement efforts.

WTC was an unionised site, with the industrial relation team chaired by the HR manager. An implication of having a union was that the design of operator and maintenance jobs was structured, with strict demarcations between job designs. Moreover, any specific activity pertaining to industrial staff, such as visits to another site or social events, needed to remain within union guidelines.

The HR function was not involved in the WTC-CH relationship, as the only collaboration at HR level was at the level of the local chemical complex, to align pay and benefits of industrial staff.

A WTC worldwide work force reduction programme, aimed at eliminating six to eight percent of the work force was announced in August 2000, at the very start of the research project. This management-selected programme involved choosing employees based on the position being eliminated and the specific employee skills no longer needed. Although this workforce reduction plan involved an impact in terms of perception of job security across the whole site, the WTC manufacturing units in contact with CH (Basics and Rubber) were not directly impacted in terms of job elimination – at least over the course of the research.

4.1.3.6 People management processes at the Chemco site

The context for the people management side of the WTC-CH relationship is presented here for the CH side of the dyad.

The CH HR organisation was composed of an HR/Office administrator, based on site who had a dual reporting line to the site manager and to the UK HR manager. Since the setting up of the CH site in the early 1990's, HR policies and procedures had been developed independently from corporate, whilst following common corporate guidelines throughout the UK. Thus, four corporate values supported the performance based management process. These values were measured by a 360 feedback process and a behavioural objective included in the performance review:

- 1) Integrity, that demanded an adherence to ethical standards, compliance with all laws and regulations, efforts towards highest quality and respect for safety, quality and the environment.
- 2) Respect, pertaining to being honest, straightforward and trustworthy, listening and learning from each other, the customer and the outside world, and sharing learnings generously.
- 3) Innovation, that demanded to work urgently and intensely to create new ways to bring more value to customers and to open new markets for products.
- 4) Competitiveness, pertaining to being the best, striving for excellence in everything. Listening to customers, owners and markets, competing aggressively to exceed their expectation, using teamwork, leadership and self-confidence. Seizing opportunities for urgency, persistence and courage. (Source: CH HR documentation)

The annual performance management process involved establishing specific performance objectives, tied to the plans for the business. Performance objectives were in line with key result areas on the employee's job description and were submitted to similar "SMART" guidelines as the WTC ones. Performance assessment was viewed as

a continuous interactive process, with open and honest feedback on an ongoing basis. Development planning consisted in identifying strengths and development needs and creating action plans to address these need on an annual basis. The performance based management programme was specifically identified for managerial, supervisory and qualified technical grades but had been extended by the local site for use further down the organisation to include all employees.

Along the same lines as WTC, the CH compensation programme involved a base salary, benchmarked on a UK national basis for professional staff and on a regional basis for operators. Merit increase did not apply to operators, however a site gain-sharing programme was in place since 1999 that pertained to all employees and was a percentage of the annual salary. In 2000, the site bonus scheme was based on five elements comprising: 1) Safety, Health and environment, 2) Quality and 3) Capability, which included elements that were linked to the relationship with WTC – in particular downtime, 4) cost and 5) organisational effectiveness..

Operator job descriptions comprised three key result areas: safety, quality and operations. Operator positions comprised two different types of jobs: the process operator, whose job purpose was to carry out a series of planned preventative routine maintenance in the plant and the control operator, whose job was to operate the production process and issue where applicable Permits to Work within the plant area and interaction with WTC. Both operator jobs reported to a shift manager, who in turn reported to the Production Manager. The plant operated on a continual 24/7 5 shift basis.

CH was a non unionised site, although the company had formed a Works Council whose charter was wide ranging but not of a negotiating scope, more a consultation. Members were invited to represent each staff group but there were no formal elections. Contacts between the HR / Office Administrator and WTC were through meetings at the level of the local chemical complex, to compare pay and benefits to ensure relativities were maintained.

4.1.3.7 Historical perspective

Four main stages can be identified in the evolution of the relationship between its start up in 1992, when the joint production process became operational, until the beginning of the research mid August 2000. Each of these stages will be briefly reviewed . A summary is provided in Figure 4.3.

Stage 1: Early days (1992-1994)

“I remember in the early days when we first started it was hard work, because we were training and they were training and we were both under pressure to get the jobs done and get the plant running right and it was a few fuses as you can imagine between the operators but again that was on the learning curve”. (Chemco operator)

Chemco was a Greenfield site, having to set up the whole infrastructure, documentation as well as PM system. This was done with little guidelines from Chemco Corporate. TCS could draw from the Wheatco site quality, safety, environment and PM infrastructure but they had to learn a new technology (fluid bed reactor). Above all both teams had to learn to become aware and deal with the new situation that was the interdependence of their production processes. Archival evidence shows that QIT meetings were organised, but that they were driven by corporate rather than local members. However, a technical team with members from TCS and CH had been meeting from the start. A few social events, such as pigeon clay shooting or “kettles”

were organised. Overall, the situation was rather tense “Whenever there were problems, there was conflict”.

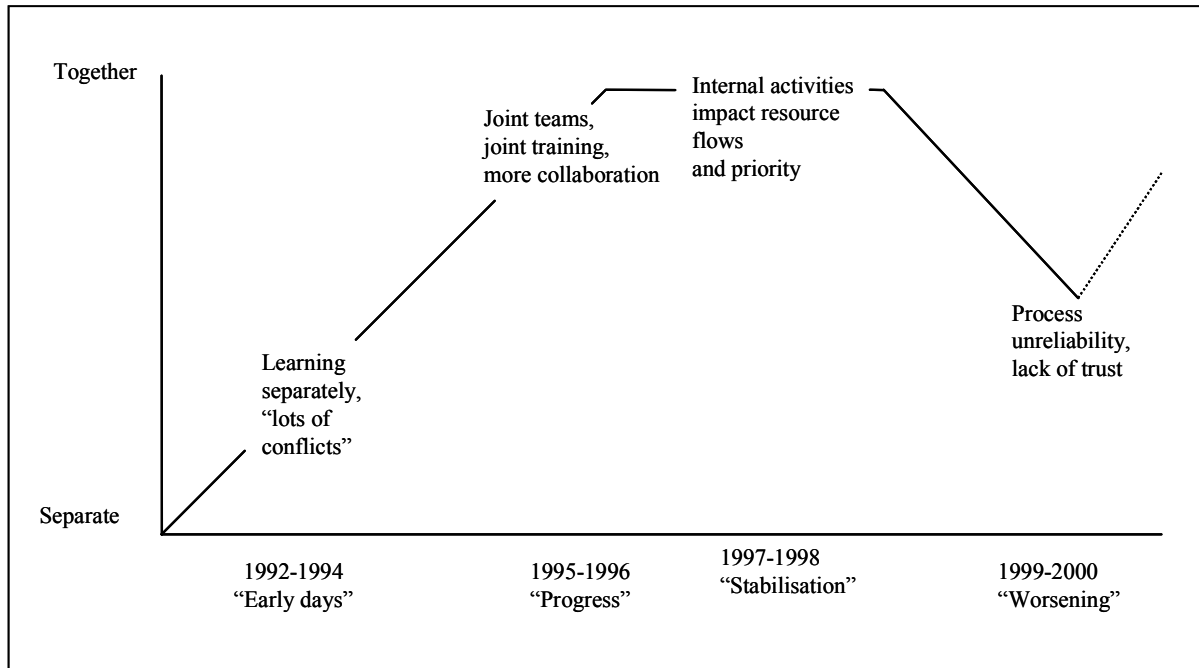


Figure 4-3 Historical perspective on the Wheatco-Chemco relationship

Stage 2 Progress (1995-1996)

By 1995, the learning curve at local level had taken place, and the CH plant capacity had been expanded. Although processes were still unreliable (especially TCS), the relationship itself had improved. A common language had been developed at operator level, through interaction: “we may spend a day there, they spend a day here” and thus “with the old operators, we didn’t need to communicate where if something did go wrong they would automatically take care of it”. This period was characterised by a higher interaction and more collaboration at local level. QIT meetings now included local members from TCS, Rubber and CH.

Stage 3 Stabilisation (1997-1998)

Both companies were very busy internally, with implementation of Business Process Re-engineering, which took up many resources in both companies. Wheatco implemented SAP globally in 1998 and worked on the expansion programme, which aimed at making Wheatco UK the largest (chemical compounds) plant in the world. The process side of the interaction itself seemed to show “improvement in combined on-line-time”. Within one year, rather unobtrusively, four out of the five TCS operators, who had been there since the start up of the plants were promoted to shift manager position for the new Wheatco expansion. In this position, they also supervised the area that comprised the TCS process. It seemed, during that period, that there was less interaction at management level. PACE and QIT were less active. At the end of 1998, the interaction started to deteriorate: “we had a frosty relationship, it was a set of hidden agendas”.

Stage 4: Worsening (1999-2000)

In January 1999, Chemco replaced four out of the five shift managers. Therefore, at control room level, there were a lot of new faces both in Wheatco and Chemco. The level of interaction was reduced dramatically, as no formal socialisation was organised.

Operators started to feel that they could not “put a face to a name”. In January 1999, Chemco distributed its first site wide compensation: “Our objectives for on-line-time are that we can discount the downtime caused by Wheatco”.

The situation at technical level was not good with a lot of unreliability from the TCS process. On 13 August 1999, the rubber unit was stopped because all the rubber it produced was hard. This lasted for 15 days, thus putting the whole WTC rubber business on allocation. The interaction became more intense again with meetings including all three manufacturing units. A new contract was signed on 30 December 1999 with an implementation date of 1st January 2000, thus leaving very little time for implementation of the tolling agreement. In March 2000, a new Senior Manufacturing Technologist was appointed for Basics, with a specific mission to focus on the Chemco relationship. He was not new in the area since he had been the Basics manager in the early 1990’s when the CH site was set up.

In March the Steering Committee had its first meeting. One item on the meeting minutes stated: “Agreed there is a need to improve communication and credibility at operator/shift manager level. Planned Team Days should help”.

A new facility manager was appointed at Chemco in June. He was faced with the challenge of meeting a new business opportunity for Chemco: the growth represented by the sale of chemical additive to the electronic industry via a Chemco spin-off, which marketed the product for the treatment of micro computer chips. The outlook for market growth was huge, and Chemco corporation looked at expanding the UK site from 13,000 tonnes to 20,000 tonnes – provided it could show that it was capable of meeting both the process and quality requirements of the new business.

Therefore, at the beginning of the research the supply relationship, after 8 years of operation, was rather mature, but did not emerge in a sound state. From the technical side, the TCS process was recurrently unreliable and again in March 2000 there were issues of hard rubber caused by chemical additive. After several meetings, the issue was traced back to the chemical additive pH level, which was below specification – although recorded as being on spec by the Chemco quality control. Further to that (critical) incident, many resources were jointly spent to correct the issue and some improvement started to show.

The years of lack of socialisation at operator level expressed itself in terms of very low levels of trust and a tendency towards adversarial relationships. The recurring issues between TCS and Chemco put a strain on the overall relationship, diagnosed as a “blame culture”. A “Team Day” was planned for September 2000 to ensure that operators, shift managers and engineers from the three manufacturing units could meet, socialise and be trained on the specificities of the supply “loop”. However, in August 2000, a company-wide workforce reduction plan was announced within WTC.

Therefore, the “Team day” was cancelled: indeed, organising a socialisation event under these circumstances was not deemed appropriate by the WTC site management.

The research project was proposed and agreed upon in June 2000. Both firms agreed to have an external party look at people management within this relationship. The fieldwork started in August 2000.

4.2 METHODOLOGICAL ISSUES

This section aims to formulate explicitly the design decisions made in the course of the study that had an impact on the analysis and the findings presented in the later sections of this chapter.

The first design decisions that are discussed pertain to the focusing of the data to be collected and to the adjustments made to the conceptual framework as a result of the data collection. Then the rationale for the operator survey is presented. The section ends with a discussion of the potential sources of research bias that have emerged as a result of the study.

4.2.1 BOUNDING THE COLLECTION OF DATA

Making explicit the bounding of the collection of data involves not only defining the “territory” (4.2.1.1) and the detailed logic that shows the sampling path (4.2.1.2) but also justifying the way that the research has dealt with the change process, which has taken place over time (4.2.1.3).

4.2.1.1 The territory

The “hybrid” has been identified as a conceptualisation of the supply relationship, which this research attempts to uncover. Because of its conceptual nature, it was important to formulate a logic for defining the “hybrid” limits.

Figure 4.4 below illustrates the bounding of the unit of analysis, which makes up the Wheatco – Chemco case study. This bounding is based on a conceptual element (the “hybrid”), its social size (the joint teams and inter-personal relationships) and physical elements (the main physical product flows). Anchoring the qualitative sampling for the “hybrid” on feedstock and chemical additive provided a rationale for excluding other processes, for example pertaining to the utilities physical flows, which were less central to the supply relationship. This did not however preclude sampling of peripheral individuals who could comment on evidence or provide a contextual view of the supply relationship.

Bounding the unit of analysis also involved making choices regarding the inclusion/exclusion of informants from sites other than UK (other Wheatco locations in Europe and the Chemco customer service group in Holland). Here, the decision not to include these informants was driven by the research focus on people management, which emerged as being driven at site level.

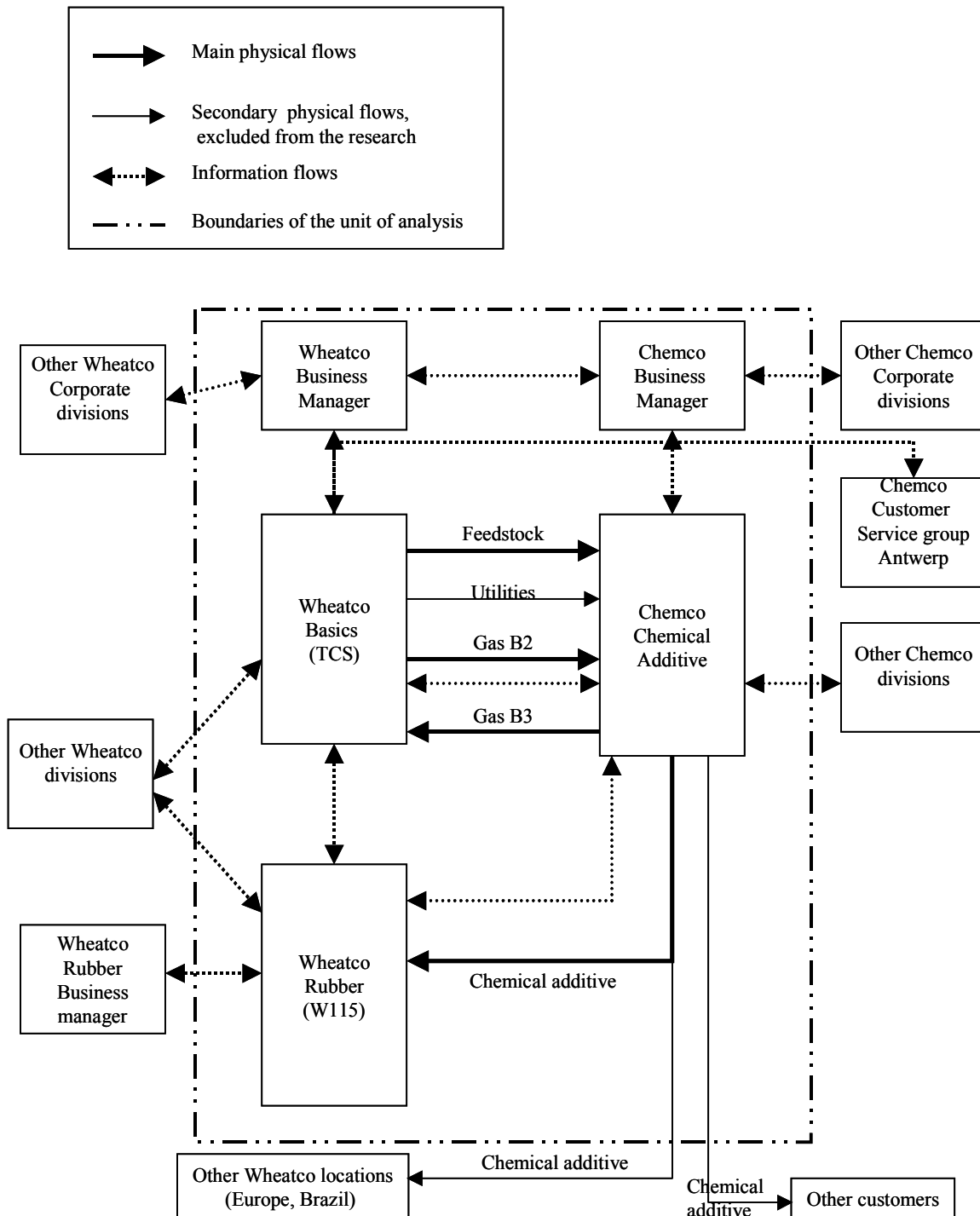


Figure 4-4 Bounding the unit of analysis: Mapping the Wheatco-Chemco supply relationship

4.2.1.2 Sampling path

A total of 38 persons were interviewed in the course of the research, and this fairly large number calls for displaying the “diagram of informants contacts” (Sanjek, 1990 p399), or sampling path. This involves defining the selection criteria along two dimensions: the sampling logic, which, following Miles and Huberman (1994) can be viewed as pre-specified (conceptually-driven) or opportunistic and the source of the leads, which can either be within-firm or between-firm.

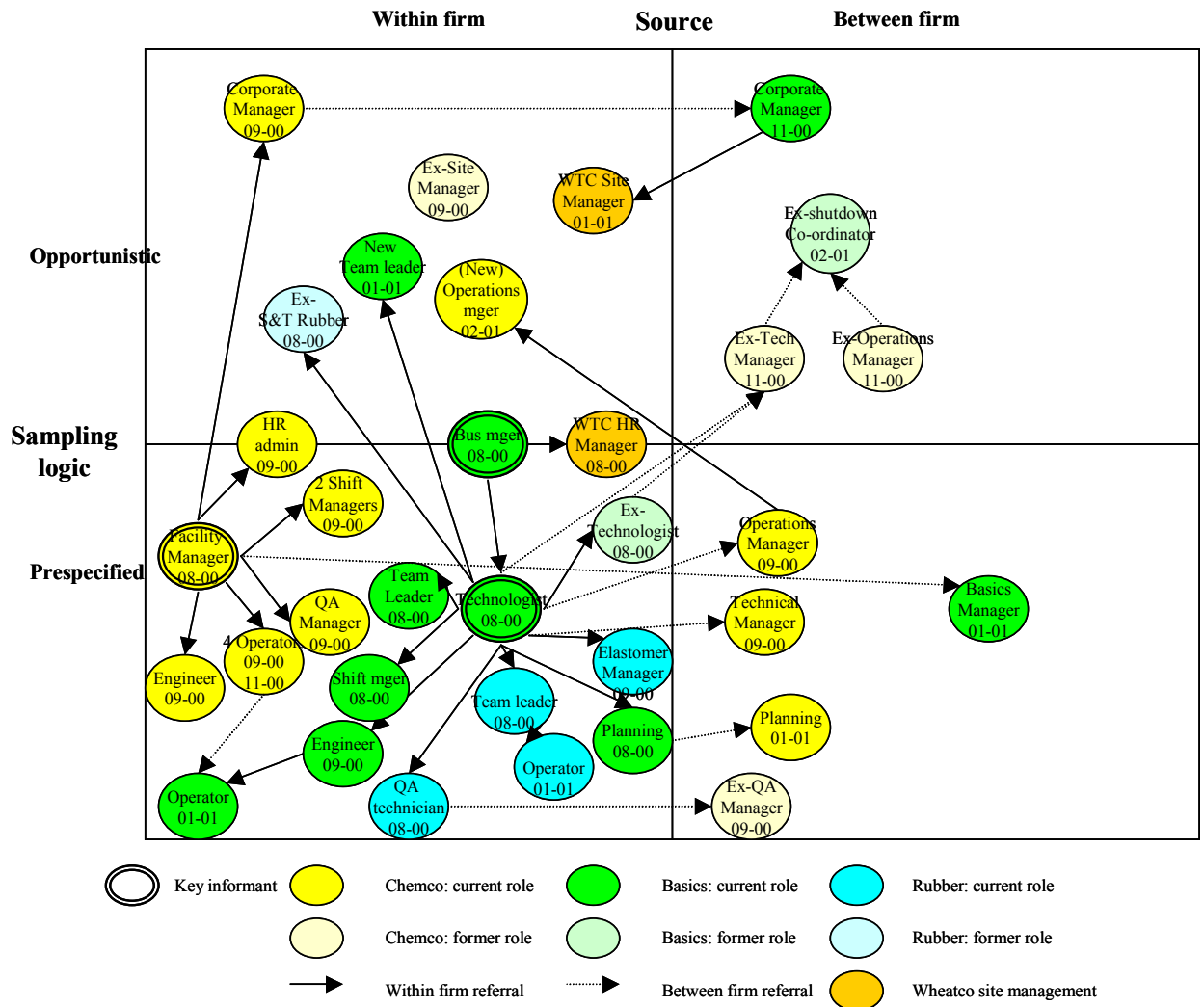


Figure 4-5 Sampling path or logic of informant selection: position and first interview date

Figure 4.5 shows that a large number of leads were originally provided by the Wheatco technologist, during the first week on site in August 2000. This key informant provided both Wheatco (within-firm) and Chemco (between-firm) leads. Most of the informants were clearly related to the “hybrid”, inasmuch as they participated in the on-going joint teams. Others, such as the S&T Rubber person who had led a short-term crisis management team, were more peripheral whilst being a source of insight. The most fruitful “opportunistic” sampling happened thanks to the Chemco facility manager who provided access to the Chemco Corporate manager, who in turn recommended that the Wheatco corporate manager be interviewed. This allowed a broadening of the “hybrid” unit of analysis by including these corporate informants who provided a rich source of data triangulation with respect to the local supply relationship.

Opportunistic sampling also consisted in interviewing people who were no longer directly involved in the relationship, but who had been in the recent past. These informants provided insights on the antecedent conditions of the relationship (section 5.1.3.5), which provided an underlying logic for the current situation.

Between-firm sampling was a source of verification in that it allowed a comparison of points of view from both “sides” of the relationship. The closeness of the two sites provided a lot of flexibility for interviewing people from the other firm, whilst on one site.

4.2.1.3 Bounding of time

Dealing with time in the course of this research required a reflection on three aspects: 1) taking into account the historical perspective, presented in a prior section, 2) showing how the research has accounted for the change process taking place on the field and 3) deciding when to stop collecting data.

Accounting for the change process that took place over the six-month period of the research involved interviewing the same people throughout the research (key informants) or at the beginning and at the end of the research to be able to capture the way that their view of the relationship evolved over time. Table 4.1 provides the details of the repeated interview dates and informant roles.

Informant/Dates	08-2000	09-2000	11-2000	01-2001	02-2001
CH- Facility manager (KI)	X	X	X		X
CH- Operations manager		X			X
CH- Planning			X		X
WTC- Technologist (KI)	X		X	X	
WTC- Basics team leader	X			X	
WTC- Basics engineer		X			X
WTC- Rubber team leader	X			X	
WTC- Rubber QA	X			X	

Table 4-1 Repeated interviews of the same person (KI: key informant)

A number of organisational changes took place over the course of the study, both at Wheatco and at Chemco. Because role ordered matrices were used as the main analysis tool, the decision was made to “freeze” the organisation chart and associated roles as of December 2000, i.e. about two months prior to the end of the study (See appendix). The rationale used for deciding when to stop collecting data is “theoretical saturation” (Eisenhardt, 1989; Glaser B.G. and Strauss A.L., 1967)), which is the point where data collection “only adds bulk to the coded data and nothing to the theory” (Glaser B.G. and Strauss A.L., 1967 p111). Harrison (forthcoming) proposes a linear correspondence between knowledge accumulation and time, which illustrates at which point the little incremental gain from added data signals the need to conclude the research. This point was reached by the end of February 2001.

4.2.2 REVISING THE CONCEPTUAL FRAMEWORK

In chapter three, it was argued that one expected outcome of the pilot case was to improve the conceptualisation (and confirm the relevance) of the components of the framework, such as the “hybrid”, the characteristics and PM practices.

In the course of data collection and analysis, the conceptual framework was modified with respect to the specific characteristics of reciprocal supply relationships and to the PM practices. Indeed, around December 2000, it became clear that the “time horizon” dimension was an obvious, intrinsic component of the supply relationship: with the sunk assets such as the Chemco plant and the joint production process, and the 25+ year

contract, it was obvious to informants that the relationship was going to have a long term time horizon. To that extent, this dimension seemed to be related to the contextual dimension of the relationships that may pertain to a stability contingency. Moreover, little evidence was found of an influence of career management as such on the supply relationship. Hence, the initial set of eight PM practices was reduced to seven.

4.2.3 INSTRUMENTATION

The interview guide evolved over the course of the research. The guide had originally been designed to be very detailed with precise questions. After few weeks, however, it became obvious that it was too rigid to fit the exploratory side of the PM side of the research. Hence a more flexible interview guide was developed (see appendix). This was intended as a guiding thread to prompt the informant's ideas rather than as a strict structure to be adhered to.

Indeed, two different sets of questions were used to operationalise this research, which have required two different approaches to data collection:

- Questions pertaining to characteristics of the supply relationship, which intended to compare the actual situation with the specific characteristics developed from the literature. This part of the interview, which was typically handled during the first half of the discussion, was rather focused, though remaining open-ended in nature.
- Questions pertaining to the people management side of the relationship, which had a more exploratory nature, were normally asked during the second half of the interview. Indeed, in several cases informants found it difficult to establish any direct link between PM practices and the supply relationship, hence requiring an indirect probing of such issues.

4.2.4 OPERATOR SURVEY

An instrument, not originally planned in the design, was used to add further insight into the WTC-CH relationship. A survey questionnaire was organised in February 2001. It had two main objectives: 1) triangulating the qualitative data, 2) gathering additional data.

4.2.4.1 Rationale

The following rationale prompted the decision to organise the operator survey:

- 1) The qualitative evidence indicated that the relationship was not very good at operator level, but differing views were expressed. There was therefore a need to triangulate qualitative data on the perception of the relationship from the three control rooms (TCS, Chemco and Rubber), with a larger population than was possible through semi-structured interviews.
- 2) One suggestion for improving the interaction was to allow operators to meet and thus "put a face to a name". No formal work socialisation programmes had been organised since "the early days" of the relationship. Informal one off visits had taken place between the three plants, but there were no formal records of these operator visits over the years. Therefore, there was a need to gather evidence on the amount of actual direct interaction that had been occurring between operators.
- 3) "Monday operator meetings" had recently been implemented (since November 2000), between Chemco and TCS, in an effort to improve the relationship at operator level. Three months into this programme, it was of interest to collect operators' feedback on this socialisation practice.

Additionally the survey intended to complement the qualitative interviews by “giving voice” to a wider number of operators, and allowing them to make suggestions for improvement.

4.2.4.2 Questionnaire design

Three separate sets of questionnaires were originally designed, with the same questions, adapted to each operator group. Upon request from the Chemco plant manager a fourth set was added to look at the relationship between Chemco warehouse operators and the Rubber unit to measure the level of satisfaction with the chemical additive supply. Each set of questionnaires (with the exception of the Chemco warehouse operators) looked at the interaction between two different units in the SC loop. Thus, the four sets of questionnaires looked at:

- TCS operators’ interaction with Chemco and with the Rubber unit (also called W115) operators
- Chemco operator’s interaction with TCS and with the Rubber unit operators
- Rubber unit operators’ interaction with Chemco and TCS operators
- Chemco warehouse operators interaction with Rubber unit operators

The questionnaires were designed after an analysis of the qualitative data on relationships at operator level. Thus, the content of the questions and the language used were informed by the interview data.

Lickert scales were used to rate questions of “opinion” (Easterby-Smith, Thorpe, and Lowe A., 1991), whilst questions of “fact” were handled through single- or multiple-choice. Additionally, open-ended questions sought to gather suggestions for improvement. The questionnaires were circulated to operators’ supervisors from each unit, as well as to the Wheatco HR manager for approval. One sample of the questionnaire (TCS operators) is available in appendix.

4.2.4.3 Administration

The questionnaires were piloted with one operator from each TCS, Rubber (W115) and Chemco control rooms. Further to the test, the wording of some questions and of the Likert scales was modified.

“When the population is small (...) it is customary to send the questionnaire to all members. This 100% sample is known as a ‘census’” (Easterby-Smith, Thorpe, and Lowe A., 1991 p122). The final questionnaires were distributed to each operator, together with a cover letter giving the deadline, and reinforcing the anonymity of the responses. A Cranfield University envelope was also provided, labelled with the researcher’s address in France.

The survey response rate, as shown on table 4.2 was 84% (the operators who responded to the pilot were excluded from these results).

Operating room:	WTC – Basics TCS	CH	WTC Rubber W115	CH Warehouse	Total
Number of responses	10	11	10	5	36
Number of operators	10	14	14	5	43
% Response rate	100%	79%	71%	100%	84%

Table 4-2 Survey response rate, by operating room

4.2.4.4 Analysis

The aim of the data analysis was to aggregate the data collected from the questionnaires in order to meet the survey objectives. SPSS software was used to record the data and perform simple statistics. The analysed data was then transferred into an Excel spreadsheet, to produce the graphs. A sample of the survey results is attached in appendix. A review of the way in which the quantitative data was used to triangulate the qualitative findings will be provided together with the findings from the qualitative analysis.

4.2.4.5 Validity

A chi-square test was performed, which showed at 96th level of significance that the findings were not random. However, chi-squares are only relevant when dealing with samples. In this case, the results were relevant for the total population; therefore, the statistical analysis was only performed for completeness.

4.2.5 POTENTIAL SOURCES OF BIAS

It should be acknowledged that the researcher's position as a (recent) former¹ WTC employee, though providing an advantage in terms of access to the WTC-Chemco case, entailed the possibility of ethnocentrism. Werner and Schoepfle (1987) describe this as "the investigator of culture is himself cultured, and a person's cultural past colors everything that he or she perceives" (1987 p58). Indeed this could have two consequences: 1) favouring a "WTC perspective" on the relationship thus possibly obliterating the Chemco view 2) leaving some elements as "tacit" or implicit, during the interviews with WTC personnel.

One tactic for reducing this possible ethnocentrism was to ensure as much time was spent at the Chemco site as at the WTC site, as well as matching the number of interviews between both firms. Another tactic was to critically review the field notes and research diary for traces of such bias.

Another possible source of bias had to do with the researcher's position as a French person interviewing English people in English. This entailed the possibility of misunderstanding the meanings of informants. In order to avoid such bias as much as possible, the researcher requested clarification in case of unfamiliar terms. Additionally help was used for tape transcription. Thus, native English speakers transcribed most of the interviews.

Some informants, especially key informants, have argued that the process of answering some of the questions, induced in them a different perspective on the requirements of the supply relationship. Thus the Chemco facility manager stated to the researcher that his proposal for "high level objectives and a statement of intent" at Steering committee level were prompted by the research process. In such situations, the researcher emphasised her neutral position on such actions.

4.3 ANALYTIC APPROACH

It has been specified in Chapter three that N'Vivo was used as a support for storing the data and performing the coding. The coding structure, displayed in appendix, is

¹ Termination of work at WTC occurred in July 1999, and the research started in August 2000

composed of two types of constructs: those, which are derived from the conceptual framework and others that have emerged from the study.

Additionally, a word processor was used to set up tables for each of the constructs. The main type of table used was role-ordered. This did not have any theoretical implications. It was used as an analytical device to display the multi-faceted perspectives on the relationship. Indeed one source of triangulation within the study was the possibility to compare viewpoints from different levels across both firms. Roles have been characterized as follows:

- Corporate managers: defined as the two corporate executives in charge of the relationship at global level (WTC-Corp and CH-Corp).
- Management: defined as those people who belong or have belonged to the local Steering Committee (WTC-Mngt and CH-Mngt).
- Engineers: any other work role at local level beside management and operators, namely engineers, shift managers, managers who do not sit on the Steering Committee (WTC-Eng and CH-Eng).
- Operators: from the three control rooms, i.e. TCS, Chemco and Rubber/115 (WTC-Op and CH-Op)

Analysis has been iterative: a first analysis of the case was done in January 2001 in preparation for the interim case summary report, then in March-April 2001 for the case study report and reporting to informants. A third round of analysis was done in June 2002, to align the WTC/CH analysis on the Tyrenco case in order to allow a cross case comparison. The final format for the analysis is being developed in the process of thesis writing up.

In an attempt to provide a chain of evidence (Yin, 1994), in order to strengthen the reliability of the study, the following steps have been taken:

- 1) Display matrices containing “rich text” quotations, sorted by roles and themes for each of the main constructs, are displayed in appendix. The intent is to provide access to the plurality of views about the relationship, whilst including any disconfirming evidence that could be found, that provided a different view from the “main stream”. Such disconfirming evidence is highlighted within the tables and in the main text.
- 2) The source of each quotation is identified by firm, role and informant coded number: e.g. CH-Eng-8. Storage in N’Vivo provided easy retrieval of the data through the search facility. Other sources of data, displayed in the tables, included meeting minutes (e.g.: Steering Committee-Nov 2000) or results from the operator survey (e.g.: WTC-Op: survey data).
- 3) Representative exemplars of the quotes provided in each matrix are provided within the analytic text, as illustrations of the conclusions drawn from the empirical data, with identification of the individual informant.
- 4) Where insights about the relationship stem from one or two individuals, the quotations from the interview are not displayed in the tables but are shown in the report as separate citations, with indication of the source and context for these insights.

4.4 CHARACTERISTICS OF THE RELATIONSHIP AND RELATED PM ISSUES

The aim of this section is to present the findings from the case with respect to the seven dimensions identified in table 2.5 (chapter 2). Hence, following is a review of goals, information sharing, relationship structure, coordination mechanisms, locus of decision making, top management commitment and compatibility. As indicated in section 4.2.2,

the “time horizon” dimension was reconsidered in the course of the research as being a contextual element of the relationship, rather than one of its components. Findings are presented in two stages: firstly, conclusions for each of the seven identified dimensions involve comparing the empirical data with the specified characteristics drawn from the literature. Secondly, the PM issues are presented, as they are related to each construct. The section ends with a summary table of characteristics and PM issues.

4.4.1 GOALS

4.4.1.1 Goal dimension

Several dimensions of goals may be discussed. This study focused on establishing the extent to which shared goals had been set up and communicated within each firm, both at strategic (global, long term) and operational (local, short term) levels.

- Strategic goals

Goals appeared as shared at strategic level, with both corporate managers acknowledging the joint benefits accrued from the relationship.

My only very simple vision is: “If CH and WTC were one company what actions are the most optimal?” (CH-Corp). It’s a stated unwritten common objective that WTC and CH will work together in a win-win situation to enhance the bus opportunity that both companies have.

Strategic goals did not appear to be communicated at local level. This was stated by informants within both firms, and at management¹ and engineer levels². Indeed both corporate business managers referred to the overlying relationship goal as being a long-term, reciprocal - “win-win” (WTC)- but “implicit” (CH), “a stated, unwritten common objective” (WTC). Therefore, the vision of the relationship, though shared at corporate business manager level, was not communicated to the local management in both firms. Both corporate managers recognised a gap in the communication of the global vision at local level.

One key reason why some kind of broad business vision would not be communicated was that the strategic goals, beyond very clear financial targets, were still “emerging” (WTC-Corp). “we are going there but... by unplanned steps, It’s not a deliberate vision” (CH-Corp). A local manager expressed it as “There’s no sort of written down overall strategy, obviously new things come up and new things happen” (WTC-Mngt-1). Should some kind of statement be written, it would then reflect a dynamic situation, it would be a working document rather than putting things in “concrete” (WTC-Corp). Hence, such communication tended to be dealt with on an “issue by issue” basis (CH-Corp). The WTC corporate manager also hinted to the possibility of an underlying competitive posture between the two firms, although this pertained to marginal business. Such distance was also recognised by the contract agreement; which specified “no partnership or joint venture”.

We are separate companies and we are in some avenues competitors so this is not like having a vision of an internal bus in WTC and we have to be careful not to project

¹ Except one WTC manager who stated that he had been shown the strategic goals at a global supply chain meeting in the US, but that he had not kept a copy of it.

² At operator level, goals were discussed with respect to the link to people management (rewards), examined later

image that there is a collusion between the 2 companies that could result in anti-trust litigation (WTC-Corp)

The absence of communication of corporate level goals suggested to the local team that some elements of non-reciprocity were present at corporate level. It was referred to as “at corporate level, it’s more complicated and there’s probably more to it than just our relationship to Chemco” (WTC-Mngt-1). One further argument for not formalising the relationship goals was that “I think right now it’s implicit, we don’t need it or we are not making the time to. It’s not a priority” (CH-Corp). One effect of this was that it could become a source of potential internal conflict. Indeed local management could make decisions, which were not in line with the strategic partnership or that were in contradiction with the corporate direction (See underneath section 4.4.5).

Another effect of the lack of communication about the relationship was that learning about the relationship was derived from tacit, rather than explicit knowledge, and this had a specific impact on CH informants in particular, where two managers had recently been appointed.

When the CH facility manager came on board I had to allow him to get educated. And there is only so much I can tell him. There are things that he needs to learn on his own, which I’m very glad he is learning on his own now, how this across the fence relationship is so special, so different that you can’t think like WTC is just a customer and a supplier (CH-Corp). Nowhere have I seen this high level mission. I had to find out about this relationship by practicing it, by having the meetings, by having the discussions, by finding out how the relationship worked (CH-Mngt-3). So in terms of the relationship with WTC, there’s an area where we, coming as newcomers, did not understand initially perhaps the overall importance of the relationship (CH-Eng-1).

In the absence of clear guidelines at corporate level, local management had a tendency to focus on the operational side of the relationship:

We seldom know what corporate have done or have said or agreed to. it makes it more difficult as you’re aiming at something and you don’t know what you’re aiming at. So you try to figure out at the local level what makes sense and we try to stay away from the commercial type things and just how do we run our plants and how do we get the communications and quite frankly we’ve got enough issues there for the time being without being too worried about the commercial things (WTC-Mngt-6).

- Operational goals

In November 2000, the local management team decided to formalise its specific goals. The “Steering Team Charter” was designed, reviewed by the Management Team members and circulated for approval to Corporate Business Managers. The intent was not only to facilitate communication on the relationship within the local sites, but also to enhance the communication channels with the corporate managers.

There was a clear vision of the shared local operational goals, which were articulated around process reliability (on-line-time), product quality and supply. The objectives were articulated within the technical (PACE) and quality teams (QIT) and there was evidence that these goals were translated into some individual’s performance objectives (CH engineer, two WTC team leaders). These goals were extended to the arrival of new people within the relationship who requested a re-writing of the team objectives in order to increase their clarity. This was referred to as “otherwise he was always going to be questioning the objectives” (WTC-Mngt-1). Several informants positively perceived this increase in the formalisation of the joint objectives, even though the actual content

of the objectives was not really changed in relation to the past. Not only did it develop a combined understanding of the direction of the relationship, but it also held people more accountable for delivering the results.

Whilst the local relationship required goal sharing in order to be able to operate, this did not preclude the fact that there was a feeling of separateness and a concern for the own company benefit. Hence, disconfirming evidence was provided, which was illustrated through quotes such as:

Where ultimately our only interest is what is best for CH. I still wonder whether everything that we do really benefits CH or not (CH-Eng-1) They are maybe more keen in looking after their own needs (WTC-Eng-6) Sometimes we think that they don't do as much as we do. (WTC-mngt-3) the words may say we agreed but we weren't agreeing on philosophical things and approaches (WTC-Mngt-6)

One difference with regards to the goal setting at both firms was that, whilst the relationship goals had a direct link into the Chemco site goals, this was not the case for WTC, where the variable compensation plan was based (beside corporate criteria) on the whole site performance, rather than on that of individual manufacturing units. This had implications in terms of PM practices, which are developed in the following section.

4.4.1.2 PM issues related to goals

They've got a terrible year and still got a good recognition. It doesn't motivate them to succeed does it? (CH-Mngt-1) In 98-99, WTC had 11 or 12% bonus whereas CH had been negatively affected by TCS unreliability (CH-Eng-8) Whether it's WTC's fault or our fault, it does not matter. You know sometimes we get penalised when it's out of our hands which is not ideal (CH-Op-1)

CH explained their bonus scheme (which makes their operator's bonus dependent to some extent on WTC performance). This can lead to frustration and situations like one where a WTC Shift Manager felt there was a lack of trust in communication with CH. (Steering Committee minutes, November 2000)

Directly linked to goal setting, rewards were a PM issue in that they were not applied similarly in both firms and were consequently a source of tension within the relationship. The Chemco bonus scheme was directly linked to the relationship performance, which meant that it was impacted by the downtime performance caused by WTC. This generated a stress, mainly related to shop floor level, with a perception of imbalance: urgency on one side and a possibly more relaxed stance on the other. Indeed the WTC site bonus scheme was related to the overall plant goal rather than to the individual TCS process performance, which meant there was no direct link to the relationship performance.

Therefore, frustration was expressed from both sides. The Chemco reward was perceived as disruptive by WTC management, whereas the other party viewed it as necessary in order to drive the CH site results. Conversely, Chemco managers wished Wheatco to adapt their rewards so that TCS people were more directly linked to the way their process performed with respect to Chemco.

Disconfirming evidence should be highlighted, coming from a CH operator:

I certainly don't think that when I trip my bonus is going up, going down, no. (CH-Op-4)

Detailed evidence pertaining to the “goal” dimension and related PM issues is presented in table A4.1 and A4.2 in appendix.

4.4.2 INFORMATION SHARING

4.4.2.1 Information sharing dimension

I don't think you can have a relationship like ours and not have that kind of sharing and openness with each other (CH-Mngt-1) In that CH-WTC PACE team meeting, no one is really sensitive to what happens with the information (WTC-MNGT-4).

Overall, information appeared to flow openly and freely within the WTC-CH relationship. The flow of information was secured through an agreement of “confidentiality and non-use”, which was included in the contract and bound both firms and their employees.

A comparison of the type of information, which was shared at corporate level, is at odds with local management's perception. Indeed, at corporate level, it was deemed necessary to share extended cost-related proprietary information. Previously such detailed information was not shared, to the effect that “we would jump to the wrong conclusions” (CH-Corp):

So now we are trying to evolve the relationship so that it is transparent. This is truly what the cost of chemical additive is, this is truly the cost of feedstock. So when we make decisions on extensions or what products to introduce, we have a fair idea of what the true costs are (CH-Corp) If CH feel they are becoming uncompetitive because of WTC pricing, they're free to express that (and vice versa) That requires us to may be have or use information that neither company has shared to that point as to how much of their assets are depreciated and what capital investments are ongoing to support that existing asset (WTC-Corp).

Conversely, it was perceived at local level that costs were an ultimate boundary with respect to what could be communicated.

There was some level of clarity as to where to draw the line concerning information sharing. Such openness had also to do with being open about what could not be shared. There did not appear to be specific guidelines with regards to how much information should flow between the two plants. This was perceived by some informants as missing, especially because there was a culture (particularly at WTC) of being very private and secretive about the technology. Such boundaries were lessened to some extent because some socialisation was allowed at operator level, who “say what's on their mind” (WTC-Mngt-6).

Much information sharing appeared as beneficial as a way to tap the people's capacity to learn about the other plant. Thus, the recently installed data links between TCS and CH, contributed to improved process monitoring. This level of information sharing was a requirement for the relationship to work successfully.

In the course of the research, several quality issues occurred, which helped foster more extended communication within the relationship as they prompted more interaction.

We're talking more now than we used to because one of the things we've done for Dow we are bringing in acid, extra acid into our system and transferring it to them (CH-Eng-8) we've had some difficult problems to solve which has perhaps meant that we have had a lot more communication (...) that's accelerated the process of getting to know each other (WTC-Eng-8).

Openness also involved at management level an ability to say “we’re not ready to talk about that” (WTC-Mngt-1). This referred to the fact that information flowed within the relationship both laterally, across both firms and vertically, within each firm, between local and corporate management.

One source of opacity between each firm was related to the organisation structure, which did not always appear to be clear. Types of internal information that were found valuable to share included:

- People management: the type of work structure or reward systems:

I don’t know how their (reward) system works. Mike gave us a broad outline yesterday. It sounds very similar but in fact I don’t know how it works (CH-Mngt-1) I don’t think he understands our organisation and I need to talk to him some more about that and explain it more to him so he has a better appreciation of what we’re doing and why we’re doing it and what we think the benefits are. (WTC-Mngt-1)

- Information about internal support to the other firm (in this case WTC to CH) that was not enough communicated and therefore: “CH cannot appreciate how hard we have worked on this simply because they don’t see the effort (WTC-Mngt-4).

There was a perception, at local level, that information was retained at corporate level, whilst at local level, there was an obligation to share information in order to operate the supply relationship.

People tend to negotiate and provide information to each other that may not be consistent with what the business on a global sense would want to do and it might be inconsistent with what my counterpart and I feel the right thing to do (WTC-Corp)

Certainly my counterpart shares and sends things to me that I’m sure people in his corporate leadership wouldn’t be happy with and I do the same to him. Simply because to get a relationship to work correctly and to get the interaction we need we have to do that. (CH-Mngt-1).

One implication of this tension was that conflicting messages could stem from the difference between local and corporate posture.

if somebody in CH decides to pass this on to CH Corp, and nobody here decides to pass this on to WTC Corp then there’s a risk that the CH Corp guy will contact the WTC Corp guy and say: “Hey do you know what these idiots in UK are talking about?”. So you need to understand the impact of what you do within the relationship on the people who are outside the relationship. It’s much more important in a relationship that people are aware of the background, of corporate strategy and the limitations. So that we don’t go out to CH and talk of something that WTC Corp may not want us to talk about. And probably that is not as clear to the people as we’d like it to be (WTC-Mngt-1)

This required from the local managers an ability to manage the relationship in several directions: managing information sharing at local level, whilst trying to align on a corporate strategy, which was not clearly articulated. This created a feeling of frustration and estrangement between local and corporate level: “When information goes up to corporate, it doesn’t help” (CH-Mngt-3).

Within the relationship, information flowed through various routes, with a limited amount of automatic data transfer, because there was no shared extranet.

The transaction systems are not linked. There’s no EDI (CH-Mngt-1), If they could make the extranet work, it would be of benefit to both sites (WTC-Eng-8), Why can’t we show information on our PC on their PC? (CH-Eng-1), Some of the process information certainly isn’t linked (WTC-Mngt-3).

Yet, recently process data started to be transferred from TCS to CH control rooms and this was clearly perceived as beneficial with respect to the process coordination. Indeed, one source of opacity was the lack of information about issues at the other site. This will be developed in section 4.4.4, discussing coordination mechanisms.

4.4.2.2 PM issues related to information sharing

Less transparency was associated with non- “face to face” information sharing. The operator survey allowed operators from the three control rooms to specify those types of data interchanges that would improve their daily work.

Within the WTC-CH supply relationship, there was more evidence of a shared language at engineer and management level than at operator level. This was partially due to a joint SPC training, which some engineers and managers had jointly attended, as well as to a common educational background – chemical engineering. There was a perception by CH operators that the shared language they had developed in the past with WTC operators was no longer there, due to turnover and lack of socialisation. Such differences in language were presented as a barrier to information sharing, especially when using the telephone. Conversely, more interaction helped to develop the “common language”. Disconfirming evidence came from the WTC shift manager who stated:

We don't need to have that common language with the people at CH

Evidence from the above analysis is presented in table A4.3 and A4.4 in appendix.

4.4.3 RELATIONSHIP STRUCTURE

4.4.3.1 Relationship structure dimension

Findings from this research support the view that the WTC-CH relationship follows a “diamond” approach with multiple levels of interaction (See Figure 4.6 below).

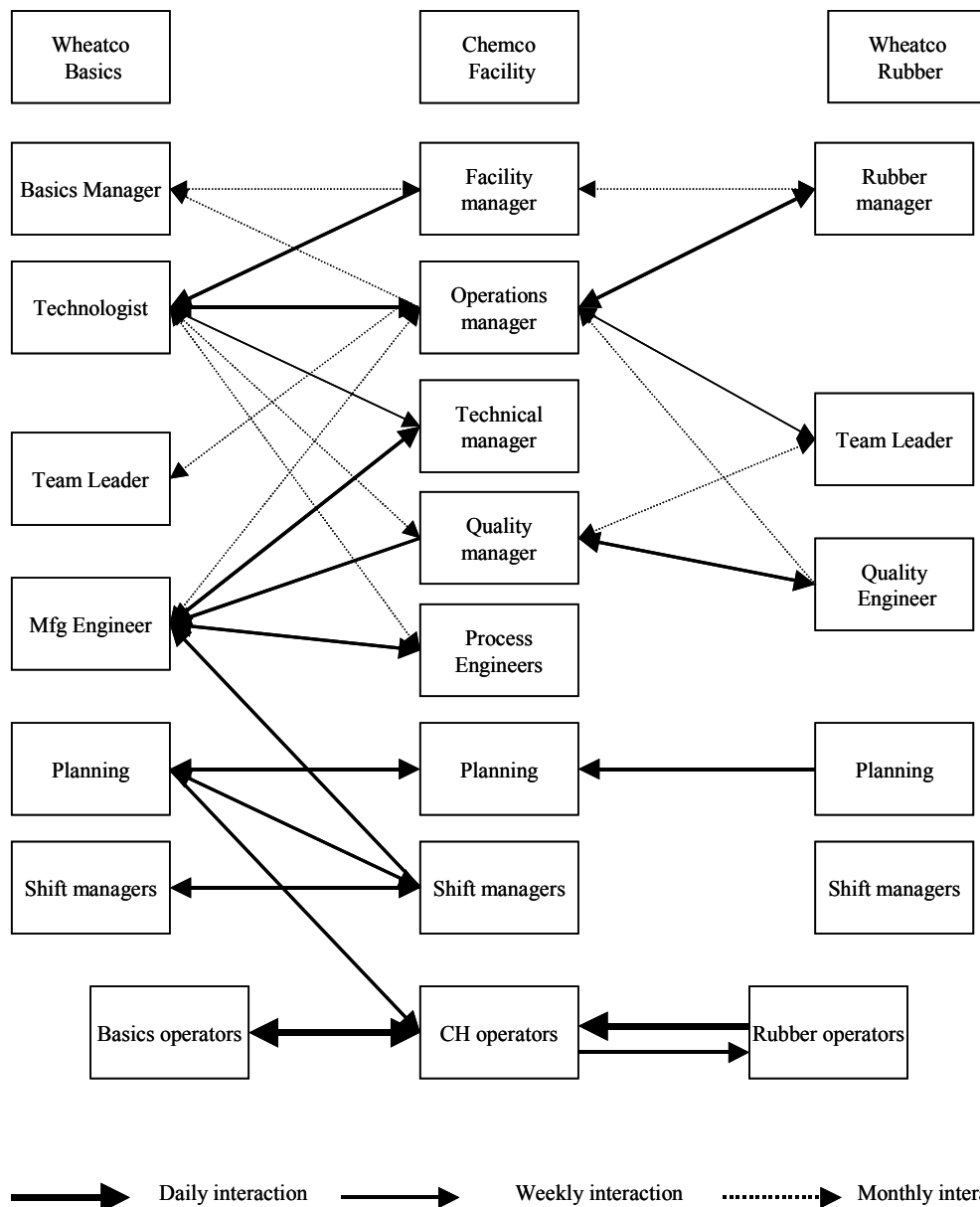


Figure 4-6 Wheatco-Chemco local relationship structure: December 2000- non-hierarchical links.

The diagram shows that the direction of information flows was mostly functionally driven, but a few individuals appeared as key points of contact: among those, the WTC-Basics Technologist and engineer and the CH Operations manager were key. In addition, there was a denser web of relations between the upstream Wheatco Basics and CH then between CH and the Wheatco Rubber unit. In addition to informal contacts, teamwork took place on a regular basis within the different teams: technical (PACE), quality (QIT) and the Steering committee.

Managing the relationship structure involved tackling a number of questions, which were articulated by the Chemco technical manager as follows:

Who are the people who are involved? Are there some people who are involved in everything? Are there too few, are there too many? Can we communicate? Have we got the right facilities to be able to communicate?

One consequence of the broad interface across the three manufacturing units was the increased complexity of the interaction, which can induce a distortion of the information flow and reduce its efficiency. Such a perception prevailed both at corporate and local levels. At corporate level, this meant that there was a difficulty to “keep everyone pointed in the same direction” (WTC-Corp) – namely aligned on corporate strategy. At local level, the issue was with the fact that information became lost in the process of being transferred from one company to another: “a person any level over there may tell a person any level over here and it may not be the person for the communication to be effective (WTC-Mngt-6).

A first cause of information distortion was the lack of formalised communication lines, so that “we have too many people who want to be a part of it” (WTC-Corp). At local level, this may be caused by communication, which was established more on the basis of interpersonal links: “people that we prefer to speak to” (WTC-Eng-9) than formal interfaces. A second cause of information distortion was the tendency to call upon hierarchy in times of process unreliability, or in order to validate information content. Such a complaint was mainly expressed by WTC Basics employees who argued that Chemco operators and shift managers wanted: “the word that comes from the top”. Indeed further to a reshuffling of WTC Basics, most of the TCS operators were new people, and therefore were viewed by Chemco operators as “trainees” rather than fully competent operators. Hence, there was an inclination to call on supervision to verify information. This resulted in “a shot down of phone calls that come over to five or six different people, where ideally we’d only want one person contacted” (WTC-Mngt-1). There were three types of tactics developed for reinforcing the relationship structure:

- Structuring the communication lines through a “communication protocol” appeared as a way to better manage the interaction. This was implemented in September 2000, when the Basics Technologist and the CH Operations manager devised clear guidelines:

There’s a sense that things have been a little “fraught” over the last two months and that the increased breakdown events have revealed weaknesses in our systems - this e-mail is meant to bring clarity to this situation - who should call who and in what circumstances.

This clearly indicated the operator-to-operator contact as the main communication link and defined clear points of contacts “on days and out of hours”, when issues could not be resolved at operator level. Defining the communication protocol also entailed communicating information on the internal work structure, such as telephone lists or organisation charts. This was seen as particularly essential for Chemco personnel who were faced with the larger WTC organisation:

I’ve not known who to contact about something in WTC because they’re so big, and I’m sure even though we’re a lot smaller that their engineers and people have thought well who do I contact over this (CH-Eng-6).

- Identifying single points of contact was deemed particularly necessary concerning project-managed, time-driven events, such as shutdown coordination. Logistics coordination followed this approach, whereby the WTC scheduler was a single point of contact for the CH planner in that she consolidated the demand from all WTC order points and co-ordinated the deliveries of chemical additive.
- Appointing dedicated resources was decided by Chemco in January 2001, and was perceived as a progress with regards to the service provided to the other firm. In fact, a wave of workforce reduction at WTC gave Chemco the opportunity to hire one

Wheatco engineer, in March 2001, who was appointed “Customer representative” for WTC.

- At corporate level, a sales and marketing person was appointed global contact for the management of the Chemco relationship, reporting into the WTC-Corporate manager. The intent was here for corporate to take control over the information flows at local level by funnelling all commercial discussions through this single point of contact. Individual relations were viewed as playing a key role in the development of the supply relationship, in that strong bonds were established over time at inter-personal level.

We had to go through some difficult negotiations. Then we developed respect for each other (WTC-Corp). We had to go through some difficult negotiations. Then we developed respect for each other (CH-Corp)

Here the interpersonal relationships are much greater and you tend to build very friendly relationships (CH-Mngt-1) We have in WTC a closer working relationship with CH than we do our own finishing buildings (WTC-Mngt-4) well it always comes down to specific people (WTC-Mngt-6)

Good interpersonal relations were at Corporate and local level. Indeed, locally, closeness and extended interaction create stronger links than with the internal organisation.

4.4.3.2 PM issues related to relationship structure

Two events seemed to have recently impacted the relationship at operator level: 1) the promotion of the whole TCS operator team to shift manager positions (within one year, in 1998) was not followed by any socialisation. 2) During 1999-2000, there was the concomitant implementation of a cross-training approach at TCS, which was not subject to much communication. The impact on the CH operators was a perception of a lack of experience from the new WTC operators, coupled with a frustration at having to do with several interfaces during one shift. CH operators interpreted these changes as a reflection of the low priority assigned to the relationship:

a feeling from our operators that the TCS plant is used as a kind of training ground for operators that then move on to the core WTC competence places (CH-Mngt-3). if they could keep their operators at the TCS plant for longer rather than move them on to other plants I think that is the biggest part for improvement (CH-Op-4)

The effect of turnover on the supply relationship was nicely summarised by one of the Chemco operators and a WTC shift manager:

Until you work with somebody for a while you start to think yes, they're good or they're telling you the whole facts, then you get a bit more confident that when they say something's wrong, something's wrong as opposed to I don't know what's going wrong sort of thing (CH-Op-3).

But then of course, as people move into different jobs, and areas, you've got different people and you have to build it all up again really, from scratch. And the same is true for myself and the shift managers over at CH. Obviously we're strangers if you like and the only two I deal with mostly. I have spoken once or twice to one or two of the others but again I think it's easier if you have the face to face contact (WTC-Eng-2)

Indeed this belief that there was openness between individuals across both firms was all the more critical that the two operating teams were running a process, which was closely inter-related. This will be developed in the next section.

Table A4.5 and A4.6 provide the detailed evidence for these statements in appendix.

4.4.4 COORDINATION MECHANISMS

4.4.4.1 Coordination mechanism dimension

At the heart of this supply relationship was the necessity to jointly coordinate the closely linked supply loop, involving the three manufacturing units. Three aspects of coordination are analysed here: contract, process and procedural.

Contractual coordination

The contract agreement clearly positioned the relationship as being a long term one: “The contracts that we’ve signed are 20 year type contracts. We’re stuck with one another, whether we like it or not. I think we’re enjoying it” (WTC-Corp). This long-term horizon also resulted from the sunk, non-recoverable investments pertaining to the relationship, characterised by the closely linked manufacturing processes. One specific feature of the contract was that it specified the formation of a “joint coordinating committee”, to resolve operational issues that may arise and to set plans and strategies. Formation of a joint QIT and a technical team were also prescribed contractually. There was no unity as to the extent to which the contract was a driver of the relationship. However, the general perception was that with such a mutually dependent relationship, it would be difficult and undesirable to attempt to capture all contingencies contractually:

There are contracts but I think in this relationship it’s a sad day when I pull out a contract and read it to my partner at WTC. The contract is just a piece of paper we have to write (...) we can have all the contracts in the world, this relationship is so multifaceted that contract or no contract, you just have to make it work. (CH-Corp).

Whilst the contract was viewed as “setting the boundaries” (WTC-Mngt-6) for the local relationship, in fact its flexibility was a requirement to allow faster response and more efficient inter-firm cooperation.

Process coordination

The WTC-CH relationship was characterised by a process-centred reciprocal interdependence, which resulted in a polarised perspective of the relationship, with collaboration and reciprocity on one extreme and conflict and blame culture on the other.

On the one hand, there was a strong perception of the reciprocity that was engrained in the awareness of the closely linked production processes. Indeed there was an instantaneous impact of one manufacturing unit over the other, which was due to the lack of buffer stock. This generated a view of the relationship as being “intense” (WTC-Eng-6) and intimate (CH-Mngt-1). Informants drew on organic metaphors to depict this interdependence. Indeed the physical layout of Chemco’s plant, which was built along the WTC fence, induced a view of the setting as being one plant linked together, with the fence as an artificial barrier.

We are symbiotically linked, if you take away the CH and the WTC signs, we’re really one site (CH-Mngt-1) We have a relationship and it’s an umbilical cord. You can’t turn

it off. You know there's nowhere to hide (CH-Mngt-3) we get a liquid feedstock blend from WTC which is vitally important to our quality (CH-Op-2)

They are joined to us via a pipeline so if we have a problem, then CH has a problem 10 seconds later. That plant was built almost as if it was built as part of our site except there was a fence there. (WTC-Mngt-1) we do we feed them they feed us (WTC-Eng-5)

Intensity within the relationship also referred to the synchronised adjustment that was required for the operation of the production processes. This required systematic communication to allow simultaneous task coordination: “If we need to change step we have to communicate with them” (CH-Op-3). Coordination at process level was mostly done via the telephone. Indeed, the “Red phone”, which connected TCS and Chemco was very “handy” and might be extended to another dyad in the supply chain loop, i.e. between Rubber and CH warehouse. Problems were perceived as being shared and their resolution required joint investigation and collaboration. Reciprocity thus appeared as the only route to shared success, in that collaboration appeared as an obligation in order to operate the supply loop: “It’s in everybody’s interest in that circle to work together” (CH-Eng-8).

Task interdependence was also seen as a source of conflict. It entailed a frustration, which was rooted in process unreliability, with three main causes. Firstly, the operator’s job was more difficult when the plant was not reliable, secondly there was a feeling from the receiving end, namely CH for feedstock supply and Rubber/115 for the chemical additive supply, of being powerless in front of the upstream process breakdowns, thirdly the perception of the other process as being opaque. Shutdowns were a cause of tension because they involved an underlying fear of having to carry the blame for shutting down the whole supply loop, described as “a worried feeling between the two plants -TCS and CH- that one was going to keep the other one down” (CH-Op-1). Operating the process at times of unreliability was presented as an intense work pressure for the operator.

Through a 12 hour shift the feed trips then you put them back on then it trips again and it does wear you down if you’re constantly having to start the plant up again. When the plant trips, then there are a number of things you need to look at (...) and to get the whole thing settled down, it would take quite a few hours. (WTC-Eng-6)

In such cases of process breakdown, the downstream party perceived the dependency as not being reciprocated, and this was expressed as a feeling of lack of priority. However, the perception formed during the early part of this case research that the relationship was given a lower priority by WTC than CH was not corroborated. Indeed, end of December 2000, further to TCS process breakdowns, the Chemco plant was not able to consume the by-product of the Wheatco chemical compound manufacture to the effect that the whole Wheatco plant was shutdown:

Because we couldn’t run and CH couldn’t run and we couldn’t use our stock of feedstock so the whole lot came tumbling down and we took the whole train down (WTC-Op-2)

Another key source of frustration was the perceived opacity of the other site’s production processes, and this was all the more a problem with respect to the required tight coordination. Developing an understanding of the other plants therefore appeared as key for managing the reciprocal interdependence. Such insights into the other plant

were gained unobtrusively by one of the WTC shift managers who used an operator who had worked for CH in the past, to grant him an insider view:

He's very useful to me because when there are problems I can speak to him and say "well we've got a problem with may be 314 pit, what do you reckon it is?". And he'll go and have a look with me and he'll say "well they could be doing something with their water scrubbers or they could have washed this particular vessel up". So that gives me a bit of inside information if you like. So it helps.

Procedural coordination

Centred on timely coordination of the joint manufacturing process, the procedural coordination took several forms, imposing varying degrees of formality on to the daily operations: e-mails defining the communication lines, complaints and forms, specifications: "a little bit more defined in terms of why are you rubbish or you're not as good as you were" (WTC-Eng-9).

Standard operating procedures (SOPs) were there to coordinate the work: "This procedure is to be followed in order to manage the TCS plant upset more effectively at CH" (WTC-doc) but they were separate. Although there was a management of change programme to make sure that "everything's OK on both sides of the fence", it pertained to equipment rather than procedural changes. Indeed procedures were not always communicated, "we missed the opportunity to share it" (Ch-Eng-5), and thus creating potential misunderstandings "upset recently over the wording of a Chemco Non-Conformance report which prompted a reaction from WTC operators" (WTC-doc). There may even have been an argument in favour of coordinating joint SOPs. A need for more formalisation was also expressed at operator level: "SOPs concerning interaction with CH would be handy" (WTC-Op: survey data).

4.4.4.2 PM issues related to coordination mechanisms

Operators in particular expressed a need for knowing more about the other process and therefore for developing an understanding of the mutual effects. This was recognised at management level in November 2000 and the decision was made to organise weekly meetings on a Monday afternoon between CH and TCS operators in the TCS control room with the objective of improving understanding between the two sets of operators and providing face to face contact.

Because of the central role played by operator coordination within the relationship, the decision was made to organise an operator survey, which took place in February 2001 and gathered the perception of operators from the three control rooms (TCS, Chemco and rubber/115) about their understanding of the other plant. Another objective was to measure the extent to which socialisation at operator level had been developed and its effects.

What came out of the survey was that during the period 1998-2000 there had been a drop in the level of interaction between operators. Indeed there had been no visits from TCS to CH. This had recently been changed (for the TCS/Chemco dyad) since November 2000, when the weekly Monday operator meetings (MOM) were organised between TCS and CH.

The survey results confirmed the perception that operators had a rather poor understanding of the mutual effects between the three plants. Another message from the survey was that short visits (1-4 hours) might not be sufficient for gaining an understanding of the other plants. Indeed it may have been better to coordinate visits more formally in terms of content and purpose or to allow more extended exposure

through operator exchanges and actually allowing people to sit jointly in the control room.

However, it was also perceived that it was not enough to organise visits from Chemco to TCS, in that this induced a feeling of asymmetry in the direction of the information flows, with the CH operators learning more than their TCS counterparts. Qualitative data from the questionnaire showed that visits should be reciprocated so that WTC operators could also get exposure to the Chemco plant. Such visits also needed to allow actual work on the control panel. The survey also confirmed the necessity to reiterate socialisation practices and ensure some frequency (once was not seen as enough).

The overall striking message from the questionnaire, which corroborated the qualitative data from interviews, was the level of agreement from the three manufacturing units, Rubber unit included, about the necessity to allow more interaction.

Table A4.7 and A4.8 in appendix provides the detailed in-vivo data on which the above analysis was based.

4.4.5 LOCUS OF DECISION MAKING

4.4.5.1 Locus of decision making dimension

Conceptualising the relationship as “virtually one company” was presented as a heuristic device with respect to financial decision-making:

My only very simple vision is: “If CH and WTC were one company what actions are the most optimal?” (CH-Corp). Yes my counterpart and I have talked about really.. we need to make decisions as if we were one company.(WTC-Corp)

The implication was that there might be a short-term sacrifice for one of the partners in order to achieve a “win-win” situation at overall relationship level. Indeed a reciprocal background would encourage partners to tolerate short-term inequity. Some individuals, however, especially those new to the relationship, were struggling to accept such a rationale that did not consider the immediate benefit for their company:

Both of us questioned whether we should be doing it or not. Because there is no apparent benefit to CH. We seem to take all the risks. The only benefit is to keep WTC happy (..) Initially, I was sort of quite uncomfortable with the idea that you can have such an open relationship with another company. And apparently do things on their behalf with apparently no benefit to yourself (CH-Eng-1) When (he) came on board, his question was if we are doing something for WTC, what’s in it for CH (CH-Corp)

This may be related to the fact that there was limited communication about the relationship strategy by corporate managers so that it drew on a tacit rather than an explicit learning mode (see 4.4.2).

Whilst joint decision-making took place to some extent within each of the teams, in relation to the relationship operation, the actual details of the action planning were determined internally:

Then we both come back and separately start to work on it (CH-Mngt-1) Internally we agree how it is we’re going to tackle that, how we go about it, who’s going to do what that sort of thing. So that’s where the real action, the detailed action plan is laid out (WTC-Mngt-4)

There was some clarity with regards to the locus of decision making at local level. This pertained to operational decisions, within the allocated capital budget, abridged as: “If

you don't have to hire people, to spend money, to affect customers, than anything" (WTC-Mngt-1).

Whilst local managers accepted the fact that there was some bounding of their authority and a requirement to refer back to corporate for certain decisions, in particular related to the commercial part of the agreement: "Some things are just dictated to us" (WTC-Mngt-4), they did not readily accept corporate interference with what they perceived as local issues. The bounding of the local decision-making created frustration in that local management perceived themselves closer to the actual issues and therefore better able to make the right decisions than "the people sitting in America" (CH-Mngt-3). However, what appeared as practical locally could conflict with the global strategy. At corporate level the tension was expressed in terms of:

Issues that need a balance between local resolution and global consistency of a bus strategy. Sometimes the local resolution may be fairly easy but it may not be consistent with the global vision (WTC-Corp).

The appointment by the WTC Corporate manager of a key contact in USA for funnelling all commercial discussions with CH at a global level introduced some ambiguity in regards to local as opposed to corporate responsibilities:

What we're not quite sure about at the moment is what the corporate people want to know about and what are we free to sort out at a local level (WTC-Mngt-1).

This move was interpreted as a drop in the local WTC decision making ability: "I see the pendulum having swung most of the way toward Corporate are in control" (WTC-Mngt-6). This was acknowledged by one of the Chemco managers, who discussed the potential impact of this change on the management of the local relationship:

Now they are concerned, that's what I sense, that they no longer have the breadth of decision-making ability to take that outside of corporate. Which is I think a great shame because it can slow things down. (CH-Mngt-3)

Indeed one issue with decision-making ambiguity was that it could affect the local running of the relationship because it became difficult to make timely decisions. Reaction from local management was to take action locally and inform corporate after the fact:

we have this WTC corporate link and then we have this local link and I think basically what I'm going to do in the future is make decisions and then ask them afterwards because it's quicker. What I do is go out and do it and then what tends to happen is that if I overstep what I'm responsible for someone will tell me. (CH-Mngt-3) What we tend to do is that we will talk to CH locally and decide to do something and once we've done it, we tell the corporate people we've done it and that way they can't stop us (WTC-Mngt-1)

Thus, collusion at local level was seen as a way to ensure that local priorities were met.

4.4.5.2 PM issues related to locus of decision making

One issue was to integrate local and global decisions and to elicit better communications from corporate to local management. This involved educating the local team, to help them appreciate the underlying rationale.

Help them understand that sometimes there has to be a short term local sacrifice in order to make the longer term perspective more attractive (WTC-Corp). Business discussions

at corporate level have generated a suggestion. Locally we see issues with this strategy that would reduce its viability (Steering Committee, July 2000).

Education was not only viewed as directed from corporate to local management. Thus, the Chemco facility manager explained how one of his challenges was to communicate internally about the relationship with WTC. The CH corporate manager confirmed this.

Sometimes it happens that the facility manager perfectly understands the position on the ground but then he needs help convincing his boss that this is the right thing to do. (CH-Corp) My primary reporting line is to the regional manufacturing director. That individual does not have any conception about relationships with WTC, none whatsoever. In fact, one of my major objectives and tasks is to educate him about this business so he didn't treat us like some of the other businesses and that's worked (CH facility manager).

Table A4.9 and A4.10 displays the detailed raw data pertaining to this dimension.

4.4.6 TOP MANAGEMENT COMMITMENT

4.4.6.1 Top management commitment dimension

Top management in this relationship referred to three levels: there was the CEO, corporate and local management level. Overall, there was a strong awareness of top management commitment to the relationship, at CEO level, as several informants referred to regular contacts through monthly teleconference between the two firms. Where there was uncertainty with the state of the relation was at business level. Indeed, viewed from the local sites, corporate management seemed to have a “not particularly intimate relationship” (CH-Mngt-1). Such assertion was invalidated by both corporate managers, who referred to their joint relationship as involving respect (CH-Corp) and openness and honesty (WTC-Corp). However explanation for the cause of the tension, was provided by the corporate manager:

I was brought into the relationship about one and a half years ago. Frankly it was a difficult time between CH and WTC. WTC thought the contract for the delivery of feedstock and chemical additive uncompetitive, based on market information. I was given responsibility to work with my CH counterpart and define a new contract that would result in WTC having an improved cost picture.

There appeared to be a certain insulation of the local relationship from the state of relations at corporate level: “The only thing I would say is that if their relationship deteriorates, it would take time to have an impact on the local relationship” (WTC-Mngt-1). Indeed local management perceived that there was more variation at corporate than local levels (WTC-Mngt-2), so that locally it was “more constructive” (CH-Mngt-3). Certainly this was connected to the perception described in the previous section (4.4.4.1) that co-operation was viewed as an obligation in order to operate the local supply loop.

Local management was seen as playing a key role in setting the tone for the relationship, by providing guidance and leadership for the interaction. This was all the more important in times of process unreliability where the relations were more tense: “to keep opening the doors and to keep the communications going the way they should especially in times when things aren't going well” (WTC-Mngt-6). At operator level, perception of management commitment needed to be corroborated by facts. This

translated into, whether or not improvements came about. Management could also influence the level of openness at shop floor level.

Normally that is left until like the last day. Ever since Dick got started they had a meeting and they've said right okay we know we're not going to be ready but let's give them as much notice now (CH-Op-1)

In fact relationships at management level appeared as rather good locally: "I think the higher the level you go the better it gets" (CH-Op-1), and this may have been due to recent issues, which had prompted more management involvement, through the setting up of the Steering Committee in March 2000.

Indeed, through extended interaction, inter-personal links were built across both firms, to the point where there could be a perception of closer relationship than with internal relationships. However, disconfirming evidence was also expressed, where such inter-personal links were not present.

I've found I've had more answers or commitment that made more sense to me sometimes here than I got from corporate (CH-Mngt-3). We have in WTC a closer working relationship with CH than we do our own finishing buildings (WTC-Mngt-4)

Disconfirming: And it didn't take a meeting or two to realise that we were quite often talking at cross-purposes and not really agreeing. I mean the words may say we agreed but we weren't agreeing on philosophical things and approaches (WTC-Mngt-6).

4.4.6.2 PM issues related to top management commitment

What emerged from the previous section was that the local relationship was somehow insulated from upsets at corporate level. Such insulation should also pertain to the local relationship at shop floor level. A WTC manager explained this as follows:

And it is important that the managers in both companies whatever the tone of the relationship from a business perspective may be at a particular time, just keep it away, don't let the operators start not trusting each other, or things like that. But a lot of these things are not and never should be issues down at the operator level, the shift manager level, the manufacturing engineering level. But equally, you don't always hide it. I've sat in the control room with the operators saying CH are driving me up the wall! And they say ah you too! (laugh) And so we talk about it and may be that helps a bit (WTC-Mngt-1).

Tables A4.11 and A4.12 in appendix provide more evidence.

4.4.7 COMPATIBILITY

4.4.7.1 Compatibility dimension

WTC and CH appeared to display a number of similarities: a chemical engineering background, a focus on safety, quality, cost and an "American way of doing things". Not everyone agreed on the extent of the common language: "They use the same words but they don't always mean the same things" (WTC-Mngt-6). Informants from both firms seemed to agree that CH was leaner in terms of people and resources. They were a lot tighter, with less money as well as more "aggressive", result-oriented and showing a greater urgency to get things done. Recent changes within WTC, such as the workforce reduction programme and the changes that resulted from it, could make the two companies more similar, in that WTC, with less people, was going to put a greater emphasis on individual accountability. Another difference between both firms was that

WTC was seen as using a consensus decision-making style, whereas CH appeared as more “regimented”. Being “technology driven” was another agreed-upon WTC characteristics. It was interesting to note how informants from both companies perceived the other firm as having a homogeneous, “group think” culture, expressed as “the WTC way” or “the CH way” of doing things. Table 4.3 provides a detailed review of assessments of cross-organisational compatibility.

	What they say about Chemco	What they say about Wheatco
What CH people say about themselves and WTC (similarities)	<p>Common language: technical (chemical engineering), quality (SPC). We understand one another. So it's not one organisation going to the other and saying you need to take these concepts..</p> <p>Culture is similar: safety driven, and CH has changed its attention to detail in terms of quality (CH-Eng-5)</p>	<p>Operators are a similar type of people, managers again are a similar type of people</p>
What WTC people say about CH and themselves (similarities)	<p>Similar type of structure. Emphasis on MBO, team work, focus on profit. Calibre of people similar to WTC, similar levels of decision making (management level)</p> <p>They're similar, both very cost driven. Compatible</p> <p>They've had a lot of changes in CH as well</p> <p>We're both chemical companies and we both operate hazardous chemical products and that puts a framework</p>	<p>Some similarities on corporate culture: American way of doing things</p> <p>Our company has had a lot of changes</p>
What CH people say about themselves and WTC (differences)	<p>More heterogeneous and more diverse (in terms of experiences, not ethnicity) (CH-Corp)</p> <p>We're resourced lean here. we have less number of people than WTC. Within CH there's less of a “this is the way CH corporation does things” (CH-Mngt-3)</p> <p>the urgency to get things done seems to be greater from the CH side (size of the organisation?) (CH-ENG-1)</p> <p>we don't have this sort of huge corporate body who says this is the way things happen in CH. what has been typical of CH culture is that it changes a lot, not the culture, they're not hesitant about changing direction. (CH-Mngt-3)</p>	<p>Technology driven (CH-Corp) they tend to think “the WTC way”. It's very “one dimensional”. More cautious: not totally OK to fail (CH-Corp).</p> <p>Consensus style for decision making, group mentality and not standing up to decisions</p> <p>Rigid system (union)</p> <p>A lot more people</p> <p>Some of the WTC operators seem to think they're superior.</p> <p>WTC is reducing numbers whereas CH (locally) is expanding (CH-Eng-5)</p>
What WTC people say about CH and themselves (differences)	<p>Organisation structures that are slightly different</p> <p>a lot tighter, less money , want to see results more</p> <p>There's always been a feeling that CH didn't necessarily have the money to do it right</p> <p>More result oriented, more accountable for their actions, they have targets to achieve (stock market) probably holds them more accountable than us</p> <p>(culture is) more aggressive, less relaxed , more</p>	<p>in WTC (...) we like to talk things around.. and we get consensus. We have even put that into our interview procedures (find people who have a consensus) (WTC-Eng-5)</p> <p>Something we are not the best on, is making clear decisions</p> <p>We are slightly more flexible, less regimented hierarchy</p> <p>We're a flat organisation</p>

	What they say about Chemco	What they say about Wheatco
	people shout at them all the time. CH people are certainly more aggressive It feels as if they are more regimented They have more lines of reporting More prone to work with CH guidelines and systems They respond more quickly. They get a faster feedback (stock exchange vs WTC a joint venture) The CH culture is that there is a CH way of doing things and the people really are aligned with it. CH is not quite as rebellious They use the same words but they don't always mean the same things.	WTC people are quite relaxed, reasonably calm. We do have targets, but if we don't hit the targets no one is banging on the door. And this is going to change (WTC) is going to be much more aggressive and this is good, more accountable WTC prizes itself on knowing the technology our people are more empowered than the CH people

Table 4-3 What they say about each other: Similarities and differences between the Wheatco and Chemco firms

Analysing and comparing the WTC and CH organisational cultures is not the focus for this research. This review explored whether the compatibility appeared to support or hinder the relationship process and the inter-firm adaptation that it required. Overall there seemed to be a good level of compatibility, with very similar PM systems and procedures (bonus schemes, MBO, Hay system, etc.). The compatibility did not appear to be an obstacle to the PM practices facilitating the supply relationship.

4.4.7.2 PM issues related to compatibility

Mutual assessment of the decision-making ability showed that not much difference was perceived in regards to decision making. There was no case of individuals who felt that their counterparts were more empowered than they were. One difficulty of comparing decision-making ability was the difference in size between the two sites. A summary table of characteristics and PM issues is provided in table 4.4 below.

Dimension	Actual characteristics of the Wheatco-Chemco relationship	Related PM issues
Goals	<p>Strategic goals are “win-win” at corporate manager level. Strategic goals are not clear at local level; they are implicit and not articulated by corporate managers (stated, unwritten, emergent?).</p> <p>Local operational goals are clear and shared: articulated within the management, technical and quality teams. Increased formalisation of objectives with the arrival of new people perceived as driving more accountability.</p> <p>Disconfirming: Separateness and concern for own company benefit is expressed.</p>	<p>Rewards as a source of tension: CH Bonus scheme has a direct link into the relationship results, and WTC’s bonus does not. Perception of imbalance with more urgency on one side and possibly a more relaxed stance on the other.</p> <p>Disconfirming: Operator statement: “I certainly don’t think that when I trip my bonus is going up going down, no”</p>
Information sharing	<p>Free and open information sharing. Through information sharing, joint learning can take place. Quality issues foster more communication and interaction. Disconfirming: Not enough information sharing, maintaining confidentiality. Perception of retention of information at corporate level whereas locally there is an obligation to communicate, hence potential conflicting messages. Issue with information sharing and openness regarding process coordination. Limited amount of data transfer (no extranet)</p>	<p>Less transparency is associated with non face-to-face information sharing. At operator level, turnover and lack of socialisation have not allowed to maintain the shared language developed overtime.</p> <p>Disconfirming: “We don’t need to have that common language with the people at CH”</p>
Relationship structure	<p>Broad interface across both firms: multiple levels of interaction, mostly functionally driven with key points of contact.</p> <p>Complexity of the interaction: distortion of the information flows due to a lack of formalised communication lines. Call upon hierarchy to validate information content seen as disruptive. Tactics for reinforcing the relationship structure: defining a communication protocol, single points of contact, appointing dedicated resources. Inter-personal relationships are strong.</p>	<p>Impact of high operator turnover at TCS due to: 1) promotion of TCS operators to shift manager role, 2) cross-training at TCS means there are more new people interacting with CH.</p> <p>Perception by the CH operator of a lack of competence from their counterparts and a lack of priority assigned to the relationship.</p>
Co-ordination mechanisms	<p>Contractual agreement positions the relationship as long term. No consensus to what extent it drives the relationship. It specifies the local team structure.</p> <p>Process-centred interdependence with a polarised view: - On the one end collaboration, embodied in the “one plant” view. Collaboration as an obligation. - On the other end, frustration around process unreliability and shutdown coordination. Perceived opacity of the other firm’s production process. SOPs are separate and not always shared, therefore can be a source of misunderstanding.</p>	<p>Poor understanding of the other plant at operator level. Short visits do not improve understanding. Need to have symmetry in visits.</p>
Locus of decision making	<p>“One company” heuristic, but this rationale is foreign for new people. Clarity of autonomy of decision making at local level: centred on operational issues. Perceived symmetry between the two firms. Conflict between local decision-making and global consistency of business strategy at corporate level. WTC corporate take control over business decisions by funnelling through US Manager. Collusion at local management level.</p>	<p>Issue of eliciting better communications between global and corporate.</p>
Top management commitment	<p>Visible commitment to the relationship at top level (CEO monthly teleconferences). Uncertainty locally about state of relations at corporate management level. Local relationship somewhat insulated from the relations at corporate management level. Key role of local management in setting the tone for the relationship. Good relationship at local management level. Disconfirming: “quite often talking at cross-purposes”. Issues prompt more management interaction.</p>	<p>Importance of communication at shop floor level.</p>
Compatibility	<p>Similarities with some differences. Both companies perceived the other firm as having a homogeneous, “group think” culture, expressed as “the WTC way” or “the CH way” of doing things.</p>	<p>Mutual assessment of the decision-making ability showed that not much difference was perceived in regards to decision making</p>

Legend: In blue: matches the “specific” characteristics identified in table 2.5; In red: does not match “specific” characteristics identified in table 2.5

Table 4-4 Summary of characteristics and PM issues

4.5 THE PM PRACTICES IN THE SUPPLY RELATIONSHIP

This analysis now turns to the study of the evidence pertaining to PM practices. Whilst PM issues have been referred to in relation to each dimension of the relationship, this section aims to tackle these PM issues together with various other elements pertaining to each of the following practices: staffing, job design, appraisals, rewards, training, socialisation and communication. The section ends with a summary table of PM practices within the supply relationship.

4.5.1 STAFFING

High people turnover was identified as a PM issue both in regards to information sharing, in that it hampered information flows across manufacturing units and in regards to the relationship structure. Indeed, new people were perceived to be less competent and therefore this translated into a feeling of lack of priority for the relationship. An informal assessment was performed between the two firms, which gauged the calibre of the people who worked within the relationship. Indeed a direct link was established between the level of quality of the people that were assigned to work within the relationship and its performance: “we’ve often been frustrated in the past with the lack of progress and I think it’s mainly been due to the calibre of the people involved”(WTC-Mngt-3). Thus, the quality of the people appointed to work on the relationship was linked to the level of priority allocated to it:

Are they really giving this the attention it deserves? (CH-Mngt-1). They obviously see their other business as more important than WTC because the 2 people that they’ve put on that other team are people who have really delivered results and made improvements for us in the past (WTC-Eng-1)

One implication was that there may have been a perception of imbalance, when there was such a difference in qualification for people interfacing across both firms. This was acknowledged by the Chemco quality person, who compared his own background: “I came from the maintenance department into the quality role” with the background of his WTC counterparts: “the people that I deal with and I’ve spoken to are highly qualified, they’re chemists or they’ve got a doctorate and all that kind of stuff”. Indeed the quality of this person had openly been questioned by one of the WTC managers: “He has expressed concerns about the capability of some of the people in our quality organisations” (CH-Mngt).

There was no real consensus between the informants with regards to the specific skills that were required to work within such a relationship: “More mature” (CH-Mngt-3) or “make sure you don’t have too many “live wires”, get up setters etc.” (CH-Eng-1), and whether or not they were different from skills required to work within an intra-firm relationship: “the core skills that you require are the same” (CH-Mngt-2). A strong point was made about the fact that it is ultimately at the individual person level that the difference comes about with regards to the outcome of the relationship:

We changed people. I was put in the role, and my counterpart was put in the role (CH-Corp) He is an easy person to get along with and bring up issues, he’s willing to listen to the opposite side (WTC-Corp) It’s got better because of the individuals that got put in place (WTC-Mngt-3) I think it tends to get better, get worse depending on which operator is on (CH-Eng-7)

The selection practice appeared as an internal PM practice:

I don't think we specifically say he is exceptionally good so we should put him in this sort of relationship (WTC-Mngt-1) I don't think we've ever selected people, and given any thought to the relationship to be frank (CH-Mngt-3).

However, feedback from one of the WTC managers on the CH quality person did influence an organisational change within CH. This was recognised by CH: "So to some extent the decisions we're taking tomorrow (QA appointment) has been influenced by him". Another instance of adaptation of staffing practice pertained to the hiring of a former WTC employee as CH engineer, as sole resource dedicated to WTC. Table A4.14 displays the detailed evidence in appendix.

4.5.2 JOB DESIGN

One difficulty of working within this supply relationship was the lack of understanding of the other plant internal work organisation: "If you don't understand, you assume that the other company does things the same way as you do and it may not be the case" (WTC-Mngt-1). Thus, the same job title could cover different job contents in both companies. For example, shift managers at CH supervised the operators and were fully involved at plant level, since there was only one manufacturing operation. Conversely, at WTC, shift managers supervised several plants within the Basics unit and did not have any hierarchical link to operators who reported into the team leader. This created tensions as CH operators or shift managers required information from the WTC shift managers, when the WTC job design did not allow that:

Their shift manager will say he'll get back to me on a problem and all he will do is go to his operator, get some advice and then ring me back so (CH-Eng-7).

Another difference was that, WTC being a unionised site, the job design there was more structured than the CH job design, which allows more flexibility.

WTC's system seems to be so rigid that they have to wait for an instrument man to come in, an electrician to come in, then a fitter's got to come, and it's quite frustrating that you're waiting for these people (CH-Eng-3)

The "cross-training" of TCS operators appeared to have created a tension amongst CH operators, because of the increased turn over (see 4.4.3.2), when in reality this work practice may have enabled TCS operators to have more time to spend on the relationship since backup systems could be organised with other operators (Source: WTC). It should also have allowed more robustness on the TCS process as more people were trained to run it. However, "in the short and medium term it means that we have operators with less skills" (CH-Mngt-1). Thus, differences in work practices meant that specific communication needed to take place to avoid misinterpretation from the other firm.

Jobs involving the external relationship may be perceived as being more interesting and motivating as well as unique:

You work closely with the supplier which you don't very often get an opportunity to work quite so closely (WTC-Eng-8) I was quite surprised that an operator or lead operator down here would be dealing one on one with the outside company (WTC-Op-2), "It's something new which is a challenge (WTC-Eng-7).

Therefore manufacturing jobs involving an external relationship were, to some extent, broader because they required consideration of the partner, in addition to the standard job description.

I need to be focused on, conscious of and be aware of, much more than just this facility (...) It demands more of our employees than it might if we didn't have a relationship (CH-Mngt-3). You're not just looking out to keep your own plant running, you are aware that there is another plant on the other end of the line (WTC-Op-2).

Job design was seen as an internal practice and WTC resisted any suggestion from CH to change their cross-training practice:

I don't think we are going to change our organisational structure to something that CH think would be better because I think we know internally what is better for us. And there's a lot more to take into account overall than just the operation of the TCS process" (WTC-Mngt-1).

Table A4.15 in appendix provides more evidence about job design.

4.5.3 PERFORMANCE APPRAISAL

In both companies, everybody at every level forms their own opinion of the person they interface with. (...) I think between the two of us there is a lot of informal people management. (WTC-Mngt-1)

There was a lot of evidence across both firms of informal evaluation of the counterpart, both in terms of technical competence: "I think their process operators are good" (WTC-Eng-1) as well as relational capabilities: "Someone wasn't as friendly or helpful as he could be" (CH-Mngt-2).

Although there was no formal mechanism for giving feedback, this took place through informal discussions. Indeed, there was evidence that the joint operational goals drove to a greater or lesser extent, the individual employee's performance objectives or performance standards. Hence, the external input was used as an element of appraisal, but only as an influencing factor. There was no formal joint review of an individual person's performance, as this was perceived to belong to the internal work organisation: "we don't have a formal mechanism for giving feedback, we don't do it in a structured way" (WTC-Mngt-3), although this may appear as desirable:

I don't see why not. I hadn't thought of that one at all. But with similar goals, and they have to make each other successful. (WTC-Mngt-6) If we pick key people and actually build that into some of their objectives and feedback that would be pretty good (WTC-Mngt-6).

Feedback from the other firm was taken into consideration, although only as one element amongst other criteria. Indeed performance appraisal was viewed as an internal practice and decision about the ultimate outcome of the appraisal took place internally:

To some extent the decisions we're taking tomorrow have been influenced by him (...) The change we made on quality was happening anyway. All his comment did was reinforce that this was the right thing to do. (CH-Mngt-3) I am probably not going to discuss in detail the performance of individuals. All I would tell CH is I have taken some action, exactly what I have done is not up for discussion. (WTC-Mngt-1)

More evidence on appraisals is provided in appendix table A4.16.

4.5.4 REWARD MANAGEMENT

Rewards were discussed as a PM issue, in relation to goals (4.4.1.2), as they appeared as a source of tension. This section further explores other aspects of rewards within the relationship.

In the past, there was a possibility for CH operations to discount the downtime caused by WTC. However this practice had recently changed: since his arrival, the new CH facility manager decided that operators needed to feel accountable for downtime caused by WTC, inasmuch as they could influence such downtime through better co-operation. This was a way to attempt to act upon the other firm, though indirectly. However, such influence was viewed as disruptive by the WTC management in that it resulted in disrupted communication lines (4.4.3.1). An attempt was made by CH management to influence WTC to adopt a performance improvement plan more directly related to the performance of the TCS plant.

CH expressed an opinion that personnel and organizational changes at DC had reduced focus on the relationship and plant performance. (Steering Committee minutes November 2000)

However, such attempt was not successful, in that WTC management felt that this was an internal WTC work organisation issue.

Although there was some discussion around the possibility of organising some joint rewards, barriers that prevented such practice were mainly related to WTC who would see a conflict between such rewards and their internal performance management system: “Whatever the others would say: “Why not me?” (WTC-Mngt-1). Perception was anyway that rewards would be perceived as a separate rather than a joint practice:

I think down at operator level, the WTC operators would see it as a WTC reward and the CH operator would see it as a CH reward. Unless we actually took them off site together and made a function of it.. (WTC-Mngt-1) No agreement to pursue joint cash payments, but both companies have the structure and the desire to reward co-operation. (Steering Committee minutes, March 2000)

Table A4.17 in appendix provides more data about rewards.

4.5.5 TRAINING AND DEVELOPMENT

PM issues discussed in relation to coordination mechanisms (section 4.4.4) have highlighted the importance of “on-the-job” learning that was gained through operator interaction, which improved the understanding of the other process. However, findings from the research showed that operator visits to the other site were not documented formally, hence not considered as being part of a formal training plan.

We’ve swapped operators on a shift by shift basis. It’s been done infrequently but it’s not unrare. It’s not done on a formal programme (CH-Mngt-1) I’ve got no documentation to say somebody’s been over there. It’s just on an ad-hoc basis really (WTC-Eng-6)

Most employees expressed a regret that the “Team day”, planned for September 2000, was cancelled. The intention was to allow personnel from the three manufacturing units to meet for one day in order to receive training about the specific characteristics of the supply “loop” and some teambuilding activities. The Team day was cancelled further to WTC Workforce reduction programme.

It had been planned to have a day or a couple of days together as a team-building thing, but that was cancelled. That's a pity. That would have been very good. (CH-Eng-9)
 We were going to have operators meeting each other to discuss issues, in September. It was cancelled and I was a bit disappointed about it. I know we're trying to save money but it wouldn't have been an expensive thing. (WTC-Eng-1)

An issue, which was raised related specifically to the induction of new people. Indeed new people could disrupt the relationship, because they did not understand the unique features of the intricate reciprocal supply relationship (CH comment).

the new people coming in, that sort of relationship is foreign to them, and you have to get them into that relationship (...) until they sort of understand the tie up between the two (CH-ENG-8).

This could result in slowing down decision-making: "as newcomers did not understand initially perhaps the overall importance of the relationship and have become blockers" (CH-Eng-1). New people could also be a source of progress within the relationship: "But if you have a new person, they have some new ideas, they ask different questions, they concentrate on different things" (CH-Eng-1).

Learning about the relationship had to take place across each level: at operator level, this involved understanding the whole loop and the mutual effects as well as the specific relational side: "Maybe some communication learning might be useful" (CH-Op-3), "It wants a good communication manner" (CH-Eng-7).

The only training, which was jointly attended, was a Statistical Process Control (SPC) course, which was organised by WTC and to which a number of CH people participated. Informants from both firms perceived this very positively, in that it had created a common language. One session was organised in 1996 and another one was planned for 2001.

everyone talked the same sort of SPC language so that certainly helped. (CH-ENG-10)
 You can have an intelligent conversation because we all understand (SPC) the same way. I come to understand their jargon, and they've come to understand mine, so we're "bilingual" you could say (WTC-ENG-8).

Table A4.18 in appendix provides more evidence on the training construct.

4.5.6 SOCIALISATION

The ability to meet people from the other organisation "face to face" appeared as a key socialisation practice within this research, in particular at operator level. Indeed the operator link was the most intense and was critical for the coordination of the joint process, which required 24-hour contact amongst the operating teams. A link was established between the view of the working relationship and the amount of physical contact between the people:

The higher the level you go the better it gets, at the top of the ladder, they have more meetings face to face with the people they are dealing with rather than we are sort of on the telephone (CH-Op-1)

The absence of socialisation was associated with an estrangement: "He could have been anybody, he could have been somebody off the street" (CH-Op-1) and with a perception of the opacity of the other firm's process:

The average operator here thinks that chemical additive appears from nowhere" (WTC-Op-1), "I'm sure people think you're pulling the wool over their eyes" (WTC-Op-2).

As indicated in the previous section, visits from one manufacturing unit to another were not viewed as part of a formal training plan. It was argued by some informants that a formal programme of interaction should be set up in order to ensure that it took place.

You've probably got to make your external interactions a bit more structured to ensure that communication and interaction takes place otherwise there's a risk that it won't happen as much as it needs to. (WTC-Eng-6). It would be good to have a programme throughout the year of CH-WTC getting together, both operators and engineers. That could be just a rolling programme throughout the year. Just as we have PACE meetings (WTC-Eng-9)

This was supported by the responses to the qualitative part of the operator survey, where 70% of respondents requested some form of socialisation, whether visits, training or team building days. The effectiveness of short informal visits was questioned, as these did not allow the learning process that was associated with a longer exposure to the other firm:

Maybe 2 or 3 times a year a shift will organize a visit just so they see what happens to the silica but they don't talk, they just walk around for half an hour asking questions (WTC-Eng-1)

The first effect of socialisation was relational because it made it easier to interact and to work together. However, disconfirming evidence was also expressed, related to the negative aspect of socialisation in the absence of trust:

It will either build trust or it will build the opposite, distrust. If they find that they're meeting with people on a face to face basis and they'd understand that his person is trustworthy. In the long run I think it would help but if they get somebody over who they think this guy isn't trustworthy then I think it will go the other way. But the evidence so far is that it's all been very positive. (WTC-Eng-6)

A link was also established between socialisation and process, although not all informants agreed to the extent to which relations at operator level could impact the actual running of the process:

So I don't think it'll impact the technical solution at all, but I think it'll help when the technical solution isn't in place or not working, it'll help the relationship between individuals(CH-Mngt-1) It's been quite obvious that there are ways they could operate their plant which can help ours and vice versa (WTC-Eng-6)

The types of socialisation envisaged can be mapped on a scale from very short (one hour), to more extended visits. A socialisation practice was decided in November 2000: Monday operator meetings between TCS and Chemco operators:

We agreed to start weekly meetings on a Monday afternoon between CH and WTC operators in the WTC control room with the objective of improving understanding between the two sets of operators and providing face to face contact (Steering Committee: November 2000).

The intent was to provide a regular forum for discussing problems in order to ensure a better understanding of each other's process. One criticism about these meetings expressed in the operator survey was the fact that they only took place at WTC. Hence, it was perceived that there was an imbalance in the communication flow, which could be corrected by alternating sites.

Feedback on the MOM was good in that, for the first time, it allowed operators to sit down together and share knowledge through deep probing.

The CH operator asked a lot of questions and said why do you do this and that. And our guy explained it and had a bit of dialogue about it but also our operators asked the CH operator, this gives us problems why do you do this, and they got some explanations and people have actually gone away and started thinking about these things and questioning whether they have to be done that way or whether they can be changed. (WTC-Mngt-1) It was good that they came over physically to look because I'm sure that that's always been the perception across the fence that if we have problems we're actually lying to them about what's happened and the other way around. (WTC-Op-2)

Barriers to socialisation included:

- Lack of resources, such as having to organise a backup when an operator is sent over to the other firm, A perception that socialisation events were difficult to justify in terms of cost/benefit ratio. Indeed, "the problem is you can do teambuilding exercises together and that sort of thing but it's very difficult to justify in terms of payback" (CH-Eng-6). From the corporate perspective:

Not much happened about having exchanges of employees between CH and WTC, we've never crossed that boundary yet. And I would not have a problem suggesting that. But I don't think we found a compelling case where we needed to do that (CH-Corp), I would say that really needs to be sorted and managed at the local site (WTC-Corp)

- WTC was an unionised site and this added an additional dimension in that some operators could resist the fact of going outside the standard way of working. Thus, in the case of an exchange for a couple of days, there may be "Somebody deciding to talk to their union steward and saying what are the implications of me going to work at CH" (WTC-Mngt-1).

Table A4.19 in appendix shows the details of the data pertaining to socialisation.

4.5.7 COMMUNICATION

One final PM practice is seen to have an effect on the relationship. This was the internal communication, which supported the multifaceted interaction. Communication at shop floor level has been raised as a specific issue in light of the importance given by operators to management attitude with the other firm.

The absence of a formal, written statement has been referred to in relation to strategic goals. Indeed, both corporate managers admitted to not making it a priority to articulate a vision at strategic level, thus leaving it as "emergent" or "implicit".

I don't think we have really formalised what I call how we would work together. Some kind of broad vision statement that somebody could pull out and say this is the way we are working together. On a case by case and issue by issue basis we communicate within our organisations (CH-Corp) We could do a better job of educating the people at the local site in terms of what the vision is and what it is we want to achieve (WTC-Corp)..

Locally the Steering Committee charter had only been started in March 2001. Prior to that, informants could say: "I don't know what the Steering Committee set themselves as goals for example". The intent of this charter was to provide clear guidance about the local relationship purpose and mode of interaction:

1. To set the direction and tone for the WTC/CH UK strategic partnership, continuous improvement plans, and working interfaces.

2. To define and set performance improvement objectives and metrics.
3. To ensure that local issues, agreements and commitments are shared, discussed and reviewed with Corporate functions.

Another purpose of the Steering Committee charter was to elicit better communications with corporate hierarchy. Indeed frustration was expressed with the corporate structure: “When information goes up to corporate, it doesn’t help” (CH-Mngt-3), “The local people sometimes get frustrated with corporate structure” (WTC-Mngt-1). Vertical communication also involved justifying the local relationship performance. In the case of CH, this involved justifying the low performance, which may have an impact on corporate decision to expand the UK CH site.

Our plant has been shut down because their plant has been shut down and as you can imagine here we come under enormous pressure from our corporate management who want to know why our plant isn’t running (CH-Mngt-3)

Table A4.19 in appendix shows the details of the data pertaining to communication. Issues brought up in relation to the PM practices within the WTC-CH supply relationship are summarised in table 4.4 below. Disruptive effects of PM practices are highlighted in red.

Set of PM practices	How managed?	t
Staffing	Separate: internal practice, some influence	Impact of high operator turnover at TCS: perception by the CH operator of a lack of competence from their counterparts and a lack of priority assigned to the relationship. Direct link established between the quality of the people assigned to work on the relationship and the priority given to the relationship. Imbalance when there is a difference across both firms. No consensus as to whether working within an external relationship requires specific skills. The individual person makes a difference within the relationship. Organisational change at CH (appointment of quality person) has been influenced by an input from a WTC manager. At CH, hiring of a former WTC employee as dedicated resource for WTC.
Job design	Separate Internal practice, no influence	Lack of understanding of the other firm's job design: similar title, different roles; WTC job design more structured because of the unionised context. Perceived negative impact of the "cross-training" of TCS operators. Hence, need to specifically communicate to explain the difference in job design. Jobs involving an external contact may be more interesting and motivating as well as unique. No influence of CH on the WTC decision to implement a cross-training practice at TCS.
Appraisals	Separate internal, some influence	A lot of informal assessment of the counterpart, both in terms of competence and relational capabilities. Shared local operational goals are translated into individual people's objectives. No formal mechanism for giving feedback but informal discussions. External feedback as influencing factor but ultimate decision is internal.
Rewards	Separate Wholly internal	Rewards as a source of tension: CH Bonus scheme has a direct link into the relationship results, and WTC's bonus does not. Perception of imbalance with some attempts to influence the partner's practice. Disconfirming: Operator statement: "I certainly don't think that when I trip my bonus is going up going down, no" Attempt from CH management to influence WTC to adopt a performance plan for TCS, more directly related to the TCS performance process is not successful. "No joint cash payments are envisaged, but desire to reward cooperation". A main barrier is WTC as an unionised site.
Training	Some joint	No record keeping of operator visits across the manufacturing units, hence they are not part of a formal training plan. Learning about the supply relationship through informal process driven by tacit rather than explicit processes (CH new people). Induction of new people, who can disrupt the relationship through a lack of understanding (CH new people). Learning has to take place at all levels of interaction. "Team Day" as a formal training for the three manufacturing units. Disappointment over cancellation SPC joint training has created a common language. Understanding about the other plant is more an issue of informal "on the job" learning rather than formal training.
Socialisation	Joint	"Face-to-face" as a key practice, in particular at operator level. Link between the view of the working relationship and the amount of physical contact between the people. 70% of respondents to operator survey require some form of socialization: visits, training or team-building days. Poor understanding of the other plant. Short visits do not improve understanding. Absence of socialization associated with an estrangement and contributes to the opacity of the process. Effect of socialization is relational with possibly some impact on the technical process. Positive impact of the Monday operator meeting, as a way to develop a shared knowledge through deep probing: need to alternate sites to allow symmetry. Desired: more formal programme of interaction at shop floor level. Learning associated with an extended exposure to the other firm. Disconfirming: potential negative aspect of socialisation. Barriers to socialisation: resources, justification of cost/benefit ratio, WTC employee relations (unionised site)
Communication	Separate/joint	Limited communication or education from corporate about the relationship emergent process? Informal process of "educating" about the relationship (CH). Matching the internal "vertical" communication with the "horizontal" relationship levels to avoid conflicting messages. Frustration with corporate. Issue of eliciting better communications between global and corporate. Steering committee charter as a vertical communication tool. Importance of communication at shop floor level. Communication about the relationship is necessary with regional hierarchy (CH)
Legend: In red: disruptive effect of the PM practice on the supply relationship		

Table 4-5 Summary of PM practices

4.6 CONCLUSION

There was a lot of evidence of the fact that PM practices played a role within the supply relationship – whether positive, as in the case of socialisation, or negative as in the case of rewards or high turnover. There was as well a consciousness that prevailed within each firm, and across levels of the effects of the internal PM practices from each firm on the interaction.

In spite of such awareness of its impact on the relationship, it took a crisis context to bring up people management as a shared concern for the two firms. Indeed an emerging theme from this research was that PM was not a priority within the relationship. Several reasons were proffered to explain this:

- The focus was on the technical process, which was high technology equipment, rather than on relational aspects. Indeed as no obvious link could be established between the relational aspect of the interaction and the actual performance of the technical process, it was therefore difficult to justify the additional cost that could be incurred as a result of PM practices, in terms of actual payback.

- Organising PM practices was seen as costly and disruptive for the internal work organisation, such as in the case of Wheatco, which was a unionised site. In a context where resources were scarce, there was the feeling that the relationship was only one priority amongst many. Therefore, the two firms operated totally at arm's length with respect to PM practices, which were viewed as an internal affair, where the priority was to maintain internal consistency rather than external alignment.

I don't think we are going to change our organisational structure to something that CB think would be better because I think we know internally what is better for us. And there's a lot more to take into account overall than just the operation of the TCS process (WTC-Mngt-1)

- Hence, whilst it appeared easy and obvious to collaborate on the technical side of the relationship, the PM side of the relationship was less tangible and therefore did not come to mind easily. It appeared that some practices that would be obvious within an intra-firm context were not "thought of" within this relationship. Hence, it took a breakdown in the process performance to heighten the perception of PM as being an important element of the relationship.

On several occasions, informants expressed the idea that this supply relationship would work better if it were part of an internal operation. Indeed, it would be easier to coordinate inasmuch as there would be a single team of operators, shift managers and engineers who would look at the overall process. Another perception was that information flows would be better as well as the associated knowledge of the process:

Shouldn't CH run that rather than WTC? That doesn't mean we need to pick the assets up and move them over to our side of the fence. We need to view this as one site which is owned by different companies. But we need to be able to run it as if it's one facility (CH-Mngt-1) If there were common operators or it was a common control room the plant would be much more reliable. (CH-Mngt-2)

There was as well clear perception that the local relationship did not exist independently from the corporate relationship. Hence there was an intra-firm dimension, that highlighted conflicts between the requirements of the local relationship and the internal hierarchical structure, which was represented by the Corporate managers who attempted to give a direction to the relationship that was not supported locally.

4.6.1 LESSONS FOR THE NEXT CASE

What lessons are apparent from the WTC-CH case, which need to be embodied in the next case? Firstly, this research has confirmed the relevance of the conceptual framework, whilst providing data to support taking out two constructs: the “time horizon” dimension and “career management” PM practice. At this stage, the researcher should remain open to data from the next case pertaining to these two elements. Secondly, this case has provided the opportunity to “craft” the research instruments. Hence, this has represented a learning curve, in terms of establishing the practicality of doing the research and conducting interviews. Such learning involved developing better listening skills, an ability to be adaptive and flexible and to grasp opportunities for new data collection. Performing the pilot study within a company, Wheatco, with whom the researcher was “intimate” was a good choice, in that it helped speed up the learning curve, whilst providing a broad access. Thirdly, this case has confirmed the relevance of using N’Vivo as a support tool for conducting the analysis. Finally, the positive feedback received after the presentation of the case findings to a joint group of Wheatco-Chemco employees and managers in April 2001 was an encouragement to move on to the next research project.

CHAPTER 5 THE TYRENCO PARIS - LONDON CASE STUDY

5.0 INTRODUCTION

Having developed research instruments and applied them in an extensive case study set in an inter-firm context, the next step was to apply these concepts in an intra-firm environment. The Tyrenco Paris-London supply relationship fitted the case selection criteria inasmuch as it was a mature relationship, which pertained to a strategic product with high visibility and therefore required an intensive collaboration between the two sites. This would create the opportunities for a comparative research between the inter- and the intra-firm “hybrids”.

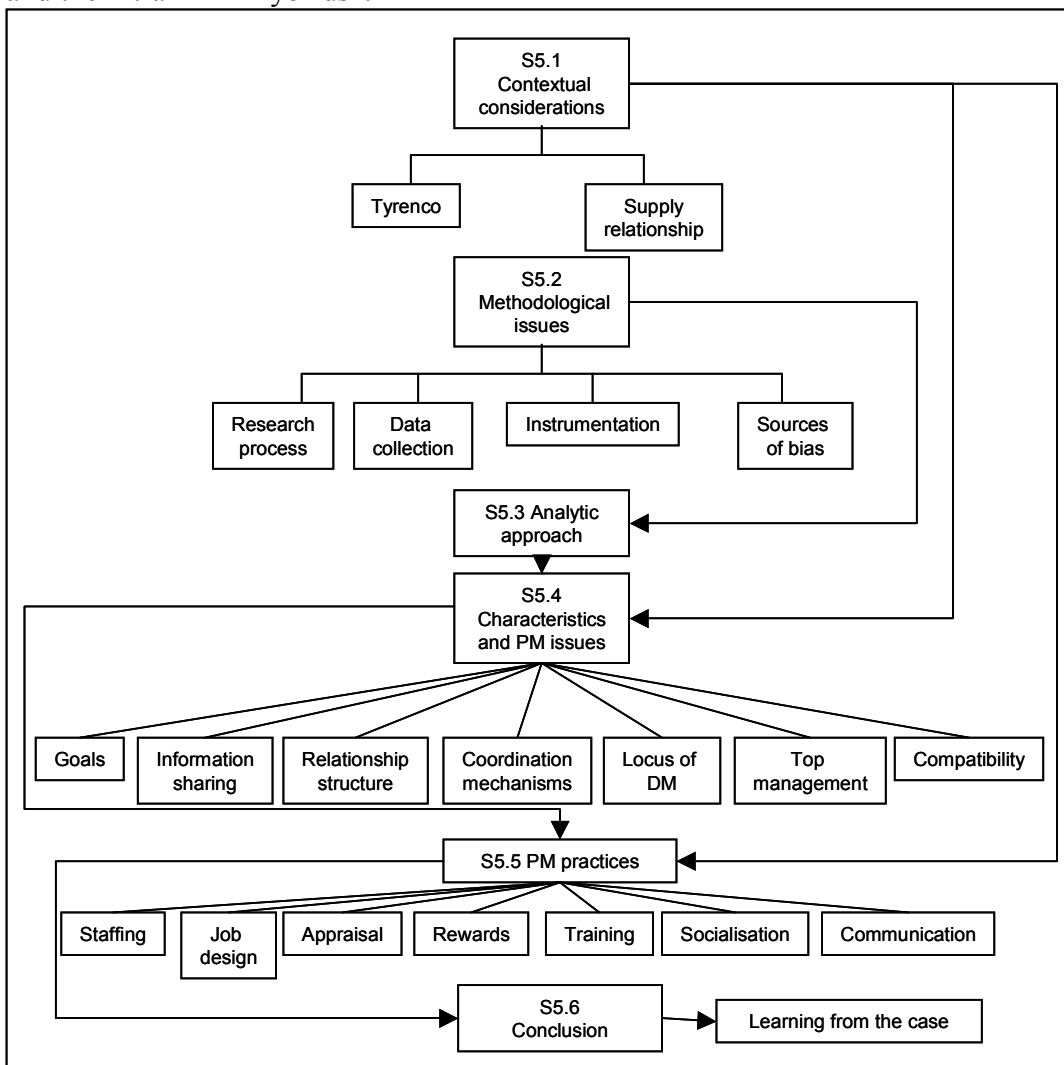


Figure 5-1 Outline of Chapter Five

Figure 5.1 shows the outline of the Chapter, which follows the same structure as the WTC-CH case. It starts in Section 5.1 with a brief introduction of Tyrenco and its PM context, the Paris and London sites and the supply relationship between the sites. Section 5.2 discusses the specific methodological issues encountered during this case

and section 5.3 describes the analytical approach used to draw conclusions. Findings are presented following the conceptual framework structure, namely: section 5.4 relationship characteristics, section 5.5 PM practices. The Chapter ends in section 5.6 with concluding comments and a review of the learning from the case.

5.1 CONTEXTUAL CONSIDERATIONS

The background of the overall Tyrenco organisation provides a first level for this contextual analysis. The relationship itself is then presented, with a brief description of the manufacturing process and the context of the two sites. The “horizontal” level of analysis is depicted through a historical perspective on the supply relationship.

5.1.1 TYRENCO

Recently created from the merger of two European companies, Tyrenco ranks amongst the world leaders in the discovery, development and marketing of innovative pharmaceutical products. One of its stated goals is to pursue simultaneously higher sales from the growth of its strategic brands and markets and a decrease in operating expenses as a percentage of sales (Source: Tyrenco web site).

In line with this goal, Tyrenco launched in 2000 two new programmes, in support of its strategic product lines.

A supply chain initiative, called here “SPAN”, aimed at improving the supply chain processes of its leading products. The focus for the programme, which was sponsored by the supply chain function, explicitly referred to three dimensions:

1. Addressing long- and short-term planning by implementing new processes
2. Applying new technology for advanced planning and optimisation.
3. Providing an aligned organisation to fulfil the product supply chain goals

This third dimension of SPAN aimed at removing organisational barriers between Tyrenco’s Industrial and Commercial operations, and also at implementing a more collaborative approach between the two pillars of the Industrial Operation organisation, namely the “Active Product Ingredient” (API) manufacture, which was the upstream chemical business and the “Drug Products” (DP) or pharmaceutical operations. One element of this programme was to design new organisational accountabilities. Thus, it identified leading sites, which had responsibility for product supply chain performance. New roles were created: Product Supply Chain Managers (PSCM) who were reporting into the leading site manager and were in charge of “end-to-end” short- and long-term planning and capacity coordination and simulation for strategic decision making. This role supplemented existing roles of Strategic SC leaders, who were in charge of coordinating the strategic product decisions between Industrial Operations and Commercial Operations.

In parallel to the implementation of this supply chain initiative, another corporate programme was launched that sought to ensure that all the sites that were involved in making a strategic product were aligned on a technical, quality and regulatory basis. Thus, responsibility was assigned to a “Mother Plant” (usually the site which manufactured the finished product- hence the SPAN “leading site”) for providing centralised support and control for the strategic products in the areas of chemistry, manufacturing and control. This involved an ownership of all technical documents included in the strategic product regulatory files, responsibility for change management, technology transfers or any other aspects of the active product ingredient manufacture. The API “Daughter Plant” was responsible for notifying the Mother Plant of all

proposed changes and receiving approval before implementation. Implementation of Mother Plant required the setting up of Technology Councils in charge of driving the programme management.

The SPAN and Mother Plant programmes provided a new configuration for the management of inter-site relationships within Tyrenco. This was complemented in December 2001 with a new organisational change: Product Leaders were appointed to be in charge of strategic product teams, with representatives from sites as well as from Commercial Operations. The intent of this product-aligned organisation was to line up all of the pieces of the product supply chain to be more focused on the product than on individual sites.

5.1.1.1 People management processes at Tyrenco

Tyrenco corporate policies drove a number of PM processes, such as, Tyrenco values, headcount and expatriation policies, performance management process and performance-schemes for senior management, global employee survey and talent management process. Other policies and processes, such as compensation and benefits, development or disciplinary were country-based processes. There were also a number of site-specific policies, such as in the area of training and development, organisational design and structure, pay strategy or dealing with unions.

Tyrenco pay philosophy aimed to “attract, retain and motivate the people who are critical for reaching the goals of our performance driven company “ (source: Tyrenco HR procedure). Total compensation included base salary as well as all incentives. These were monitored relative to the external markets to maintain a competitive remuneration. Whilst industrial people received the same percentage of yearly salary increase, which was not linked to individual performance, professional levels had performance-based yearly merit increases. At Tyrenco, performance-bonus schemes were only allocated to managerial levels (typically site management team and the level below). Bonus schemes were driven by global company performance (50%) and by personal objectives (50%), which were tied into site Key Performance Indicators (KPI's).

The performance management process involved goal setting and performance reviews (on-going and annual). Performance goals pertained to three areas: (1) operational goals, which reflected the operational responsibilities of the role, and where possible were linked to site Key Performance Indicators or cost/quality/service standards. Operational goals were meant to include a specific link into “living the Tyrenco values”. (2) Business development goals pertained to process improvements or ways of working. (3) Personal development goals were also required to identify the individual's needs for enhancing knowledge, skills or behaviours.

Seven Tyrenco values were communicated that needed to be demonstrated in everyday behaviour:

- (1) Respect for people means helping people set and achieve high performance standards, rewarding performance, respecting diversity and treating people with dignity.
- (2) Integrity refers to “walk the talk”, honesty and resisting politics.
- (3) Sense of urgency deals with striving for speed and simplicity in everything we do, fighting bureaucracy and focusing on delivery.
- (4) Networking means reaching out beyond boundaries to share information and ideas, promoting collaboration and breaking down silos, whilst refusing political “workarounds”.
- (5) Creativity pertains to “thinking out of the box”.
- (6) Empowerment, which encourages and rewards self-confidence, initiative, and
- (7) Courage, such as facing reality, making timely difficult decisions and following through on them. (Source: Tyrenco HR documentation)

5.1.2 THE SUPPLY RELATIONSHIP

This case study research deals with the supply relationship between two Tyrengo plants: the API site in Paris and the DP facility in London. This collaboration was centred on the manufacturing of T-drug, one of Tyrengo's strategic products, whose main indication was the treatment of breast cancer.

The Tyrengo Industrial Organisation (IO) structure was differentiated by geographical region and division (API vs. DP) (See Figure 5.2). This organisation was based on the principles of strong emphasis on line management in API and DP, whilst providing maximum operational delegation to the sites. Key functions were geographically located at the sites, which was where they carried out their activity. The organisation was based on matrix principles, with functional guidance and support provided by corporate functions.

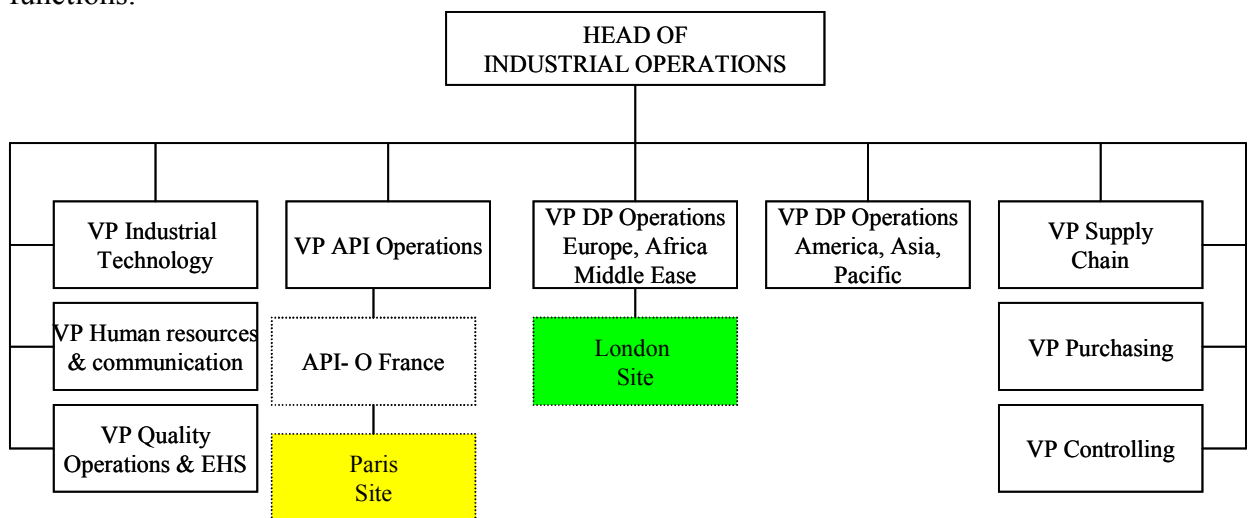


Figure 5-2 Tyrengo Industrial Operations organisation chart

This provided a context in which manufacturing sites from different regions or divisions did not have much in common and operated very independently from each other. Thus, different functions within each site, such as manufacturing, quality assurance or HR, would not have any incentive to work together.

Indeed API and DP were very dissimilar, in terms of core technology, scale of lead-time, know-how (chemical vs. pharmaceutical), which explained the reason why both divisions were run separately.

5.1.2.1 T-Drug

Since its launch in the mid-1990's T-drug experienced very high sales growth – close to 50% from 1999 to 2000 and it was close to reaching its initial sales target of one billion euro. Outlook for the product was made still more attractive since T-drug has received EU approval for an extension of its current application, which would boost sales revenue.

The production process for T-drug comprised five stages (See Figure 5.3 below).

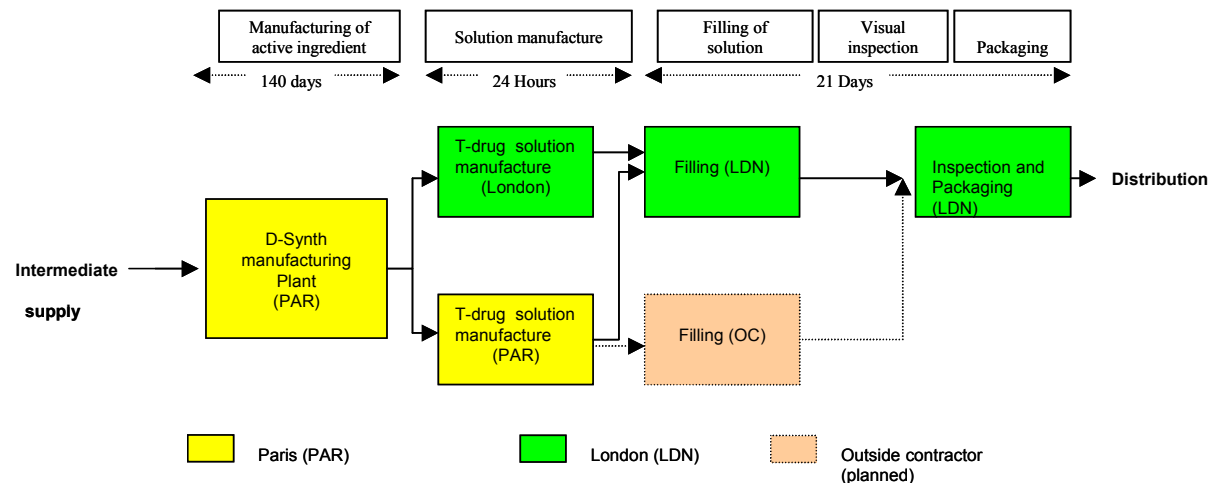


Figure 5-3 Outline of the T-drug production process (source: Tyrenco SPAN documentation)

- 1) Manufacturing of the active ingredient, D-Synth, took place at the Paris (PAR) plant from the extract of the vegetable raw material. This consisted of a thirteen-step process, each of which lasted for at least one week and involved a total cycle time of about 140 days.
- 2) T-drug Solution was manufactured from D-Synth powder. This stage took place in two steps: first dissolution of the D-Synth in alcohol, mixed with a very thick carrier liquid phase, which was heated at high temperature. The alcohol was then taken off by vacuum distillation. The T-drug solution had a very short shelf life, so that there was only a 48-hour lead-time between manufacturing the solution and filling in vials of T-drug solution. The solution once filled into vials was stable for up to two years, but was not in a form suitable to be administered to the patient. To enable this a suitable solvent was required. There was a parallel process to the main manufacture to produce this solvent, which was a relatively simple mixing of three components.
- 3) The aseptic sterile filling in vials of the T-drug solution using specialised isolator technology (to protect the operators).
- 4) Visual inspection of the vials was performed as a semi-automatic process in the London (LDN) site. Solvent was also filled in vials, and inspected on automatic inspection machines.
- 5) Packaging and labelling to meet the regulatory requirements of the different markets.

The T-drug production was complicated by two factors: (1) the almost total insolubility of the active ingredient in water, therefore requiring complex formulation, (2) the cytotoxic nature of the product necessitating total protection requirements for all manufacturing staff.

Since 2001, a contract was signed with a French pharmaceutical laboratory (OC) for the sub-contracting of the filling operation of the T-drug made in the Paris plant. Future product flows would include shipment of the T-drug solution from PAR to OC and subsequent shipment of the filled vials from OC to LDN for inspection and packaging. A major quality issue affected T-drug production from January 2000. This resulted from particles that were identified at the visual inspection stage of the process. The investigation of the quality problem showed that potential causes could either be related to D-Synth sourcing, which would be the responsibility of the Paris API site, or to the solution manufacture process, which was performed both in PAR and LDN.

A “T-drug Crisis Management Team” was set up in January 2001, immediately after the first issue was reported. It comprised corporate managers who provided technical support as well as support for the management of the commercial implications of the product quality issue. The manufacturing leaders of the PAR D-Synth and T-Drug units were part of the team, together with the LDN site director and the LDN Head of Oncology. The crisis management team met on a weekly basis and reported jointly into the Head of IO and the Head of CO. Two different lines of investigation were followed. Indeed, the cause of the T-drug quality issue could either be related to the API intermediate (D-Synth) or to the filling operation at the DP plant.

5.1.2.2 Tyrenco Paris site

Situated in the suburban part of Paris, the Tyrenco Paris site hosted not only the API manufacturing but also a research centre. It was a large chemical site with 700 employees. It had two main manufacturing units: Organic, where the D-Synth and T-drug were manufactured and Biochemical. The PAR site director was also responsible for the site, which manufactured the intermediate active ingredient extract that was used in the manufacturing of D-Synth.

First launched in 1996, T-drug was originally developed and manufactured in Paris, with only the filling and packaging steps in London. The aim was to transfer the manufacturing step to the UK and to only keep the D-Synth manufacturing in Paris. However, the solution manufacturing process involved manufacturing operations, which were unfamiliar to London, as a drug product site. Although a solution manufacturing unit was set up in the UK in 1998, it was not immediately fully operational and could not produce enough to take over the full production. Hence, the expected closure of the T-drug solution manufacturing in Paris did not take place. In fact, in view of boosting product sales, the decision was made to increase capacity.

This was done in 2000 by deciding to maintain the PAR T-Drug solution manufacturing unit for the long term whilst outsourcing part of the filling operation with a French pharmaceutical laboratory. Hence, the decision was made to increase the PAR T-drug batch capacity from 25 to 50 litres. This upgrade was performed during the first quarter of 2001.

T-drug and D-Synth played a key role in the PAR site. Indeed, whilst the rest of the site manufactured basic chemical products, these two products were identified as “strategic”. Hence, if the PAR plant was strategic, it was due to D-Synth and T-drug and the know-how attached to both products. Indeed new oncology drugs, currently in development, were based on D-Synth and therefore appeared to secure the longer-term future of the site.

The PAR T-drug and D-Synth teams were very stable over time in terms of turnover. The T-drug was originally going to be in place for a limited number of years, therefore the team only comprised temporary operators. A young pharmacist was recruited to be the T-drug leader, and the management style adopted, both within T-drug and D-Synth processes, involved an emphasis on employee involvement and training. The temporary contracts of the operators were changed into full time employment further to the decision to maintain the PAR T-drug over the long term.

T-drug and D-Synth only impacted on about ten percent of people within the PAR plant. The T-drug unit was unique on site, in that it consisted in a DP manufacturing operation, hence with different quality and regulatory requirements.

In 2001, the PAR site Key Performance Indicators pertained to customer service (including the performance of the upstream D-Synth intermediate manufacturing site), performance against budget and inventory. Safety, quality and the environment were also part of the site objectives.

5.1.2.3 Tyrenco London

Formerly the headquarters of a small British chemical company, the Tyrenco London (LDN) site was bought by one of the Tyrenco parent companies in the 1930's. This site was historically operating rather separately from corporate, maintaining its own culture and own identity. In the 1980's it was changed into a dedicated pharmaceutical site, involving both API and DP operations as well as a research centre.

The site had about the same size as the PAR site – and belonged to the same Tyrenco parent, so that there was a long history between the two sites. The recent past had been difficult, inasmuch as in 1998, after some competition, the API activity was transferred to PAR. Soon after, in 1999 with the formation of Tyrenco, a corporate rationalisation saw another transfer, this time of all R&D Pharmaceutical activity, from LDN to PAR and other sites around the world. The effect was to reduce the size of the LDN site from 1400 to 700 employees.

One characteristic of the LDN site was high management turnover. Indeed, between 1994 and 2000, there were five site directors, whilst eight Oncology Manufacturing heads succeeded one another. The current site director was in place since January 2000 and had to face a number of challenges. He had the difficult task of leading a strategic site, and aiming to attain both process and functional excellence, in a context where management turnover made it difficult to maintain the management control mechanisms and associated people management processes. Hence, his task involved reorganising the site and reinstating basic business processes and controls, whilst managing to upgrade employee morale, which was hampered by the successive reductions in the site activities.

The LDN site was split into two manufacturing units, called “Business Streams”, which were managed fairly independently: “Solids” that pertained to tablet and capsule product lines and Steriles, which was split into two units: “Oncology” high growth product lines and “Steriles” mature product lines. These manufacturing units were run as separate “business” units, in that they had dedicated support resources assigned to them, such as finance or human resources.

Since Tyrenco was set up, a clear strategic site focus was placed on Oncology, although it was still important for the site to maintain the viability of the non-strategic product lines. The Head of Oncology, who had formerly been Head of Quality, was in place since July 2000. In July 2001, he was moved to the position of Head of Mother Plant, in order to be able to focus on the programme implementation. A manager, transferred from a US Tyrenco plant, replaced him in September 2001, who was put in place in order to re-organise the unit and reinstate process efficiency.

Two strategic products were manufactured within the Oncology unit: T-drug and C-drug. C-drug, which started in 1998, was a lower sales volume but equally high margin product. These two products shared manufacturing processes, which could sometimes make capacity allocation difficult. Thus, for example, C-drug packaging line was the same as the T-drug PAR.

Poor performance plagued the Oncology manufacturing unit, which, in 2001, had an internal customer service target close to 50%, against the target of 95% - although

supplies to the market were maintained at about 99%. Other Key Performance Indicators for the site included inventory levels and performance against budget, as well as quality, safety and the environment. Each function had specific indicators that were allocated to them: thus internal customer service was led by manufacturing unit managers and supply chain management. However budget was a shared objective of the whole site teams.

5.1.2.4 Historical perspective

The relationship over T-drug, whether logistical or technical, was originally at arm's length with little interaction between the two sites, beside the operational coordination of the shipments of D-Synth and T-drug. One example of this was that the LDN site did not make the same technical choices as the PAR unit with respect to T-drug manufacture. Unlike the French site, which had a manually controlled process, the LDN site made the decision to use an automatic process control. Thus, some of the nuances of the manual control were not integrated into the LDN process and this resulted in some inconsistency between the two plants (this made the T-drug particle issue investigation particularly difficult).

The PAR-LDN relationship evolved around 1997, when a strong point of contact was established between the PAR T-Drug leader and the LDN Customer service manager. Indeed, whilst difficult at the start, the relationship grew over time to become progressively more collaborative. Thus, joint meetings were organised every two months in order to regulate the activity between the two sites to co-ordinate D-Synth forecasts and T-drug production. Meetings took place alternatively in LDN and PAR and provided an opportunity for sharing forecast and scheduling information whilst developing a broader contact across the two sites. The collaborative stance culminated with the PAR D-Synth and T-drug units, including operator and supervisory levels, visiting the LDN site, in September 1999. The visit also included a joint social event. However, when the LDN customer service manager left in January 2000, planning meetings were interrupted, and subsequently, during 2000, the relationship became against more arm's length. It was limited to operational coordination and there was little forward visibility for PAR of D-Synth forecasts and T-drug production schedules. Several elements during 2001 acted to bring the two sites closer together. These elements included the T-drug crisis management that forced more technical collaboration, and the introduction of the SPAN and Mother plant programmes. The SPAN programme was introduced in April 2001, coinciding with the start of this research. It aimed to provide an end-to-end coordination of the SC. The Mother plant programme also sought to bring into line the two sites, under LDN responsibility, to align all technical aspects of the product and its process, such as change control, "una formula" (one formulation for T-drug), process improvement and specifications. The early focus for the Technical Council, which was set up in January 2001 was centred on the investigation of the T-drug quality issue, with a focus on D-Synth as a potential cause of the problem.

Hence, when the research on the supply relationship started, relations between the two sites were described as being close to "covert conflict". Firstly, there was an uncertainty about the sales outlook for T-drug, which could mean that there was a situation of over-capacity, especially since the capacity increase at PAR and the introduction of OC as added filling capacity. Secondly, there was an uncertainty as to

the cause of the T-drug issue, which meant that the responsibility between the two sites was not clearly delineated.

5.2 METHODOLOGICAL ISSUES

This section aims to formulate explicitly the design decisions that were made in the course of this study, inasmuch as these have had an impact on the analysis and the findings presented in the later sections of this Chapter.

The section starts with a review of the unfolding of the research process, which was different and overall less straightforward than the WTC-CH case. Then the rules for the bounding of data collection are made explicit and the instrumentation is discussed. The section ends with a reflection on the potential sources of research bias that may have emerged in the course of the study.

5.2.1 THE RESEARCH PROCESS

Whilst the overall research process of the WTC-CH case study had developed quite smoothly and consistently over time, this was not the case with the Tyrenco research. Indeed the research, which started in April 2001 and lasted until January 2002, went off-track for the first four months because the research focus shifted from the supply relationship to the internal LDN site.

The original intent of this focus on the LDN site was to allow the researcher to become familiar with the background and culture of the overall Tyrenco Company. At the same time, it provided an understanding of the context of the LDN site and of its oncology unit. Indeed, it was much larger than the PAR unit and to some extent, far more complex because of the difficulties that it underwent, both in terms of process performance and in terms of people management issues, discussed in section 5.1.2.3. Therefore, in agreement with the LDN site manager, thirty interviews were conducted between April and September 2001, across several levels and functions: from site management, through oncology management, engineers and shift managers and finally operators. This “side-tracked” study resulted in a short summarised report on the situation, that was provided to site management in November 2001 and which is not part of the thesis.

As of September 2001, the project was re-focused in order to concentrate on the inter-site relationship. In spite of the fact that the “side-tracking” was frustrating because it represented a delay to the project, it ultimately had two benefits. Firstly, an intimate understanding gained of the LDN oncology context was useful to ensure that the focus of the PAR/LDN supply relationship study remained on the inter-site (the “hybrid”), rather than on the intra-site. Secondly, it was helpful to have developed personal relationships with people from the LDN site. Indeed, nine interviews were conducted by telephone and previous face-to-face contacts with these people made it easier to conduct the interviews.

5.2.2 BOUNDING THE COLLECTION OF DATA

Following the same data collection approach used in the WTC-CH study, this section explains the way that the “territory” was defined, the detailed logic adopted for the sampling path and seeks to justify the way that the research dealt with the change process over time.

5.2.2.1 The territory

Figure 5.4 below illustrates the boundaries of the unit of analysis, which makes up the Tyrenco Paris/London case study. Like in the case of WTC-CH, it was based on the conceptual element (the “hybrid”), the main physical product flows (T-drug and D-Synth), as well as the social size (joint teams and inter-personal relationships).

Anchoring the qualitative sampling for the “hybrid” on T-drug provided a rationale for focusing on the PAR/LDN dyad. This involved excluding the upstream part of the supply chain, which consisted in the pre-D-Synth processes, since the PAR site was in charge of the planning and coordination of this portion of the supply chain. Indeed, the PAR site manager was also director of the site, where the vegetable extract was manufactured. On the other hand, choice of not including the outside contractor was driven by the research focus on people management, which was driven at site level. Bounding the unit of analysis also involved making choices regarding the inclusion/exclusion of informants from the PAR and LDN sites. This was based on whether or not they had contact across the two sites, either through joint meetings or operational coordination. The sampling of informants was at multiple levels (Site management, T-drug/D-Synth management, engineers and operators), through a wide range of functions (SCM/planning, production, QA and HR).

The T-drug crisis management team was not included in the unit of analysis, based on the fact that this team was mostly composed of corporate people, who were not operationally involved in the relationship. Within the SPAN corporate team, an HR executive (formerly LDN HR manager) was interviewed. People who sat on the SPAN team, but were not involved in the operational side of the relationship (such as data system or IT people) were not interviewed.

Use of the WTC-CH research design provided another logic for informant sampling. Thus, operators were included, even though, in contrast to the WTC-CH study, they had no cross-site direct contact. Their central role in the manufacturing process made it relevant to take account of their views within the study. Likewise, it was important to have access to corporate informants. Originally, the two site heads felt that there was little value to be gained from getting input from their corporate heads, because these were only marginally involved with respect to the supply relationship. However, access to the two SC corporate managers (API and DP) was granted in January 2002, subsequent to presentation of the interim case study presentation. Although not directly involved in the relationship, the corporate persons provided insights into the context for the relationship.

One difficulty of the bounding of the unit of analysis was the fact that the inter-site relationship was located within an intra-firm context, which created much fuzzier boundaries for the study.

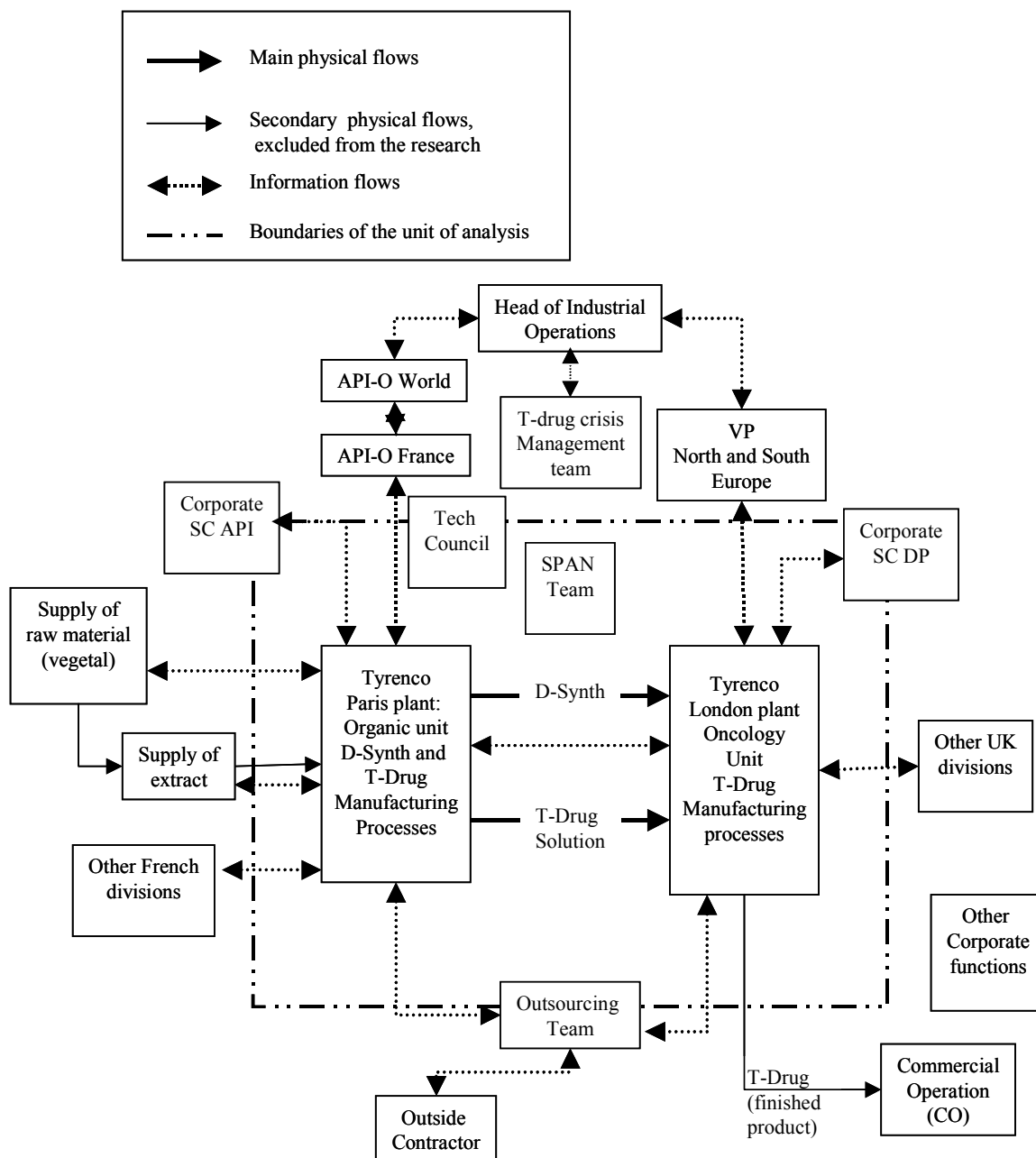


Figure 5-4 Bounding the unit of analysis: mapping the Tyrenco Paris-London supply relationship

5.2.2.2 Sampling path

Thirty persons were interviewed in the course of the PAR/LDN research. Both within- and between-site sampling were used to identify those people who were involved in the inter-site relationship.

The LDN key informant (Project Director) had been involved in the relationship in the past in his former role as Director of Customer service. However, he had more recently been involved in projects that did not require a close connection to the supply relationship. This was a problem because this person could only provide indirect insights into the relationship from the LDN perspective. Conversely, the PAR key informant, who was Head of Organics, was supervising both the D-Synth and T-drug units and therefore had a central position in the relationship. This informant helped gain

access to the corporate supply chain manager for API, whilst the Strategic SC leader gave access to the DP SC corporate head, who was his line manager.

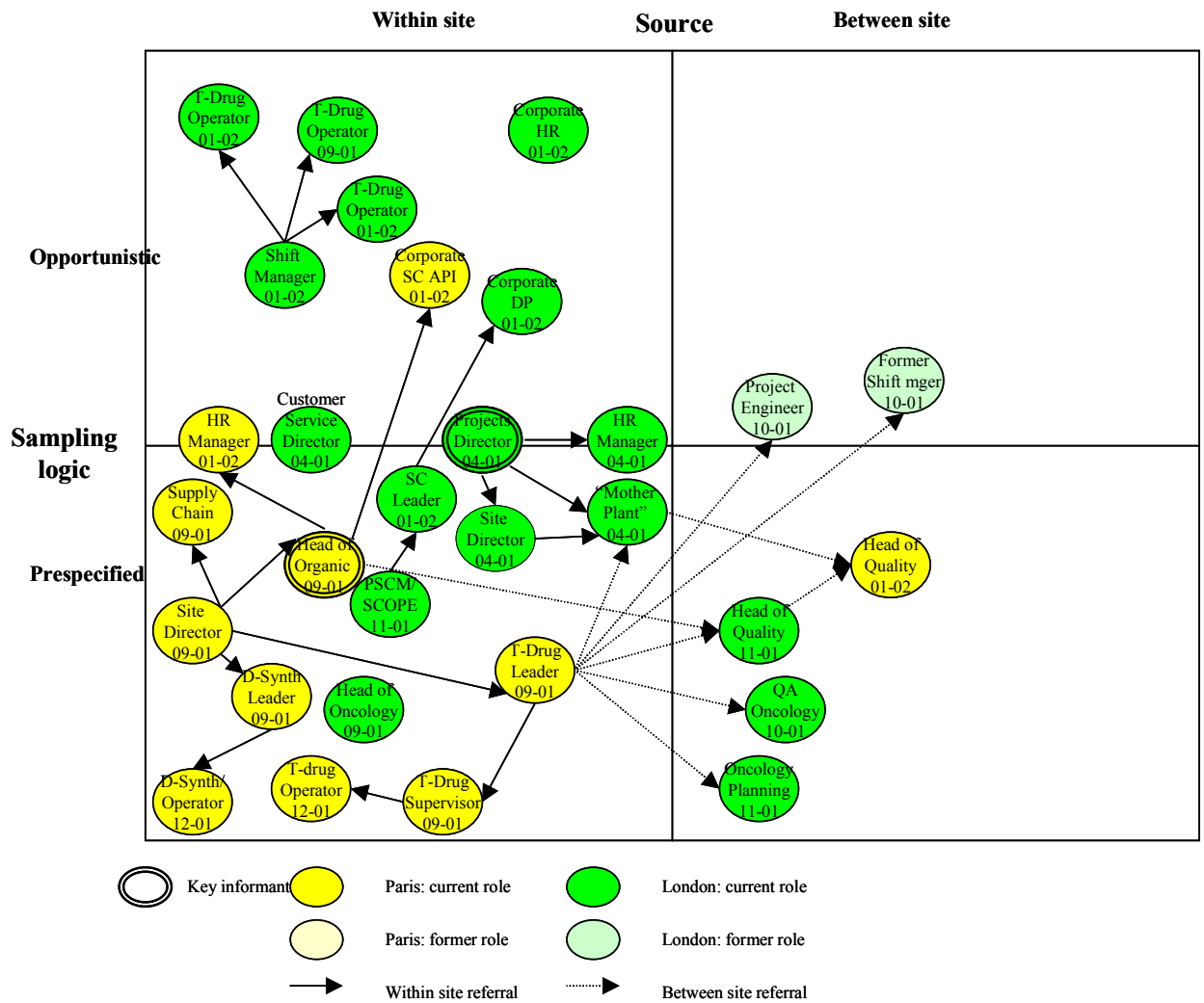


Figure 5-5 Sampling path or logic of informant selection –Tyrenco case

An analysis of Figure 5.5 shows that the PAR T-Drug leader provided a large number of inter-site referrals, in that she was a key point of contact at operational level. In fact, a lot of homogeneity was found in the content of the PAR interviews, which seemed to stress the key role of this informant who somehow was driving this “group-think”.

As in the case of WTC-CH, another rule for informant sampling was a symmetric approach, whereby informants in similar position, such as Head of Quality or HR manager in both sites, were interviewed.

5.2.2.3 Bounding of time

Following a replication logic, some informants were interviewed at several stages of the research process in order to capture a longitudinal view of the relationship. Table 5.1 provides the details of the repeated interview dates and informant roles.

Informant/Dates	04-2001	05-2001	09-2001	10-2001	11-2001	12-2001	01-2001
LDN Site Director	X				X		X

LDN- Mother Plant	X				X		
LDN- PSCM (SPAN)	X				X		X
PAR- Head of Organic (KI)			X			X	
PAR- Supply chain			X				X
PAR- T-Drug production leader			X				X

Table 5-1 Repeated interviews of the same person (KI: key informant)

A number of organisational changes took place over the course of the study, both in Paris and London. Because role ordered matrices were used as the main analysis tool, the decision was made to “freeze” the organisation chart and associated roles as of September 2001 (See appendix).

The research process was stopped in January 2001 because theoretical saturation had been reached and the replication study had been completed. This also met the constraints pertaining to the time requirements of the project (Eisenhardt, 1989; Pettigrew, 1990).

5.2.3 INSTRUMENTATION

Unlike the WTC-CH case, only three methods were used: interviews, document analysis and meeting attendance. Use of the operator questionnaire was less justified, given the different context and the lack of interaction between the operator groups.

The interview guide followed closely the one used for the WTC-CH study. In order to verify findings from the inter-firm study, the constructs “long-term horizon” and “career management” (see section 4.2.2, Chapter 4), were explored, and provided conclusions in line with the WTC-CH case: time-horizon was related to a stability contingency and no obvious link emerged between career management and the supply relationship.

However, new themes emerged from the study, which pertained to the political context of the intra-firm relationship, such as inter-unit conflicts and site survival issues.

Interviews with the PAR site were conducted in French and subsequently translated into English and transcribed by the researcher. They were sent back to the informant for verification, and few changes were made.

This case study offered the opportunity to attend three SPAN meetings in Paris and London: July (PAR) 2001, September 2001 and January 2002 (LDN). These were excellent opportunities to see the joint relationship in context as well as to make contact with people from both sites.

5.2.4 POTENTIAL SOURCES OF BIAS

The research diary proved to be a very useful tool to document the reflective part of this research. Indeed, the Tyrenco research was harder and more demanding for the researcher from two perspectives: firstly, she had to recognise her cultural ethnocentrism. Secondly, she had to manage the difficulty of dealing with a high conflict relationship and a higher perception of the political stakes and potential risk that was associated with the research process.

Difficulty for the researcher of dealing with ethnocentrism focused on an awareness of an initial reluctance to accept the Tyrenco culture and types of PM practices, as they originally emerged from the interviews conducted on the LDN site. These appeared as very hierarchical rather than stressing empowerment at lower levels. This was perceived

as rather different from the organisational model experienced throughout her fifteen years at WTC, which were not challenged during the WTC-CH study. Another difficulty was dealing with the underlying political stakes that were not apparent in the WTC-CH supply relationship. Indeed, in the context of the newly formed organisation, long-term “survival” of the sites did not appear as secured.

5.3 ANALYTIC APPROACH

Data analysis was undertaken using again the N’Vivo software, with a similar coding structure to the WTC-CH case. However, the process of “sense making” of the data was much longer and again involved some side-tracking, such as an analysis of the adversarial elements in the case, with the use of an inter-unit conflict model. This analysis was later captured as an integral part of the research, in that it was included, either as part of the context of the relationship (see section 5.1) or within each of the seven dimensions or PM practices (see next sections). This provided evidence for the “separate” construct, which is analysed in Chapter 6 (cross-case study).

As in the case of WTC-CH, a word processor was used to set up tables for each of the constructs. Role ordered matrix displays, showing rich text from interviews, were produced for each construct. A similar logic to WTC/CH was used to characterise roles:

- Corporate managers (PAR-Corp and LDN-Corp) included the API and DP corporate supply chain executives, the supply chain leader (reporting to the DP corporate executive), who was located in the LDN site. The last corporate informant was involved in supporting the people management and organisational aspect of SPAN.
- Management: defined as those people who belonged or had belonged to the local site management team or to the Oncology management team at both sites (PAR-Mngt and LDN-Mngt).

- Engineers: any other work role at local level beside management and operators, such as the project leader, engineers or shift managers (PAR-Eng and PAR-Eng).

- Operators: from the two Paris manufacturing processes, i.e. D-Synth and T-Drug Paris and T-Drug London (PAR-Op and LDN-Op).

Data analysis was refined, in comparison to the WTC-CH study. N’Vivo codes were used to identify disconfirming evidence and any “left-out” data, which was considered as external to the unit of analysis.

As in the case of WTC-CH, a key source of data convergence was “within method” triangulation (Jick, 1979) obtained by comparing points of view of interviewees from the two sites and from different functions and levels in the organisations. Moreover, documentation was used to triangulate and complement interview data. In that respect, the SPAN information package was particularly fruitful for understanding the organisational side of the programme.

5.4 CHARACTERISTICS OF THE RELATIONSHIP AND RELATED PM ISSUES

The aim of this section is to present the findings from the case with respect to the seven dimensions. Hence, following is a review of goals, information sharing, relationship structure, coordination mechanisms, locus of decision making, top management commitment and compatibility.

Findings are presented in two stages: firstly, empirical data is compared with the specific characteristics of reciprocal supply relationships (table 2.5). Secondly, the PM

issues are presented, as they are related to each construct. The section ends with a summary table of characteristics and PM issues.

5.4.1 GOALS

5.4.1.1 Goal dimension

Informants from PAR-LDN had a clear view of the overarching corporate goals that govern the supply relationship, but they see the local operational goals as being separate and a source of conflict.

The joint goal that was most often stated was customer service (CS). Some informants referred to the customer service Key Performance Indicator (KPI) as being shared. Indeed both sites measured the performance of the Oncology CS, although the PAR KPI only captures the upstream portion of the SC. Others insisted on the necessary coordination of operational activities between the two sites in order to be able to supply customers on time. This highlighted the interdependence that characterised the Oncology SCM relationship.

Two overarching aims of the Oncology SC were perceived as joint:

- Supporting a critical cancer application, with patients at the end, waiting for the drug.

There is a drug to produce, and we have to do it. There are patients to care for (PAR-Mngt-4) In fine the patient needs the drug (PAR-Mngt-6) Everybody feels a great attachment to the product and the patient” (LDN-Mngt-8).

- Contributing to the strategic dimension of T-drug, which was a blockbuster with high visibility.

We all know this is a strategic product, which is very much under scrutiny and we know if anything goes wrong it will rapidly go up to the CEO (PAR-Mngt-1) The awareness that T-Drug is the second largest product in the company also plays an important part as people can align behind “a vision of being part of that success” (LDN-Mngt-8).

One perspective of the two joint overarching aims was that they were perceived as “utopian” (PAR-Mngt-4), “very top level or the motherhood and apple pie statement of what we’ve got to do” (LDN-Mngt-2). This may be explained by the fact that informants did not perceive the strategic thrust within the PAR-LDN relationship.

We are very much centred on operational objectives. We are approaching the relationship more in terms of “question and answer” than in terms of “building up a strong partnership. Building up such relationships is done implicitly, without it being a strategic direction (PAR-Mngt-1) There is no global vision; it’s more an operational vision; I would say collaboration is more de facto rather than organised (PAR-Mngt-6) We all perceive ourselves as the LDN site, and not as the PAR-LDN relationship (LDN-Eng-3).

Most informants agreed that there were no joint operational goals between the PAR-LDN sites. The key reason for the separation between the two sites was organisational. In the current Industrial Organisation (IO) structure, which was differentiated by geographical regions as well as divisions (API vs. DP), there was not much common ground between PAR-LDN. Indeed, “in the PAR-LDN relationship, you have API France vs. DP North/South Europe. So you have two boundaries there” (PAR-Mngt-6). The two sites reported into different regional heads, which set the goals measured at site level since the lowest unit of performance measure in Tyrenco was the site. Thus, PAR-

LDN could be considered as very separate in organisational terms, and very much driven by local objectives and budgets.

Site goals were centred on customer service, inventory levels and budget measuring financial performance. Among these site goals, customer service was the only measure that did not provide a ground for contention. Conversely, both the inventory and the budget goals were a source of conflict within the PAR-LDN relationship.

It's an expensive material and especially coming to the end of the year LDN don't want to be holding a lot of this stock because we've got inventory targets to meet but the same can be said of PAR. They've also got inventory targets to be met so at the moment there's some conflict over some of that material that we can't use at LDN but we want to send back to PAR (LDN-Eng-3).

Indeed, because the measurement of inventories was not at overall SC level, there was a tendency (this comment concerns overall Tyrenco) to overlook the SC logic: "what are the forecasts, the needs, what are the product cycle times and the buffer stocks and this is valued" in order to follow a financial logic: "we end up managing inter-company margins rather than inventories" (Corporate manager). This could be the explanation for conflicts around the ownership of the D-Synth inventory: "there is often a lot of positioning or politics around who holds the stock" (LDN-Mngt-7) especially at the end of the year. This market approach to inter-site exchanges was not perceived as providing a sound logic for inventory management.

Due to our "stupid" organisation, a product that leaves PAR today at a cost of 100 arrives in LDN at a cost of 800 or 1000, simply due to internally defined inter-company margins (PAR-Corp-1). It's all a joke, because it's all the same company's money (LDN-Mngt-1) It's some kind of finance thing where in the end the profit is made in the raw material when it's sent to LDN. It sounds silly because we're all one company (LDN-Eng-3) To me it is irrelevant because if it is being made and it is owned within the organisation then it does not matter if it is at PAR or if it is at LDN (LDN-Mngt-7).

Similarly, budget goals were a source of division within the PAR/LDN relationship in that the costing mechanisms that drove the accounting practices between the two sites made it difficult to come up with a "win-win" decision around the split of T-drug production between the two sites. Indeed the decision on how much T-drug to make in PAR vs. LDN influenced both site budgets since T-drug production contributed to the site economic performance through the recoveries for overheads and labour. Therefore, there was a perceived competition around product allocation.

We're clearly competing because we are two units, which make the same product (PAR-Mngt-2) As we've gone into discussions about allocations of product between the two sites is very quickly where divisions come forward (LDN-Mngt-8).

However, such competition remains covert, rather than overt:

And the finance, that doesn't come out in the open. Nobody actually wants to come round and say if we do this it will affect my budget. (LDN-Mngt-8).

There was an urge for a goal setting process that brought clarity and coherence to support the collaborative effort.

Clearly articulated objective, specific product-objectives for each site (PAR-Mngt-4) Defining a clear vision would be an excellent start, a coherent vision (LDN-Corp-2) My hope would be that (...) the objectives are clear between the sites, the goals are clear (LDN-Mngt-8).

SPAN was seen as an enabler for the joint development of a collective set of clearly articulated goals within the PAR/LDN relationship in two ways. Firstly, it provided a forum for joint goal setting process. Secondly, its advanced planning and scheduling technology provided a modelling environment to incorporate business rules, constraints and goals in the planning process. This included as well the facility to use algorithms to incorporate business goals. However, the SPAN initiative did not overcome the inherent difficulty of reconciling conflicting interests at site level.

The strategy for defining how production will be split has been a hot topic recently. Logically defining these scenarios is also complex, and therefore the modelling solution is still unclear (SPAN LDN meeting minutes).

Several objectives were presented as potentially joint between the two sites: customer service (already perceived as being shared), a global inventory measure as well as technical goals supported by the Mother plant programme.

For me inventory strategy should be defined globally (PAR-Corp-1) Objectives need to be defined based on an end-to-end SC view, which includes both API and DP view. (PAR-Mngt-4) If inventory and financial performance is a key issue then that should be jointly owned (...) there is a goal to have one process (LDN-Mngt-7) Global inventory including obviously stock levels in the market place, all the way back to and including stock holding of D-Synth, putting together some common policies around what those stock levels should be, what each plants role is in maintaining that. Something around single method of production and commitment to ongoing control and measurement of that (LDN-Mngt-8).

There remained the issue of resolving conflicting goals, especially around budgeting and finance: “The only competition (...) is when the budgets are discussed” (LDN-Mngt-3) “a kind of war zone area” (LDN-Mngt-8). This could involve either adapting the goal setting process at site level or clearly articulating rules for trade-offs.

Corporate management for manufacturing and also for the finance to also look at the issues more in an overall impact on Tyrenco type setting (LDN-Mngt-2) If there was one person who had the full budgetary end to end supply chain responsibilities for those things, then I think it can work (LDN-Mngt-8).

More radically, a recent organisational change (since December 2001) looked at aligning the SC on “coherent end to end mutually supportive goals” (LDN-Corp-2), under the guidance of a product leader so that “the pieces of that product chain (become) more focused on the product than on their individual site for drivers” (LDN-Mngt-4). This change recognised the difficulties inherent in inter-site collaboration and substituted to some extent hierarchy to lateral coordination.

The product leader is a leader not a co-ordinator (LDN-Corp-1) The product leader for oncology has the room to set coherent end to end mutually supportive goals for down the supply chain (LDN-Corp-2).

This however did not preclude the need for trade-offs rules, for example when a local and a product level goal were conflicting.

5.4.1.2 PM issues related to goals

The annual bonus schemes, distributed to management levels, were mainly driven by local performance. Hence, rewards were based on goals, which could be a source of tension within the PAR-LDN relationship. Indeed, on the one hand these rewards

centred management efforts on internal site performance, rather than on overall Tyreco performance (see section 5.5 locus of decision making). On the other hand, they could be a source of conflict, in that the success of one site in obtaining its reward could be related to the failure of the other site, in receiving their bonus. Hence some informants were questioning the relevance of such bonuses.

We may want to question our bonus process. This is motivating, but currently it is too much egoistic, too much centred on individual and local objectives (PAR-Corp) Personally you do the right thing, that's what motivates me, but a lot of them they first ask what's my bonus. Also this is a very, at least in IO, this is I would say the cornerstone (LDN-Corp-1) If our goal is solely to meet the budget then we're going to fight against things that prevent us from doing that. That's where you drive behaviours in the wrong direction (LDN-Mngt-2) The number one factor that causes problems is individual bonuses (LDN-Mngt-8).

However, disconfirming evidence was also collected that seemed to imply a lower impact of rewards on the relationship.

You can't say that shared objectives and say shared rewards would be a bad thing. I am struggling to find out, to think of positive reasons why. But it can't be bad!" (LDN-Mngt-3).

5.4.2 INFORMATION SHARING

5.4.2.1 Information sharing dimension

Several informants described information sharing as lacking transparency. This seemed to prevail in particular amongst the PAR informants.

We suffer from a lack of reactivity, of transparency, of clarity. We always get evasive responses no yes or no (PAR-Mngt-1) It's really difficult for us to understand what's going on over there. For us it is very opaque (PAR-Mngt-2) Whenever they have problems, they should share them with us. So explain to us what happens (PAR-Eng-1) At the moment, people from PAR are having to request and get from LDN lists of how we're doing, current batches and the technical performance. They've been sitting waiting for what's your demand, how much do you want us to make etc. and there are times when it feels difficult here at LDN for us to get a clear view of what's going on in PAR (LDN-Mngt-2).

Indeed, data such as T-drug production schedules, sales forecasts and batch result data were necessary for the PAR manufacturing units to operate smoothly. From LDN there was recognition that information was "requested rather than given" (LDN-Eng-1). Possibly because of the lack of interaction, there was no "natural" inclination to communicate.

I think when asked the information is given. I suppose people assume there may not be a need to share that information (LDN-Mngt-7) Information is normally requested rather than given but when it is it flows quite easily to and fro. If we were to have a question here it is unlikely that we would immediately go to PAR and see whether they had a similar issue, not necessarily because we do not believe that they would not give us any feedback but probably because it is just not considered (LDN-Eng-1).

The lack of communication was enhanced by the separate organisation structure, which did not facilitate inter-site communication between API/DP. Moreover, this was due to the focus on own site issues as well as on individual site goals, which did not encourage communication.

I don't think unless PAR ask for information LDN won't send it, probably because we're all very busy and we all perceive ourselves as the LDN site and not as a PAR/LDN relationship

Another reason for such opacity was that there was at the time (before SPAN implementation), no enterprise-wide information and communication technology. Local information systems had been developed independently. Therefore, they did not allow data exchange. This pertained as well to technical data for which there was currently no online access system across sites.

With regards to the SC, one barrier to communication of sales forecasts was the uncertainty of the demand information, which depended upon different T-drug sales scenarios, which were devised by the Commercial Operations team. Indeed there were large variations, depending on the achievement or not of aggressive marketing plans.

It's the demand, the tolerance on the demand numbers is so wide it is difficult (LDN-Corp-2) There's a 33% question mark over the demand for next year. The biggest barrier, I think the biggest barrier at the moment, is quality and availability of information (LDN-Mngt-3)

There were two elements which encouraged more information sharing within the PAR-LDN relationship: one was the SPAN project and the other was the necessary collaboration that had to take place between the two sites in order to tackle the T-drug crisis issue.

The SPAN project involved setting up an information technology system (Advanced Planning and Scheduling) to provide end-to-end visibility of product Supply Chain data to all partners. This was viewed, particularly by PAR informants, as an improvement in information symmetry and transparency, especially with regards to demand data.

Everyone will have the same level of information on forecasts, planning (PAR-Corp) An improvement tool for communications (PAR-Mngt-1) What I like with SPAN is that we get an overview of the whole SC (PAR-Mngt-4) It will help us because we'll have the same information as those people who do the planning (PAR-Mngt-5).

The other dimension of SPAN was the collaborative approach for setting up planning processes. This involved developing a "product community", with regular interactions, not just amongst SC professionals but also amongst a broader audience across both sites.

We do manage to see each other and talk more often. This is directly linked with the SPAN project (PAR-Mngt-2) the community aspect is key (PAR-Mngt-4) SPAN will involve a dialogue (PAR-Mngt-5) SPAN is a very steady natural catalyst to get people in a room (LDN-Corp-2) My understanding of SPAN is that we'll have to work closely together (LDN-Eng-3).

Beside the formal sessions to organize the SPAN project, regular meetings were recently deemed necessary to ensure coordination of planning activities between PAR-LDN.

We now have a calendar put together for the whole of 2002. So this is much more organised. Each one of us was aware that we needed to meet more often so, whether we have SPAN or not, we would have needed to meet more regularly (PAR-Mngt-4) Through SPAN, we have actually put in place now a formal monthly meeting. It's a monthly meeting we're committed to sustaining, and it will drive the information flow (LDN-Mngt-3).

Such interaction between the two sites was not a smooth process, however it was perceived as beneficial in that it fostered communication and closer relationships.

And the one benefit that's coming out of these arguments is the planning and management teams are coming much closer together (LDN-Corp-2) Dealing with technical topics involves getting closer de facto (PAR-Mngt-4).

Most informants agreed that the recent T-drug crisis had positively contributed to the PAR-LDN relationship, because it had intensified the technical information flows between the two sites and forced more interaction.

Because of the T-drug crisis issue; it is an obligation to communicate. LDN was forced to be transparent (PAR-Mngt-2) It's almost a crisis that's forced them to have to talk to each other (LDN-Corp-3) The focus on that as a crisis management or a problem management has forced LDN and PAR to work collaboratively (LDN-Mngt-2) .

One example of such improvement was the batch data on PAR-made T-drug solution. Since the crisis, decision was made to transfer data electronically to PAR on a weekly basis.

Informants argued that the best way to ensure that regular information sharing was maintained over time within the PAR-LDN relationship, whether for SC or for technical information, was to institutionalise the interaction process (see below section 5.4.3: Relationship structure).

Because of the fact that the knowledge related to the Oncology product line was embedded in both the PAR and LDN sites, there was an opportunity to build synergy and develop learning across the two sites, especially to meet the requirements of the Mother Plant Programme.

We both have history. We're going to need to do something to collect all that history and share it so that everybody knows where in fact we collectively are today (LDN-Mngt-4) They have a lot of knowledge around the product, around the testing, around what changes can or cannot be made. There is a lot of learning to get from them (LDN-Mngt-7).

5.4.2.2 PM issues related to information sharing

As could be expected, language was perceived as representing a certain barrier within the PAR-LDN relationship (Franco-English as opposed to the "common language" in Chapter 4). However, it was interesting to contrast comments about language being an issue with those statements that understated the importance of the language barrier (see Table 5.2).

	Language as an issue	Language as not a central issue
PAR	We all speak English without really understanding the subtleties, so when it is verbal, we never know if it's yes or no.(especially meetings via teleconference) (PAR-Mngt-1) May be there are some subtleties that escape me (PAR-Mngt-4) Not speaking the same language is a problem (PAR-Op-2)	We've had one guy who came over to look at our process and we realised there was no real language barrier and we could understand each other very well (PAR-Mngt-2) I was privileged because I spoke English (PAR-Op-2)
LDN	I don't know if we communicate clearly from a language perspective. I think English people tend to look at their French counterparts as they've already made up their minds because	(Language barrier?) To a point although, in fairness and it's to their credit, most of the people that we deal with, speak English (or)

<p>of how the communication comes across (..) fewer words without some of the subtle distinctions that if you were a native English speaker you may have used a different word that wasn't as harsh, or abrupt (i.e. non negotiable) (LDN-Mngt-4)</p> <p>It is often easy to misunderstand a culture when you have initially got a translation issue any way (LDN-Mngt-7)</p> <p>There are language barriers, especially when it is technical information. They are translating that back, so the understanding will always be slightly different in that case (LDN-Eng-1)</p> <p>Language can hinder the relationship and generally that is our fault because in general the English people do not speak French (LDN-Eng-5).</p>	<p>very good English (LDN-Mngt-2)</p> <p>Over the times I've been witnessing it, real attempts by both sides to really understand the other person's point of view and the other persons terminology and people saying I don't think I heard that, please can anyone explain that (LDN-Mngt-8)</p> <p>A huge command of English (LDN-Eng-5) (And will the language be a problem?) I don't know. We speak a little bit of French, we done some at school, I've got a O level and that (LDN-Op-1).</p>
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Table 5-2 Discussing language issues within the Paris-London relationship

The main issue with language was with understanding the “subtleties” of communication. This reinforced the importance of face-to-face communication, which allowed immediate feedback on the level of understanding: “you can see if they're actually understanding, or you can see how they're responding to what you're saying”(LDN-Mngt-4). Hence, a direct link was established between information sharing and the amount of socialisation, whether through face to face meetings, visits or employee exchanges that was allowed to take place between the PAR-LDN sites.

I think the face-to-face questioning and talking about details is a lot more useful than over the 'phone or via e-mail. I have sometimes found via e-mail that I don't know whether because of translation things seem to get missed or misunderstood (LDN-Eng-3)

Decisions about who was allowed to interact and at what level were also related to the management of the relationship structure.

5.4.3 RELATIONSHIP STRUCTURE

5.4.3.1 Relationship structure dimension

Findings from this research support the view that the PAR-LDN relationship follows a approach, with multiple levels of interaction, but relying on few strong contact points (See Figure 5.6 below).

In the past, coordination of the PAR-LDN supply relationship has consisted mainly in a single point of contact established between LDN planning/customer service and the PAR T-drug leader. Figure 5.6 shows that the communication lines in PAR were still centred mainly on the T-drug and D-Synth production leaders. The main LDN operational link for PAR was the oncology planning. There was no existing links between the Oncology manufacturing Head in LDN and PAR. However, future contacts were planned. There was no link at operator level. Communication about shipments took place by e-mail or over the telephone between the PAR T-drug leader or supervisor and the LDN shift managers.

The SPAN link relied on a very strong one-to-one interface between SC professionals at both sites to ensure clear ownership of data quality: “In strict terms I could probably get to only ever speak to her” (PSCM). The Head of Mother Plant had also recently increased his contacts with the PAR production leaders through joint participation in the T-drug crisis management team.

One issue identified was the lack of functional interaction especially at the level of the two manufacturing units. Some implications were already discussed, in terms of barrier to information sharing through the lack of “natural inclination” to communicate. Other implications involved the effects of the lack of interface on interpersonal contacts.

What we haven't done effectively or consistently is get involved jointly the people who actually run the process (LDN-Mngt-2) as yet there does not seem to be a clear one to one interface between the T-drug Leader and person X within our oncology area to pass and exchange technical information. Those interfaces and relationships in my view are not clearly established and I think because of that I do not think we have the mutual trust and respect that we would hope to have, (LDN-Mngt-8).

Other perceived effects were potential delays or missed opportunities for joint problem solving: “You need to take the action away so if someone from production was there the issue could probably get resolved there and then” (LDN-Eng-3).

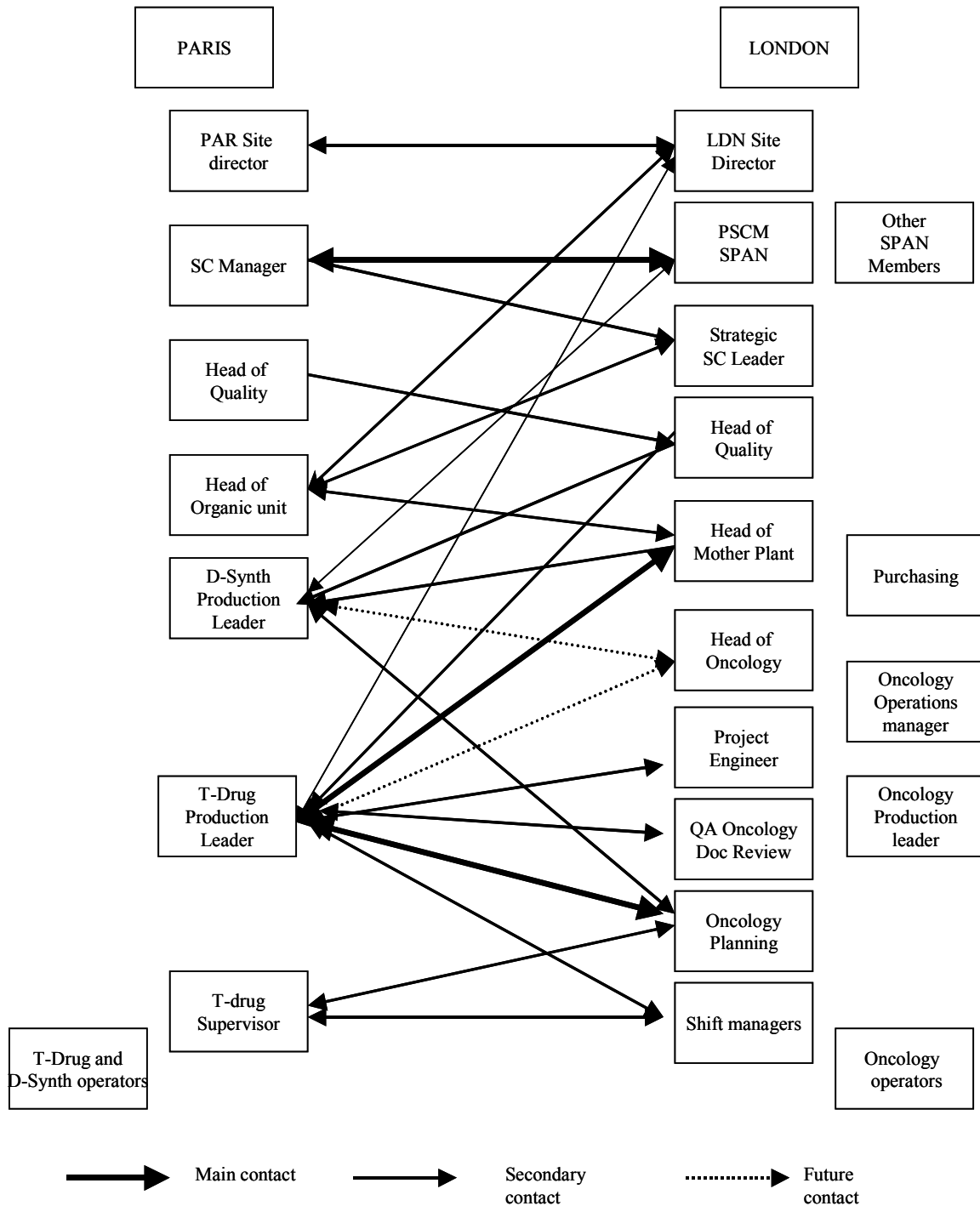


Figure 5-6 Tyrenco Paris-London local relationship structure

In spite of the various issues, inter-personal relationships between individuals from the two sites were presented as being enhanced as more opportunities for face-to-face contact were provided.

I think on the personal side it has been good (PAR-Mngt-3) Since December we have had to meet very often and work face to face. This develops interpersonal links” (PAR-Mngt-4) A useful help into that because we just spend more time together (LDN-Corp-2) If it wasn't for the fact that we could get on together as individuals then it would be a problem” (LDN-Mngt-3).

There was generally agreement that a broader interaction between both sites would benefit the PAR-LDN relationship through the setting up of a network of communication lines across both sites. In particular, direct one to one interaction between QA, SC and manufacturing, as well as “technical” was presented as desirable. This was expected to allow an increased information exchange, knowledge sharing and improvement in operational coordination through a direct interface for problem solving. Indeed confining communication lines at management level tended to restrict information sharing and limit learning.

It doesn't make sense that it goes through just one “head”, because that would be a barrier to information sharing. Operational people need to relate to each other (LDN-Mngt-2) it would be useful to open up communication a bit more because there are very few people communicating between the sites (...) if we were to have a question here it is unlikely that we would immediately go to PAR and see whether they had a similar issue (LDN-Eng-1)

Although, in theory, it was attractive to think that “everyone is talking to everyone”, this did not appear as feasible or desirable in practice. Indeed funnelling communication lines appeared as more effective.

Not everyone should be involved in everything (PAR-Mngt-1) There are few people. Today, this is adapted to the situation: if we are too many then the working sessions will not be effective. My contacts are more centred on SC people (PAR-Mngt-4) There should be key contacts in each of the functions (LDN-Mngt-2)

Whatever the decisions made as to how many people were allowed to interact within the PAR-LDN relationship and at what level, there was a perception that it was important to institutionalise the PAR-LDN relationship, so that the interaction process did not occur only at crisis time. Indeed there was an urge to have a “routine”, or “normalised” process, which should be facilitated by the Mother Plant and SPAN programmes:

Organising a steering committee that deals with issues on a regular basis; to ensure we do not just meet in times of crisis (PAR-Mngt-1) Such a relationship exists at crisis time, but it is not “normal”. The mother plant concept is the right one in as much as it provides a structured framework for API/DP relationships, a formal structured and organised process (PAR-Mngt-6) There is no planned routine mechanism to talk to them (LDN-Mngt-4).

Appropriate balance of the team structure also needed to be considered to make sure that the teams were at the right level. This involved taking into account the number of people and the levels from each site:

When she goes to LDN, she's the only one vs. fifteen English people. So it's a matter of weight (PAR-Mngt-2) You should in theory have the same number of people from PAR-LDN at the same level attending the meetings (LDN-Mngt-3) We have to make sure we are being as even handed and equal on both sides because what we really want to do is make sure that the teams are at the right level, design the right solution for both teams (LDN-Mngt-8)

The T-drug leader, who was a pharmacist with five year experience on the T-drug process sat on teams with LDN site management. This was however not perceived as a mismatch by her LDN counterparts.

5.4.3.2 PM issues related to relationship structure

There was historically a high people turn over at LDN. This was disruptive for the relationship for three reasons: (1) it did not allow a stable network of inter-personal relationships to be built across both sites, (2) this directly impacted the routines that supported relationship coordination and (3) the inter-personal relations

1) It did not allow the benefits of previous socialisation to be reaped and was a barrier to networking.

We have invested a lot into some people who have gone (PAR-Mngt-1) We are trying to set up our T-drug network, but this hasn't been made easy by the high people turnover (PAR-Mngt-3) Whenever we start working well with one individual then he leaves and we have to start from scratch (PAR-Mngt-4).

2) Established routines were interrupted.

When she left then there were hardly any meetings. We didn't have any schedules (PAR-Mngt-5) It has not been so strong, with the changes that have happened since then (LDN-Mngt-8).

3) The lack of personal relationship made it more difficult to relate.

This de-personalises the relationship, so that it is only an administrative one. You tend to have a contact only in case of issues and also it makes it more difficult to use the phone to call your interface in order to understand what's going on (PAR-Mngt-6) there are very few of them who have actually met or spoken to (them) on the phone and so they have not got that communication, they have never had it because it has not been there (LDN-Eng-4).

One consequence was that the contact points were not clearly identified. Indeed, there was a lack of clarity for some informants who their direct interface should be at the other site.

I am not clear at the moment who the right person for me to deal with is (LDN-Mngt-8). Because of the amount of changes within the (shift) management team I think PAR have lost sight of who to contact if they need to regarding an issue or a problem (LDN-Eng-4).

5.4.4 COORDINATION MECHANISMS

5.4.4.1 Coordination mechanism dimension

The mechanisms that regulated the collaborative efforts within the PAR-LDN Oncology SCM relationship were centred on the coordination of D-Synth and T-drug supply. The supply of D-Synth was straightforward sequential coordination.

We have an inventory, LDN orders and we supply (PAR-Mngt-1) Effectively for the active material we just place our orders and the material arrives (LDN-Mngt-1).

Where PAR and LDN needed to work together was on the definition of inventory levels. Indeed the D-Synth cycle time was rather long (up to 210 days) and therefore could not provide a fast response in case of large variation in the sales forecast scenarios.

Unlike D-Synth, the supply of T-drug solution required mutual adjustment, because of the very tight time-frame (35 hours) between the manufacturing in PAR and the filling operation at LDN. The coordination of the physical product flow was done through the shipment of empty sterile vessels from LDN

The tight interdependence that characterised these operations could be viewed as an element of reciprocity as well as a source of tension within the PAR-LDN relationship. The partnership between PAR-LDN was described as being grounded in the operational collaboration between both sites.

The commercialised drug product is made by LDN. PAR is a contributor to the manufacturing of this drug product. So the partnership is de facto (PAR-Mngt-6) The partnership is that we send them vessels so that they can manufacture into and then they send the vessels back. I think it is a good working relationship where we both understand each others needs and the need meets in the middle with T-drug ending up in LDN (LDN-Eng-4)

This was true for logistics coordination as well as for the co-operation that was required to jointly resolve the technical issues. Indeed, in that respect the communication was perceived as being fully centred on joint problem resolution rather than on elements that were more negative.

As long as we deal with technical topics, even though we're aware of politics in the background, we're able to make propositions that are logical. This kind of approach involves getting closer de facto (PAR-Mngt-4) If we have a technical issue that we need to argue, we openly argue but it's a positive argument. It's an argument towards a conclusion and there's no hidden agendas .. and it interacts in the way it should interact (LDN-Mngt-8)

In fact, because of the tight interdependence, collaboration was perceived as an indispensable characteristic of the PAR-LDN relationship to ensure that appropriate product quality, supply and regulatory requirements were maintained throughout the SC.

If people are working together, and they do not collaborate well, even if all procedures are followed, one day or another there could be a mistake or a problem with quality or a dysfunction (PAR-Mngt-1) We're both going to be putting product down on the market that we need to be sure is exactly what it is supposed to be. So if you don't have the right amount of collaboration you can end up ultimately with diverging processes and potentially diverging product quality (LDN-Mngt-4)

The recently signed contract with an outside contractor (OC) introduced a new player within the PAR-LDN Oncology SC, as most of the PAR T-drug production would in future be filled by OC rather than by LDN. Thus, "there will be a lesser relationship with LDN as a manufacturing site and PAR as a manufacturing site" (LDN-Eng-1). The perceived implications were a greater stability, driven by the contract and increased clarity and communication:

It could be a good outcome as it drives a clarification, whereby LDN would be self-sufficient and PAR could supply OC. Things are going to be much more clear as we will work with OC and no longer with LDN (PAR-Mngt-2) It will affect in probably there will be a more global communication between LDN, PAR and OC as well (LDN-Eng-1).

Causes of frustration between the two sites were at the level of the task coordination, such as quality and availability of the vessels. They also centred around the high number of schedule changes and late batch cancellations that had an impact on the internal PAR operation.

The PAR internal operation was impacted by the schedule instability as well as by the lack of forward visibility of production volumes. Indeed as the schedules varied, there

was a need to increase or decrease the level of staffing at operator level within the T-drug unit, and this had two implications: 1) Heavy demand on the operators, who were requested to make changes to their work organisation with an impact on their private life. 2) Potential loss of operator process know-how if the activity level was too low.

People do not want to work like crazy for three months and then no more production for six months, so that people are moved to other units, they have to change jobs or units (PAR-Mngt-1) We now need some kind of assurance so that we don't go from 2/8 to 3/8 every month. This is too damaging for family life and very risky for social climate (PAR-Mngt-3)

What was currently missing, from the PAR perspective, was a yearly production programme for T-drug that would allow better coordination of the internal operations.

A production plan, which would not be on a short-term basis but rather planned on a yearly basis (PAR-Mngt-1) Currently we do not have any supply contract and we would need one (PAR-Mngt-3).

From the LDN perspective, there were three reasons why the T-drug production schedules were difficult to set up and to adhere to: 1) Uncertainty around the Sales forecasts 2) Increase in volumes of the C-drug product line, which was using the same filling line as the PAR T-drug 3) lack of schedule adherence within the LDN internal operation.

if something's just a couple of hours late they can lose a whole day because they daren't start another batch in case it's a little bit late because they have to be ready when the PAR batch lands (LDN-Corp-2) Supplying more solution will directly adversely effect our C-drug production because it doesn't work fitting it in on the line (LDN-Mngt-8).

5.4.4.2 PM issues related to coordination mechanisms

There was overall agreement both at PAR and LDN that the lack of understanding of the other plant was detrimental to the PAR-LDN relationship. Indeed there was the feeling that being aware of the other party's problems could reduce the level of tension within the inter-site relationship (see Table 5.3).

PAR perspective	LDN perspective
Indeed they have problems, they have C-drug, they have lots of things to manage, but we do not see that. So until we understand the other party's problems, we can't be aware of them, and this distorts the relationship (PAR-Mngt-2)	In those discussions that will need to recognise what are the needs of PAR, what are the needs of LDN and how do we factor those (LDN-Mngt-2)
We have a better understanding of LDN's concerns. For example in terms of line capacity, it is not easy for them to insert PAR batches on the packaging line. So once this is explained, we understand it better (PAR-Mngt)	that's where she has proved very useful because she sat down with the LDN team and because she's very knowledgeable and understands the supply chain properly, she really aggressively challenges and went through, why didn't you do this, why did you do this, and it was like oh, OK, lets go through.
They don't make only our product, they also have C-drug. They have several manufacturing units. So they have production constraints and other knowledge (PAR-Op-2)	We do not necessarily know exactly what is being involved and what issues they do have so if you can talk on an honest and trusting platform then you would just get to know more and more what was happening at either site and think well this happened there and take note (...) It will be useful for PAR to understand a little more why we have the problems that we have (LDN-Eng-1).
	So it's just always good that if you're receiving

	something from somewhere that's critical that you're aware of their problems as well (LDN-Eng-2)
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Table 5-3 Mutual understanding of the other site

5.4.5 LOCUS OF DECISION MAKING

5.4.5.1 Locus of decision making dimension

Defining the locus of decision-making involved clarifying who made decisions within the PAR-LDN relationship, and what process was followed to reach those decisions. Because of the fact that the two sites were very independent and had a separate goal setting, the decision making processes were perceived as being separate:

Probably more decisions made individually (LDN-Mngt-7) I do not see many joint decisions being made. Independent I think, at the moment that is how it is (LDN-Mngt-8).

Joint decision making was forced at operational level, to coordinate production schedules between the two sites, this took place between LDN planning and PAR T-drug leader, but "it's the nitty gritty, looking at the schedule and determining the detail between myself and her" (LDN-Eng-3). But the higher-level strategy pertaining to the split of yearly T-drug volumes was not clearly articulated.

I'd like to know who decides upon the split between LDN and PAR and based on which criteria (APR-Mngt-2) But what isn't defined, which is a really interesting one, which sounds like a very simple question is: "What is the strategy with regards to LDN or PAR manufacture solution?" And there was a sort of stony silence and I said "Well, do you know in my time here, I've never heard of a strategy ever (LDN-Mngt-3).

The decision about this split had a big impact on each site profitability because of the high value of T-drug. Therefore, it was at the heart of the inter-site conflict, inasmuch as it was perceived from both sides as impacting not just the short term budget, but as well the long term survival of each plant. Indeed, depending on the demand scenarios, there may be a context of over-capacity for T-drug.

Perversely, despite the fact that T-drug demand is going up, the demand in numbers of batches is going down because we're constantly producing bigger and bigger batch sizes (LDN-Corp-2) The bottom line is we have excess capacity and if you have more capacity than you can use the question comes in well who gets to make what we need to make (LDN-Mngt-4)

One perceived consequence of the separate site goals within the PAR/LDN relationship was that this might favour a local vs. an overall Tyrenco perspective.

Decisions are made which are not for the benefit of the company (PAR-Mngt-2) Too focused on their own local needs rather than on thinking more globally (LDN-Mngt-2) I think people were probably trying to defend an individual site solution and I don't know if we did a good thing, OK lets take all those options and apply a Tyrenco criteria to them (LDN-Mngt-4).

There were different interpretations of the "Mother plant" concept and whether it involved having a lead site vs. a co-ordinating site. This had different implications in terms of the approach to decision making and how much participation was allowed from both sites.

What is difficult with this relationship is that there is one party, which is the order giver and one party, which is the order taker. So therefore there is one party, which has more control over the relationship than the other one (PAR-Mngt-2)

The perception of asymmetry in the PAR-LDN relationship was due to the fact that LDN was seen as having a higher control over the governance of the exchange than PAR, even though there was no perceived difference of status between both sites. Indeed T-drug was initially developed in PAR, so that this site was seen as having as much technical ability and knowledge of the product as LDN. The imbalance was centred around the decision-making concerning production planning as well as on the early understanding of the “Mother Plant” concept, which was perceived as “dominant plant”. However, joint participation in the decision making process was justified by the similarity of status and the history of the PAR-LDN relationship where both sites were equally contributing to the T-drug product.

They are two large sites, with similar complementary resources. The relationship should not be that LDN dictates on PAR. It should be a more open, mature relationship (LDN-Mngt-2), There is equal experience among the 2 sites so we’re starting from a different starting point. So for LDN and PAR the mother plant needs to be more of a collaborative versus an expert giving support to, you know mother and parent child sort of thing (LDN-Mngt-4)

The SPAN and Mother plant programmes were providing a framework for clarifying the decision making process within the PAR-LDN relationship in that LDN was defined as the “Mother plant” and as such had a lead role in terms of SC planning (SPAN), technical documentation and process coordination (Mother plant). Thus to some extent there was agreement on responsibility for decision making:

The only decisions we have to make are related to D-Synth procurement (PAR-Mngt-1) It’s rather clear, it’s LDN who decides what PAR will formulate (PAR-Mngt-5) With regards to QA, mother plant should clarify responsibilities (PAR-Mngt-6) I suppose the decisions will flow naturally out of SPAN and that group has to accept it and buy it and go with it (LDN-Corp-2)

Informants saw three pre-requisites for an efficient decision making process to take place within the PAR-LDN relationship:

- Firstly, PAR people were adamant that there should be clear rules to guide the decision making:

Who decides and based on which criteria (PAR-Mngt-2), Rule of the game is clearly stated and accepted by everyone (PAR-Mngt-4), Clearly identify the respective prerogatives (PAR-Mngt-6), decision making clarity (LDN-Corp-2)

- Secondly, decision-making should involve a dialogue:

I can’t imagine that it will not be accepted bi-laterally, there should be some kind of negotiation (PAR-Mngt-4) handled through joint meetings (PAR-Mngt-5) good communication back and forth (LDN-Corp-1) a workshop environment to discuss and start to agree(..) a process where both sites are involved to put forward what the impact of a particular decision (LDN-Mngt-2)

- Finally, impartiality should guide decision making:

Ideally, there should be fair play; Not being egoistic (PAR-Corp-1) Without any favouring of any of the parties (PAR-Mngt-4) Work with PAR on that so they believe

and LDN believes that the solutions (..) are the best for the business, taking into account the needs of both site (LDN-Mngt-2)

An outcome of the joint participation should be a shared ownership of the implementation:

There should be shared responsibility and ownership (PAR-Mngt-6) So it's not so much a decision making process because that has to happen, but it's a clarifying what it means and then making it happen, so it's an ownership of the execution (LDN-Corp-2), Getting a common view of what is the best business solution and jointly agreeing to that and going forward (LDN-Mngt-2).

The Steering committee or Oncology Leadership Team was presented as the right forum for joint decision making within the PAR-LDN relationship:

Make decisions on key points related to the long and mid term site management (PAR-Mngt-1) That would be the arena for the decision making (LDN-Corp-2), a steering committee which will effectively constantly review the PAR-LDN split (LDN-Mngt-3).

There was a consensus, across levels and across sites, about the fact that escalation of the decision making process through arbitration, should be sought as a conflict resolution mechanism.

What would be nice is that a high level person comes to arbitrate (PAR-Eng-1) How do you want to discuss the fundamental issues? If you want to do that, then you call upon someone from above, who arbiters (PAR-Mngt-2) Where there is a disagreement between those 2 you have to seek higher resolution (LDN-Corp-2) there needs to be an escalation, you know, perhaps a process if they don't manage to agree. (LDN-Mngt-3) it needs a degree of facilitation to make that happen or it needs some kind of approach above (LDN-Mngt-8) those kind of decisions where both plants are affected are going to be made at a global level rather than by LDN or by PAR in discussion.(LDN-Eng-1)

One difficulty was to identify such an arbiter. Indeed, with the existing organisation structure, there was no common hierarchical head, since the two sites were reporting into two different regional heads. Hence, the next level, where an impartial view could be sought was at Industrial Organisation (IO) level. The new product leader organisation was going to provide such arbitration.

5.4.5.2 PM issues related to locus of decision making

One issue that was raised with respect to decision making was the neutrality of the "transversal" jobs that involved decision making within the PAR-LDN relationship: "the role is going to have to be and appear to be neutral to both sites and not seem to be favouring (any party)" (LDN-Mngt-2). Thus, the Strategic SC leader was meant to provide some arbitration within the relationship. However, this manager was located in LDN and to this extent was not perceived as being neutral by the PAR management:

The person who was due to manage this whole SC was not located in a neutral area but in LDN (PAR-Corp-1) It is difficult to be located within a site and represent the other sites (PAR-Mngt-1) It's difficult because the company has chosen to put 2 global people in (PSCM and Strategic SC leader) and both global people are English and based in LDN (LDN-Corp-2)

Disconfirming evidence was also collected, that claimed the neutrality of the role.

For my SPAN role, I don't work for LDN anymore, I work for Oncology. I'm not putting a LDN hat on, I'm not putting a PAR hat on (LDN-Mngt-3)

5.4.6 TOP MANAGEMENT COMMITMENT

5.4.6.1 Top management commitment dimension

Relationships at site management level were perceived as being rather good within the PAR-LDN relationship, although only to some degree.

Our top manager says that his counterpart is very open about the LDN situation. So this is good because this means there is some transparency between both of them (PAR-Mngt-2) I find them rather co-operative; doubtful, but co-operative (PAR-Mngt-4) In my opinion I think they dealt with it decently (LDN-Mngt-3) (they) seem to be having a lot of dialogue (LDN-Corp-2) I think they have a reasonably good one to one relationship (LDN-Mngt-6).

There was clear indication at both sites of local commitment to the Oncology product line, although the actual commitment to the relationship across both sites was not perceived as being visible.

Our director is committed, but not the English people (PAR-Eng-1) I have not seen any visible commitment, but that is not saying it is not there, I am saying I have not seen it (LDN-Mngt-7) It is not something I am terribly aware of. I think there will always be some competition at the top level like that (LDN-Eng-1).

The current organisation structure did not facilitate close relationships between the PAR-LDN site management groups.

They were due to meet and they never managed to (PAR-Mngt-1) Do they have joint site heads meetings? No. They have North South Europe site heads meetings (LDN-Corp-3) If they do want to work together, the how was within Tyrenco is difficult (LDN-Mngt-6) although there are no common elements of that at the moment that bring PAR-LDN together (LDN-Mngt-6).

Thus, top management involvement in the relationship appeared to be driven by the need to resolve issues.

My involvement (..) is contingent upon the number of issues (PAR-Mngt-1) There has been a change with the T-Drug crisis. Before that there was little involvement from PAR site management (PAR-Mngt-2) Perhaps as a result of the impact that some of the technical stuff is having, he has become more involved (LDN-Mngt-2).

Clear and visible collaboration at leadership level was perceived as being a key enabler for a broader perspective to be developed within the PAR-LDN relationship, looking beyond the individual site view.

Once we get a common message being sung by the leadership or the key interactions, we can then look for some interesting whims (LDN-Corp-2) I think it would be a more powerful message if there was a clear joint leadership on some of the issues. . Because I think that would send a signal to the teams below that that's what's been looked for if jointly working together to get company solutions, not working in groups to get LDN or PAR solutions (LDN-Mngt-2) Shared prioritisation for the SPAN project, for mother plant and for other things (LDN-Mngt-8).

Corporate leadership could have had a more openly stated position and a role to play in terms of supporting the interaction between the two sites.

It's not clear what (his) position is with regards to the PAR-LDN relationship (PAR-Mngt-5) Everybody is committed to the fact that we need to have a relationship, but I have not seen anybody at the senior level that is able to put any tangible words behind

that, so in other words to say this is how the relationship should be and associated with that this is how the relationship now is (LDN-Mngt-8).

5.4.6.2 PM issues related to top management commitment

Communication at shop floor level had a particular impact. Indeed leadership played a role in influencing the operators' perception of the relationship, with the operating room acting as a resonating body that amplified communication or lack of communication. This was particularly the case when there was a significant change, such as the introduction of OC as a new player in the relationship.

Certainly an operator finding out that there is another manufacturing and filling site can throw some nervousness (LDN-Eng-1) I've heard through the grapevine that PAR are actually, well not PAR itself but OC would be filling the product as well, which you can imagine is a little bit worrying for operators on the site (LDN-Op-1)

In PAR, frustration about the LDN site had reached a point where the decision was made at management level to restrict communication to operators about the relationship with LDN and LDN performance. Indeed tensions experienced by supervision tended to permeate the operator level.

The weariness felt by the PAR production leader may have led us to communicate too much with the teams about the issues at LDN (PAR-Mngt-1) It is important that relationships are good at management level. Once we feel good about LDN, then we will be able to communicate this to our teams. Because when we get frustrated, it shows (PAR-Mngt-2).

5.4.7 COMPATIBILITY

5.4.7.1 Compatibility dimension

It was not the purpose of this research to study in depth the elements of culture and corporate philosophy that influenced the PAR/LDN relationship. However it was important to understand how these elements were perceived to enable or inhibit harmonious relationships between the two sites.

It was interesting to compare some of the comments that the PAR and LDN managers and employees were making about each other. Indeed these comments could either reinforce or contradict each other with a mirror effect. This was illustrated by the following comment: "Sometimes we feel we're "all white" and the others are "all black", whilst in reality it's interesting that the picture can be reversed".

What PAR people say about themselves & French people	What LDN people say about themselves & English people
<p>Rational approach</p> <p>We have a different view of the world. French people are more factual and analytical and more Cartesian (PAR-Mngt-6)</p> <p>A rational approach I mean stating the issue, raising questions, answering them, working together, taking action plan (PAR-Mngt-1)</p>	<p>Defensiveness</p> <p>we are less defensive we are more open and more willing to admit to things that may be wrong (LDN-Mngt-7)</p> <p>the English are stiff upper lipped, we make mistakes and will not admit to any mistakes (LDN-Eng-4)</p> <p>Management style</p> <p>In the English management culture you can tell, you can instruct and you can be directive a large part of the time and you can get results that way</p>

	<p>(LDN-Mngt-5) the English culture, they take longer to agree to something but once they have agreed to it they will do it (LDN-Eng-5). Local site culture It was at the time a genuine local site culture (LDN-Mngt-1) The LDN pride has a nickname as fortress LDN because at one point it was a very insular and self-contained site (...) although it's diluting as people come in, I guess (LDN-Mngt-2)</p>
<p>What PAR people say about LDN & English people</p>	<p>What LDN people say about PAR & French people</p>
<p>Defensiveness The UK character is such that we never really had conflicts, they seemed to hide them (PAR-Mngt-1) Defensiveness of LDN people. They are very good at being defensive because they have mastered the English language (PAR-Mngt-3) English people do not communicate the same way as we do, they will not spontaneously say what's going on. English people are very insular, they keep their information for themselves and it's difficult to communicate with them (PAR-Mngt-2). Rational approach English people are looking less at this kind of thing (being factual). It's not easy to describe, but I do think it's important (PAR-Mngt-6)</p> <p>LDN local site culture a very strong local culture (PAR-Corp-1) LDN was a closed fortress, where information sharing wasn't easy. (PAR-Mngt-6)</p>	<p>Defensiveness There is less openness with the French people, if you ask a question there is an assumption that we do not trust somebody else purely because we are asking a question. An acceptance that the problem is a joint problem that needs to be resolved as opposed to there is a problem at PAR or at LDN, so it is very insular, to use an English word. (LDN-Mngt-7) ..The French to me are equally as hard I think where the mistake is our mistake not their mistake, so I believe. I think they will blame us more than accept blame themselves (LDN-Eng-4). Management style In France, my experience of working in France, is you don't tell people what to do. You sell and persuade first (LDN-Mngt-5). European culture is very much a 9-5 routine and people work those areas it can be difficult not to do that and also the time difference (LDN-Eng-1) The English perception of the French is that they have too many bank holidays and they're not flexible because of the labour laws etc., they won't do this and they won't do that (LDN-Eng-3). the French people seem more willing to agree to things and then maybe not do them (LDN-Eng-5). API (perspective is that) API is just this fortress, a separate business to the rest of the company (LDN-Corp-2) the API is separate from the DP organisation (LDN-Mngt-2).</p>

Table 5-4 What they say about each other: similarities and differences between the Paris and London sites

The following similarities were identified between the two sites:

Both sites and both cultures are very independent and at times too independent in terms of their culture (LDN-Mngt-2) One is traditionally English and one is traditionally

French, in other words it is beyond just English/French, here LDN to me suffers by being very traditionally hierarchical typically old English approach and my perception of PAR is probably very traditional French as well (LDN-Mngt-8).

There did not appear to be agreement amongst informants, as to the importance of the cultural element, within the PAR-LDN relationship. Perceptions ranged from high impact “I think culture is probably one of the biggest influences in our organisation”, “huge cultural impact”, to a less central one:

The cultural element is a component that adds to the complexity. That’s not the main one, but it adds to complexity (PAR-Mngt-6) I would be disappointed if it was just something as simple as English/French because I don’t think it is that (LDN-Mngt-8) Obviously the language and culture are barriers, it is not as significant as maybe it could be (LDN-Eng-1).

5.4.7.2 PM issues related to compatibility

The Tyrenco values were recognised as one way in which the corporation encouraged inter-site collaboration:

This would be about creating networks, socialisation and transparency between people as well as more direct exchanges than through meetings. This is also about knowing each other better (PAR-Mngt-1) Very much so. The two that particularly come into play would be respect for people in terms of ways of working and the second is from a networking point of view (LDN-Mngt-6) Definitely. Quick decision-making, so things don’t stagnate. Honesty is a big one personally for me. Team-working (LDN-Eng-3).

However there might be a need to reinforce the role of values within the PAR-LDN relationship:

I still feel that there is a lot of work to be done to improve the relationship, maybe to act with the Tyrenco values of Open & Honesty (LDN-Eng-1) If we were following all of the values that Tyrenco and that the CEO has put forward then yes those values would help us in terms of the relationship between PAR-LDN (empowerment, respect for people) I don’t think I see any disrespect but if we applied the values more it would help us (LDN-Mngt-2).

A summary table of characteristics and PM issues is provided in table 5.5 below. This table highlights in blue those actual characteristics that matched the “specific” characteristics of reciprocal supply relationships and in red those that do not match those specific characteristics.

Dimension	Actual Characteristics of the Tyreco relationship	Related PM issues
Goals	Customer service (C/S) and joint operational coordination as shared goal although C/S measures different portions of the supply chain. Joint overarching goals: Strategic product and cancer application. No explicit strategic direction for the relationship. No joint operational goals; separate organisation structure. Local site objectives (inventory and budget) as source of conflict. Competition around product allocation, no win-win. Conflict is covert rather than overt. Market approach to inter-site exchanges as “jokes, stupid, silly, irrelevant”. <u>Urge for goal setting process: clarity and coherence, compatible. SPAN as enabler.</u> Potential joint objectives at global level. Product leader as providing alignment for inter-site work.	Rewards based on site goals, which are conflicting goals as source of tension Disconfirming: You can't say that shared objectives and say shared rewards would be a bad thing. I am struggling to find out, to think of positive reasons why. But it can't be bad
Information sharing	Lack of transparency on both sides linked to a lack of interaction: production schedules, forecasts and technical data (PAR). Opaque, no sharing of problems. Through lack of interaction, no “natural inclination” to communicate (LDN). Focus on own site, organisational separateness. Other barriers to data sharing: no enterprise-wide technology, uncertainty of demand information. SPAN supports end-to-end visibility and information symmetry (PAR). Product community entails a collaborative approach. Joint planning meetings are organised beside SPAN. Enhanced collaboration due to T-drug quality issue.,	Language as an issue (understanding subtleties). More difficult to communicate over the phone than face-to-face.
Relationship structure	Past relationship based on single point of contact. Lack of interaction at functional level (manufacturing) hence missed opportunities for learning and problem solving. Contact points not clearly identified. Strong interface defined for SCM (SPAN). Good interpersonal relationships with disconfirming data Interest of broad vs. narrow relationship structure. Desired: Identify key contact points. Need to “institutionalise” the interaction so that it does not occur only at crisis time. Balanced team structure (number and levels)	Impact of high management turnover at UK plant: barrier to networking, established routines are interrupted, negative impact at inter-personal level.
Coordination mechanisms	Polar view: reciprocal: Operational coordination (“ <i>de facto</i> ” <i>partnership</i>) and collaboration around joint technical issues (“no hidden agenda”). Collaboration as indispensable characteristic. Contract with OC improves clarity and communication Polar view: Frustration around task coordination and negative impact on both sites internal operations and with PM implication for PAR. Lack of yearly production programme for T-drug. Competition over the allocation of T-drug. No mechanism to encourage inter-site collaboration on PM.	Lack of understanding of the partner's operations.
Locus of decision making	Joint decision making at operational level but lack of clear strategy for T-drug allocation. New framework for decision -making (SPAN and Mother Plant). Separate decision-making. Perception of imbalance and asymmetry around decision making on T-drug production planning and early understanding of Mother plant concept as “dominant”. Recognition of local, parochial rationale vs. “overall company benefit” Desired: Joint participations in decision making justified by similarity of status and equal contribution to T-drug. Desired: clarity of rules, dialogue and impartiality, to allow shared ownership of implementation. Steering committee as forum. Arbitration as conflict resolution mechanism.	Issue with authority and neutrality of transversal jobs. More difficult to communicate over the phone than face-to-face.
Top management commitment	Commitment to Oncology (but not perceived across both sites). Relationships at site management level are fairly good. Organisation structure does not foster close relationship at site management level. Recent issues have prompted more management involvement. Desired: visible collaboration at leadership level. Lack of visible commitment at corporate level.	Need specific communication at shop floor level as it amplifies either too much or lack of communication
Compatibility	Comments about the other site could either reinforce or contradict each other with a mirror effect. No agreement on the importance of the cultural element.	Values need to be reinforced to support the inter-site relationship

Legend: In blue: matches the “specific” characteristics; In red: does not match “specific” characteristics

Table 5-5 Summary of characteristics and PM issues

5.5 THE PM PRACTICES IN THE SUPPLY RELATIONSHIP

This analysis now turns to the study of the evidence pertaining to PM practices. Whilst PM issues were referred to in relation to each dimension of the relationship, this section aims to align these PM issues with the different PM practices, namely: staffing, job design, appraisals, rewards, training, socialisation and communication. The section ends with a summary table of PM practices within the supply relationship.

5.5.1 STAFFING

As mentioned earlier (see Relationship structure), high management turnover at LDN site was perceived as an inhibitor within the PAR-LDN relationship. Transferring employees from one site to another was a practice, which could be envisaged within the PAR-LDN relationship, provided that the person had the relevant technical expertise “It’s only really in solution manufacture that there are common skills I guess” (LDN-Mngt-3) as well as the necessary language skills and mobility.

A French person in LDN would understand what’s going on and would be able to buffer with regards to the French people and have a better understanding of the situation and this would really help (PAR-Mngt-2). It would be nice if there were someone who had worked for V but then would come to work at D as a transfer and vice versa. (LDN-Mngt-3).

Selection criteria for jobs that interfaced within the relationship could include language as well as specific relational competences:

A certain personality to be able to discuss and be recognised (PAR-Mngt-4) You need somebody in that role who has the depth and breadth of experience, the maturity, the tenacity, the resilience (LDN-Mngt-5).

However, internal requirements appeared as the main drivers for recruitment:

I’m not sure if I would rather they didn’t choose the best person for the job in favour of someone that spoke the language (LDN-Mngt-3) It’s a double-edged sword so my preferences and list of criteria I would prefer somebody who could speak the language but the criteria on which I select who does it, other things come into play (LDN-Mngt-6).

Like most PM practices within the PAR-LDN relationship, staffing appeared as an internal issue, which did not involve any communication or consultation with the other site:

When we consider recruiting 4-8 additional people, this is a site issue (PAR-Mngt-4) In an ideal world yes but do we at the moment, no! When we’re recruiting people we need to ask other people but at the moment that tends to be management off-site or functional managers rather than another site (LDN-Mngt-2) I don’t think there would be a lot of merit in us advising each other or consulting each other in regards to recruitment (LDN-Mngt-3).

5.5.2 JOB DESIGN

“What are the major organizational impacts of SPAN ? Roles, responsibilities and relationships will change” (SPAN information pack).

New programmes, such as SPAN or Mother Plant, impacted the job design within the PAR-LDN relationship. Indeed new roles were created with end-to-end, transversal

responsibility. One implication of such roles was the issue of neutrality of transversal jobs, that was referred to in relation to locus of decision making.

The transversal aspect of strategic SC leaders also involved information sharing transparency and overall system coordination in order to remove the organisational barriers (PAR-Corp-1) The job title tells me supply chain is end to end (LDN-Corp-2) that role needs to be out and about, and the key role in the team is actually making sure that all of those other sites feel part of the team (LDN-Mngt-1) It was outside of the oncology in LDN because I did not want to have undue influence on that job (LDN-Mngt-4)

Job design appeared as a critical people management practice to support the relationship coordination. Indeed, the SPAN project defined an ambitious task for the new PSCM role, which encompasses the whole SC:

This new role across traditional geographical, legal and site boundaries, requires skills and power to ensure the proper collaboration and consensus building through a tight schedule (SPAN doc)

The originality of the job was that it did not only operate on one site. Together with the SC Leader role, it was thus expected to provide better end-to-end coordination of the SC, and this was recognised as beneficial by personnel with supply chain responsibility: As such, this new role could be seen as an ambitious first attempt at allowing people management processes to act as actual coordination mechanism within the PAR-LDN relationship.

Horizontal role of taking into account customer demands, checking with DP and with outsourcing and PAR and API and vegetal raw material. So far there was no one having this overall view (PAR) I work for Oncology. I'm not putting a LDN hat on, I'm not putting a PAR hat on (LDN) I'm not LDN or PAR, I'm the whole thing (LDN)

In addition to that, existing responsibilities were being broadened. Thus, with SPAN and Mother plant, existing LDN site roles were to some extent expanded to include overall supply chain responsibility: "I have overall product responsibility for making T-drug", "a big aspiration that the SPAN project has is that I as a site manager would be accountable for the full supply chain for these products". Similarly, roles, which were so far centred on the internal site operation, now involved new external interfaces.

Intervene as a key player for the PSCM and all other SC staff (PAR-SCM job description). Primarily the technology jobs, the QA job within the oncology unit here in LDN will change because those jobs will specifically have the external interface defined for them (LDN-Mngt-4)

A central concern for programme implementation involved role clarity workshops to define roles and responsibilities for the management of the interaction across both sites.

A team based activity which will pull these people together to clarify the goals, the processes and in terms of role clarity (LDN-Mngt-6) What are the responsibilities, what are the accountabilities, who are the key people and that as a first point I think needs to be done (LDN-Mngt-7).

Roles and responsibilities also needed to be clarified, especially for those individuals who had an external interface across both sites.

Primarily the technology jobs, the QA job within the oncology PPU here in LDN will change because those jobs will specifically have the external interface defined for them (LDN-Mngt-4) I think the key thing that has to be established is this mother/daughter

plant relationship and what are the responsibilities, what are the accountabilities, who are the key people (LDN-Mngt-7) I want to have is transparency of the SC and clear roles and responsibilities along the way (LDN-Mngt-8)

However this was not a smooth process, in that defining roles and responsibilities required prior definition of other elements of the relationship, which had not yet been jointly identified: “the process of the roles and the relationships are only meaningful if they align to the common goals.” (LDN-Mngt-6).

The new product leader role was defined so that they had the “calibre and the power” (PAR-Corp-1) to make decisions that pertained to the whole product line: “have the weight and the credibility”(LDN-Corp-2). Thus, it was clearly established that “The product leader is a leader, not a co-ordinator” (LDN-Corp-1).

The product leader will fill this decision making void because you’re going to have someone in a suitable level in the organisation reporting directly into an IOMC member who will be charged with not just analysing and making recommendations, we’ll have somebody who will make decisions (LDN-Corp-2)

Job design was viewed as a PM process, which was handled separately by the two sites and from a hierarchical perspective, “there are no roles that cut across the two plants” (LDN-Mngt-6)¹.

5.5.3 PERFORMANCE APPRAISAL

There was currently no overlap between PAR-LDN in terms of performance management system (PMS), no shared objectives or feedback mechanisms. Indeed collaboration on PMS was only possible in a context where a clear goal setting process would take place between both sites.

If those goals are ones which require collaboration on both sides, that is that the goal couldn’t be achieved without both sides being successful, then you can do it through the normal PMS (LDN-Mngt-2) Setting objectives for next year, reflecting some co-teamworking objective, actually proves enormously difficult to articulate without having clarity around goals (LDN-Mngt-6)

Possible avenues for such goals could be driven by programmes (SPAN, Mother Plant) or product line and would require as well joint performance tracking.

We should introduce joint product line objectives, so that people are, in a sense, condemned to work together. Today this does not exist (PAR-Corp-1) We must share objectives, shorten the planning cycle etc, reduce inventory, and obviously the customer service objective (LDN-Mngt-3) Joint performance monitoring and feedback and a routine lets say quarterly leadership type discussion where we both look at key performance data (PAR-Mngt-4).

The relational side of the management of the PAR-LDN relationship should also be included.

there could be something around the acceptance that the other party may have a problem, without blaming them (PAR-Mngt-1) Get the softer issues as well as the tough measures (LDN-Mngt-8).

¹ This however is no longer true. Indeed, as of September 2002, the PAR T-drug leader is now reporting into the LDN site manager.

Once the top-level goals were agreed for the PAR-LDN relationship, they could be cascaded down to individual level “individual working type groups with people who are actioned to do something about that on a more frequent basis” (LDN-Mngt-4). Feedback from the other site about the individual’s performance could be sought, provided that there was a significant amount of the total performance that was based on the interaction.

It should be transparent and also it shouldn’t only be positive feedback, which would be biased. Culturally as well, we should be ready to accept not just the strong points, but as well the improvement areas (PAR-Mngt-1) Since we are product oriented, it should be the case. Today this is not (PAR-Mngt-4) I’d ask for feedback on that sure (LDN-Mngt-4) That would be good. I think I want to be open and if (they) have got any concerns with anything I’m doing and vice versa I want to hear it (LDN-Mngt-3).

Management commitment to the joint objectives was viewed as a pre-requisite for its prioritisation.

If the boss doesn’t think that it is very important... (PAR-Mngt-1) If you don’t have it on there somewhere it is quite likely they won’t do it, so we would have to make sure that happens, sure (LDN-Mngt-4) Whoever is appraising that manager, placing enough weight on it as an objective (LDN-Mngt-6).

Preferred route is via the existing management system:

I don’t think you necessarily need to say we’re going to have a joint performance system for the two sides. You can use the existing system but you can use common goals on it.(LDN-Mngt-2)

5.5.4 REWARD MANAGEMENT

Rewards, based on site targets that were conflicting, were discussed in relation to goals. A key piece of the expected success of the new product-aligned organisation was the fact that a large percentage of the personal bonus for some key individuals would be based on results of the whole product team goals. Thus shared product line objectives would be developed across the end-to-end SC and cascaded down across the organisation.

Some of the key people at each site will be on a supply chain that will be on a product team and 50% of their bonus, personal bonus, will be based on the results of the whole product team goals, and not their site goals. So in that sense some people in the site will actually have shared goals. The whole performance of that products supply chain will determine their bonus (LDN-Corp-1).

Having shared objectives that referred to the relationship was perceived as desirable, in that it was a large enough part of the employee’s activity. The effect would be to encourage collaboration and help prioritisation: “It would make people work together” (LDN-Mngt-7), “Personally, if I had objectives to develop the relationship then I would pay more attention to it” (LDN-Eng-3). One key element would be to include relational objectives, beside the more business oriented ones.

I think there could be something around the acceptance that the other party may have a problem, without blaming them (PAR-Mngt-1) There should be as much incentivisation about the way we go about resolving problems as there is about the individual end results because we are looking at a process here that should take place over a number of years. You have to get the softer issues as well as the tough measures (LDN-Mngt-8).

A question was raised with regards to bonus within the new product-aligned organisation, and the extent to which rewards at product level could conflict with local site measurements: “A lot of rewards are based upon numerical measures of performance that could in essence be contradictory from a product versus a site perspective” (LDN-Mngt-4).

Thus rewards were managed independently by each site, focused on local performance, with a concern for intra-site rather than inter-site consistency.

Centred on individual and local objectives (PAR-Corp-1) There is an intra-site coherence that needs to be looked at when doing something (PAR-Mngt-1) They would be driven by the site as it stands at the moment because company performance is company performance so half the bonus is affected by that (LDN-Mngt-6).

Recognition of joint inter-site efforts could be envisaged, but only within the framework of the existing performance system:

Financially it would be separate (PAR-Mngt-7) You can use the existing system but you can use common goals on it (LDN-Mngt-2) I would not have thought so outside the normal remuneration packages, and bonus packages (LDN-Mngt-7).

There did not appear to be a policy for recognition at team level: “I don’t think individuals get rewarded for building up a team (LDN-Eng-3), and it might not be necessary either.

5.5.5 TRAINING AND DEVELOPMENT

With the implementation of SPAN and Mother Plant, a number of joint workshops were set up involving both PAR-LDN. These workshops were presented as central PM levers for the programme implementation, in that they fulfilled three purposes: 1) they were forums within which information about the programme was exchanged 2) they acted as socialisation mechanisms 3) they were intended as arena for agreeing on ways of working and processes for future collaboration.

Train, motivate and team build T-drug Product Community (Doc SPAN) Drive implementation of mother/daughter plant processes. Include training needs, roll-out of training (Doc Mother plant).

Until, the advent of SPAN, I had never even met or heard of the supply chain contact at PAR” (LDN SCM)

The mother plant concept is the right one in as much as it provides a structured framework for API/DP relationships (PAR-Mngt-6) Look at a workshop environment to discuss and start to agree the ways of working for how we’re going to do the various things that we have to do technically, to meet the mother plant requirements (LDN-Mngt-2)

Initially aimed at a core group, these training were then intended to be rolled out to a wider audience:

Those training sessions will need to go to the people who are actually working, doing whatever it is whether it is regulatory stuff or quality or whatever (LDN-Mngt-2) Inform and train the persons involved in SPAN implementation (PAR SCM job description).

One criticism of SPAN was that it did not provide enough emphasis for the people dynamics of the programme implementation.

SPAN gives more emphasis to figures than to people (PAR-Mngt-3) One of the downsides of many projects is that they give 90% of focus to systems, 9% focus to processes and 1% to change management to people” (LDN-Corp-4).

Beside these corporate led programmes, there was not much interest expressed for joint training as such, as learning within the PAR-LDN relationship was driven by socialisation more than by formal sessions:

Exchange is the best training (PAR-Mngt-4) When they came over I am sure that that was useful and it is always worth being shown what is actually happening (LDN-Eng-1). For me personally, it would be nice to deal with the person who’s planning over in PAR to see what impact the figures or forecasts or whatever I’m sending to PAR that has. (LDN-Eng-3).

5.5.6 SOCIALISATION

The lack of understanding of the other site that was stressed as a PM issue within the coordination mechanisms dimension was related to a lack of interaction between the two sites. Similarly, lack of socialisation had an impact on the information sharing across the two sites. There was a limited amount of socialisation between PAR-LDN, because of lack of established points of contact at functional level. Moreover, few people were allowed to travel to the other site:

I don’t talk to shift managers, I know their names but I haven’t met them (PAR-Mngt-2) There is not an awful lot of interaction between the sites, I do not feel, I have not actually been to the PAR site and seen it (LDN-Eng-1) It’s like a remote sort of relationship that we have with them that we don’t meet them and we don’t speak to them (LDN-Eng-2).

There was not unanimity amongst informants as to the level and the function of the people who should be in contact. One example was the discussion around whether or not it was relevant to allow people from the operating room to visit the other plant.

In the learning opportunity that’s there, that’s the opportunity to involve people at the process end, whether that’s from an engineering point of view or operator point of view, there’s a learning opportunity there (LDN-Mngt-2).

There was agreement that “you don’t want everybody going across”, and therefore it should be limited to key contacts in each of the functions, with no unanimity regarding an interaction at operator level. Indeed whilst the small sample of operators interviewed within the PAR and LDN T-drug units all expressed an interest in a visit of the other site, there is no consensus at management level:

There’s going to be some commitment to giving people the time and the travel budget to travel back and forth. It won’t be 500 people flying back and forth every month but it will be a dedicated set of formal communication that we’re going to allow to happen (LDN-Mngt-4).

I think if there was a bit more interaction at lower levels in the organisation down to operator level, that would help us with some of the issues and perhaps help us spot some of the solutions quicker (LDN-Mngt-2) The equipment’s different, the language is different, the paperwork is different, you wouldn’t get anything out of it actually I don’t think (LDN-Mngt-3).

Face to face was generally perceived to facilitate inter-personal relationships: “it’s more of a friendly, personal touch so if you’ve got a problem it’s easier to work with each

other on it” (LDN-Eng-3). However, the limits of socialisation were that it could also be perceived as having a short term effect or even a negative one in the absence of trust.

In fact relationships are always very good and friendly when we meet them face to face but afterwards, there’s a communication break (PAR-Mngt-2) Instead of looking for the things that are good to take away they are looking for the things that are wrong; we need to avoid the show boating that can on occasion take place (LDN-Mngt-8)

Short interaction was typically devoted to information sharing, whilst more extended socialisation allowed real know-how transfer and learning.

we could possibly have exchanges between France and UK in order to share knowledge and learn (PAR-Eng-1) They would need to come over here and understand how we operate and we should go there to understand how they operate (PAR-Mngt-2) I think we could learn from what they are doing and then I think they could learn from what we are doing, I do not see an awful lot of that (LDN-Eng-1).

Transfers have been discussed in regards to staffing as a way to build bridges between the two sites. Another proposal is to arrange extended visits between the PAR-LDN sites. This was expected to allow an in-depth understanding of the other operation and thus break down barriers and develop trust.

Exchange jobs, may be in SC or production. We should not just have English people in LDN or just French people in PAR (PAR-Mngt-2) If we allow people to go across.. to go “from one world to the other”, no doubt that it would help have a more mature and adult relationship, with a better understanding (PAR-Mngt-6) If there was someone on either side who has an in depth understanding of the other, that could only improve it, so also I would guess there are going to be areas where they could share best practices (LDN-Mngt-3).

In fact, there was no incentive within Tyrenco to develop inter-site collaboration with respect to people management: “There is no measure that encourages us to do anything (PAR-Mngt-6) I am sure we could collaborate better, I am not aware of any mechanism that we have to do that at present (LDN-Mngt-7).

5.5.7 COMMUNICATION

Two PM issues were identified as pertaining to communication. One has to do with the impact of management communication (or lack of communication) at shop floor level. The other issue raised in relation to compatibility was a need to reinforce the Tyrenco value to support the inter-site relationship.

The leadership of the two sites played a key role in articulating and communicating the “ways of working” within the relationship. It was important that they appeared to deliver a consistent message.

Speaking the same language in terms of how they see it working and the same level of priority (LDN-Mngt-2) Actually getting information that says we need to work differently as 2 sites (LDN-Mngt-4) Shared prioritisation for example for SPAN, Mother plant or other projects (LDN-Mngt-8).

Communicating about the other site and presenting their organisation chart could be proposed as a way to clarify communication lines.

I don’t know their organisation chart (PAR-Mngt-2) People could just be made aware of who they are and what they do (LDN-Eng-1)

Internal communication was a central process for relaying the extent of top management commitment to the relationship.

For those people involved to see a strong collaboration and communication coming from the site director level (LDN-Mngt-2) Shared prioritisation for the SPAN project, for mother plant and for other things so when talking to LDN people here about the importance of SPAN it is at the same level in PAR (LDN-Mngt-8).

Commitment to the relationship may also have involved allowing people management processes to take place between the two sites. This required a willingness and an awareness of the value of the inter-site practices.

One perceived barrier (to operator exchanges) is just for the people that need to agree and arrange it, to see it as a good thing and something that is worth supporting, management and supervision (LDN-Mngt-2) There has to be conviction that this is a good thing to do and it does benefit longer term (LDN-Mngt-4) I think the barrier would be, I am not certain that some of the managers here would consider that worthwhile” (LDN-Eng-5).

Issues brought up in relation to the PM practices within the Tyrenco supply relationship are summarised in table 5.6 below. Disruptive effects of PM practices are highlighted in red.

Bundle of PM practices	How managed?	PM practice within Tyrenco Adaptation of the PM practice: taking the partner into account
Staffing	Separate Internal criteria for selection	Impact of high management turnover at UK plant: barrier to networking, established routines are interrupted, negative impact at inter-personal level No communication or consultation with the other site but selection criteria can include language as well as specific relational competences to be able to influence the partner. However, the main drivers for staffing remain the internal site requirements. <u>Desired:</u> Long-term exchanges or transfers as a way to build bridges
Job design	Separate	New roles created to support the relationship coordination: transversal roles, with end-to-end responsibility, which involve a collaborative approach. New external interfaces are defined for some roles. Issue with neutrality of transversal jobs: “Calibre” of product leaders and power to make decisions: “Leader vs. co-ordinator”.
Appraisals	Separate	No joint goal setting process at site level, hence no overlap in terms of performance management systems. No shared objectives or feedback mechanisms. <u>Desired:</u> Joint goal setting process and performance tracking, translated in individual’s objectives. Potential shared objectives should also include relational elements, reinforce corporate values <u>Desired:</u> Use of existing internal performance management system to cascade the joint goals once they are defined. Feedback about the individual person can be sought provided they spend enough time on the relationship. Management commitment to joint objectives is a pre-requisite to their prioritisation.
Rewards	Separate	Rewards based on conflicting goals as source of tension (“war zone area”). Disconfirming» You can’t say that say shared objectives and shared rewards would be a bad thing, I’m struggling to find out, to think of positive reasons why.” New reward system will be based on results of the whole product team goals rather than only the site targets. <u>Desired:</u> Common goals managed through existing PMS but recognition of efforts would be separate.
Training	Separate/joint	Joint training workshops (SPAN, Mother plant) as drivers for programme implementation. Workshops allow information sharing, social interaction and serve as platforms for agreeing on future ways of working. Not enough emphasis on people management within SPAN <u>Desired:</u> “Exchange is the best training”. Language as a barrier to joint training.
Socialisation	Joint	Lack of understanding of the partner’s operations. Language as an issue (understanding subtleties). More difficult to communicate over the phone than face-to-face. Recently increased interaction through SPAN, Mother Plant, crystallization issue SPAN Community as basis for collaborative work. Face to face as positive however potential negative effect of socialization in the absence of trust. Past relationship based on single point of contact showed a lack of interaction at functional level. Relations at shop floor level viewed as remote. <u>Desired:</u> Routine interaction for key contacts; Knowledge sharing through extended visits or transfers. Operator requests for visits.
Communication	Separate	Need specific communication at shop floor level as it amplifies either too much or lack of communication. Values need to be reinforced to support the inter-site relationship Lack of joint leadership communication. <u>Desired:</u> Clear joint message and prioritisation from leadership; Communication about the other site; Need also commitment to allow PM practices across both sites.
Legend: In red: disruptive effect of the PM practice on the supply relationship		

Table 5-6 Summary of PM practices

5.6 CONCLUSION

Whilst following common Tyrenco guidelines, PM practices within the PAR-LDN relationship were described as being managed independently by both sites, without any form of joint involvement from the respective HR functions. And yet these PM policies and procedures did influence the relationship, either in terms of positive or negative linkages. The elements that influenced the way that the PM practices were managed within the relationship are the following:

(1) A focus on internal operations:

There is a view of short-term site objectives and strategy, which means that we are expected to deliver results rapidly (PAR-Mngt-1) It's easy to be self-centred (PAR-Mngt-4).

(2) PM practices were viewed as internal with a priority for internal site criteria.

There is an intra-site coherence that needs to be looked at (PAR-Mngt-1) other people will say "why not us?" (PAR-Mngt-7) There's an alignment of pulling together from a site point of view (LDN-Mngt-6)

(3) Resourcing constraints.

With everyone's very heavy schedules, we do not have any PAR-LDN meetings. There is an issue with time (PAR-Mngt-1) Whenever you have exchanges, this means people are not operational for a while, so the barrier would be in terms of human resources, in a context where we are very lean and have not a lot of slack (PAR-Mngt-6) Those people are needed to be doing the job that they get paid for and to take them out of that on exchange, for short term, can potentially have an impact on manufacturing plans (LDN-Mngt-2).

(4) No link established between PM practices and relationship results. Indeed the effects of socialisation, for example, is intangible and therefore its payback is difficult to perceive.

They may have thought oh the French people are going on a trip whereas for us there was a much deeper background. I'm not sure they perceived the strategic interest (PAR-Mngt-1) They liked it especially "after the visit" (PAR-Op-1) A lot of people say that it's just an excuse to go over to France for a drink (LDN-Op-1)

(5) People management may not be a high priority within relationships.

(On joint appraisal) There is an issue with time and also with deciding to do that. I frankly hadn't thought about it (PAR-Mngt-1) SPAN gives more emphasis to figures than to people (PAR-Mngt-3) We have our own responsibility and after all, we've not really asked ourselves the question (PAR-Mngt-4) I was assuming that once you got the management working together some of this would naturally happen (LDN-Corp-2) They give 90% of focus to systems, 9% focus to processes and 1% to change management to people (LDN-Corp-3).

This Tyrenco case showed the central role of corporate hierarchy in imposing inter-site collaboration to match the requirements of the supply chain processes. This was addressed by removing the organisational barriers to the flow of materials and information in two stages. Firstly, through corporate programmes, such as SPAN and Mother plant, which sought to provide an overall framework for the inter-site collaboration. Where such programmes could not overcome barriers to inter-site collaboration, another hierarchical move took place, as product leaders were appointed:

They said we don't want to lead, we don't like the word lead we just want co-ordinating and so that kind of mentality has actually led to this product organisation that we're going to, because specifically in there it says the product leader is a leader not a co-ordinator (LDN-Corp-1).

To some extent, this new product leader organisation signalled the failure of the previous approach that had underpinned the SPAN programme, and which aimed to obtain "proper collaboration and consensus building" (SPAN documentation).

5.6.1 LEARNING FROM THE CASE

As already discussed in the methodology section, this case was particularly insightful and challenging. Indeed, the intra-site context made it difficult to maintain a firm focus on the main unit of analysis (the "hybrid"), rather than shifting to the individual site. Another challenge had to do with the adversarial context, which prevailed, especially at the start up of the case, which made it difficult to capture the reciprocal elements in the relationship. What helped in this respect was the broad informant selection, which showed the extent to which, people involved in the daily coordination of the relationship perceived the deeper logic of the coordination of physical and information flows that supported the product.

We share the problems or the challenges of the product (LDN-Mnbg-3) the ultimate goal is to produce the product so everyone is working to that goal really (LDN-Eng-1) PAR is I would say a priority because without our contacts in PAR we would not get T-Drug from PAR (LDN-Eng-4)

One learning had to do with the fact that no two researches are similar. Indeed, taped interviews were conducted practically at the start of both research projects. This approach proved useful at WTC-CH, because it allowed capturing a longitudinal view of the relationship. However, the Tyrenco research was different from WTC-CH in that the researcher was not familiar with the company. Hence, it may have been preferable to spend more time understanding the context by collecting documentary evidence and conducting informal contextual interviews, before starting the actual research.

CHAPTER 6 CROSS CASE COMPARISON

6.0 INTRODUCTION

Bringing together the key features of the two cases, which formed the operational aspects of this thesis, involves considering the elements in common between the cases and the distinctions between them with the aim of answering the five research questions. Figure 6.1 shows the outline of the Chapter.

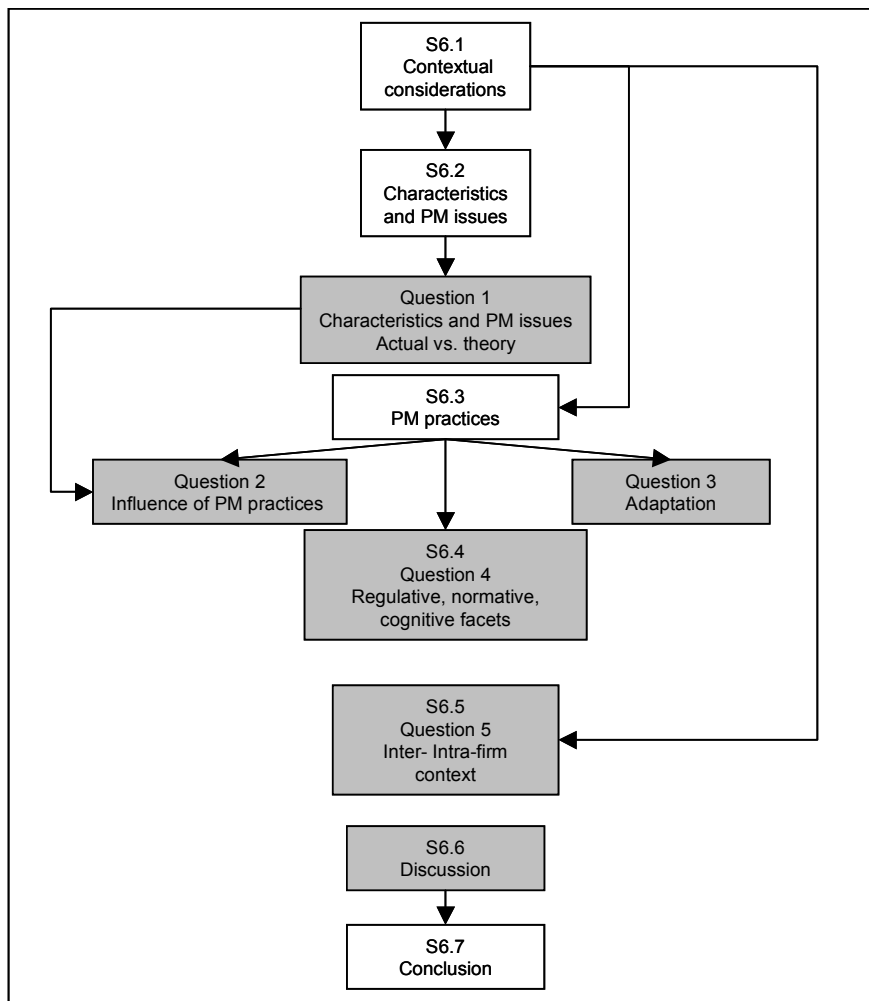


Figure 6-1 Outline of Chapter Six

The Chapter starts with a comparison of context (section 6.1) then of the findings pertaining to the relationship. Question one is addressed as a result of the review of characteristics and PM issues (section 6.2). Question two pertaining to the influence of PM practices and question three studying their adaptation within the relationship are addressed within section 6.3. The review of the regulative, normative and cognitive facets that answers question four is done in section 6.4 and question five that pertains to the inter- and intra-firm context is answered in section 6.5. Finally, section 6.6 pulls together all preceding element in a synthesis of the discussion.

6.1 CONTEXTUAL CONSIDERATIONS

The contextual comparison follows the structure of the two preceding chapters by first looking at the level of the corporate firms, and then at the local supply relationship. In both cases, the analysis highlights similarities and differences.

6.1.1 CORPORATE LEVEL

Table 6.1 summarises broad similarities and differences of the two cases at corporate level, which are then detailed in the following sub-sections.

Similarities between the two cases	Differences between the two cases
Chemical/pharmaceutical Industry	Corporate nationality
Multi-national corporations	Recent merger vs. established corporations
Large size (above \$ 1 billion)	BPR vs. functionally driven organisation
Focus on sales growth, profit, quality, corporate values	Size of the sites
Use of collective bonus schemes	Bonus schemes at management vs. overall employee levels

Table 6-1 Corporate level context: contrasting similarities and differences between cases

6.1.1.1 Similarities

The overall corporate background for the two cases was homogeneous, in terms of the type of industry, i.e. chemical and pharmaceuticals. Wheatco, Chemco and Tyrenco were large multi-national corporations (MNCs), with a sales revenue above \$1 billion, international sales and production sites located around the world, managed with a balance of local autonomy and global control. This entailed complex forms of organisations, with functional, divisional, regional and matrix types of structures. These three MNC's were leaders in their specific activities and exhibited a focus on corporate values, together with aggressive targets for sales growth, profit and quality. Their people management processes included the use of collective bonus schemes.

6.1.1.2 Differences

Corporate nationality and date of establishment were the main differences between both cases. Indeed, whilst WTC and CH were both long-established US corporations, Tyrenco was the result of a recent merger between two European partners. Both WTC and CH went through a business process re-engineering (BPR) exercise in the mid to late 1990's, whilst both Tyrenco parents had a history of hierarchical, functionally driven organisations.

Whilst bonus schemes at WTC-CH were distributed to all employees, as a percentage of their salary, the Tyrenco bonus only concerned management above a certain level. There was a size difference between the WTC and CH sites, whereas both Tyrenco facilities were equal size.

6.1.2 SUPPLY RELATIONSHIP LEVEL

Following Ragin's (1987) guidelines, it is at the level of the "whole-case" supply relationship that the elements in common and the distinctions are identified. The intent is to look into similarities and differences at the micro-level.

Similarities between the two cases	Differences between the two cases
Relationship is strategic	Governance structure

Long-term relationship	Level of integration of the supply relationship
Complex technology	National culture, language
Tight interdependence	Process technology
Change process	History of the working relationship

Table 6-2 Relationship context: contrasting similarities and differences between cases

6.1.2.1 Similarities

The two cases were viewed as strategic relationships, which met the criteria identified in Chapter 2 for the selection of inter- or intra-firm context. This strategic element within the relationship entailed two types of risk. The commercial risk, in both cases, involved a pressure from downstream customers (WTC Rubber and Tyrenco CO organisation) rather than upstream suppliers, which were not seen as problematic. The enfolding management risk was at site level: uncertainty about the CH site expansion and uneasiness about high corporate scrutiny into the T-drug issue for PAR and LDN. In both cases, the supply relationship had been in place since the early 1990's and was viewed as being perennial. This was due to the long-term contract and the sunk production assets at Wheatco-Chemco and to Tyrenco's decision to invest in the Paris T-drug production unit and to set up a contract with OC.

The transformation processes were characterised in both settings by complex technologies, which were hard to control and which could create incomprehensible failures (Hatch, 1997; Weick, 1990). Thus, the causes of unreliability of the TCS fluid bed technology were hard to ascertain, just as the origins of the T-drug quality issue remained mysterious (to this day). This had implications in terms of operator approach to their work. In both cases there was eagerness from operators to gain a better understanding of the other site's production processes as a way to unveil the vagaries of their own process operations. This involved a call for extended work socialisation to allow transfer of knowledge that drew on tacit rather than codified modes of learning. On the other hand, in view of the technical uncertainties that surrounded process performance, there was no consensus within the management as to the benefit that could be drawn from joint work at that level.

Tight interdependence, rooted in the coordination that had to take place around the product flows, characterised both "hybrids". At WTC-CH, this was due to the joint process across the two firms and the lack of buffer stocks along the supply chain. At Tyrenco, the supply of T-drug solution required mutual adjustment, because of the very tight lead-time between the manufacturing in PAR and the filling operation at LDN. Additionally the contract with OC meant that there would be in future a need for extensive coordination, this time more in terms of information rather than physical product flows.

In both cases, the research started right after a crisis, both attributable to process unreliability and product quality issues. The effect of the crisis in both cases was to prompt more management involvement and, together with other factors, to increase the interaction between both organisations. Change processes took place in the course of the research, which were captured through the research design.

6.1.2.2 Differences

At the root of this cross-case analysis is the difference in governance structure, whereby the WTC-CH was governed by a long-term partnership deal whereas the Tyrenco

relationship was governed through ownership. There is however a need to look beyond the superficial into the detail. Within the WTC-CH relationship, the contract that bound the two parties had a variable impact on the relationship. It is interesting to note that it laid down the joint team structure, thus representing a hierarchical mechanism that prescribed local coordination.

One remarkable outcome of the analysis of the distinctions between the two cases was that the Wheatco-Chemco case bore far more resemblance to a vertically integrated relationship than the Tyrenco case did. Indeed, although belonging to separate organisations, Wheatco and Chemco had a lot in common. Their relationship was “over the fence”, with selected employees being able to pass freely between the two sites. Whilst the two parent corporations were of U.S. origin, a large number of employees from the two sites were from the local area, thus sharing language and culture. Finally, the core technology was very close and the intertwined processes were perceived as “one plant”.

In contrast, the sites involved in the Tyrenco “hybrid” were separated by the organisation structure, since the two directors reported into different corporate heads and the inter-site exchanges involved the use of financial market mechanisms. The cultural gap was rooted in the national differences and special “nagging”, which may have been exaggerated by differences between French and English cultures. Obviously, language appeared as a barrier in that all meetings were held in English, whether between sites or when corporate management was involved. Thus, “subtleties” might have escaped some of the French managers. Finally, the core technology was different, not only in terms of the API/DP processes but also with respect to the T-drug manufacturing, since the PAR process was manual and the LDN one was automated. There was a rich history of inter-firm relationship between WTC-CH, with an evolution over time that had seen the two sites coming closer together, and then moving away (see historical perspective). Conversely, the history of inter-site relationships between PAR and LDN had been adversarial over the API business and overall at arm’s length with respect to T-drug, with the exception of the strong inter-personal bond that had been established between the PAR T-drug leader and the LDN customer service manager. While the change process at Wheatco-Chemco had been rather obvious and had involved a strengthening of the supply relationship over the period of the research, this was not the case at Tyrenco. Indeed, in that case, the building up of the “hybrid” was only starting when the research was interrupted, for pragmatic considerations (Eisenhardt, 1989) linked with the PhD process.

Thus, the two cases may follow Pettigrew’s (1990) ‘polar type’ description, in as much as the Wheatco-Chemco relationship appeared to bear far more characteristics of “one company” than did the Tyrenco case.

6.2 CHARACTERISTICS OF SUPPLY RELATIONSHIPS AND RELATED PM ISSUES

In order to perform a detailed comparative analysis, similarities and differences are highlighted for each characteristic, based on common themes that cut across the two cases. The intent is to develop the argument for answering the first research question:

“In what ways do supply relationships exhibit specific characteristics and related PM issues”

A summary and discussion is provided in section 6.2.8, which includes a comparison of the empirical findings from the two cases with the specific characteristics, which have been derived from the literature in Chapter two (table 2.5).

6.2.1 GOALS

What emerged from the study of goals within the two supply relationships was that they were stratified along three levels: strategic, operational and site goals. Strategic goals were linked into the high level key result areas at corporate level, operational goals measured the performance of the local supply relationship and site goals were the drivers for the performance management system.

Whilst there was evidence within WTC-CH of a “win-win” approach at corporate manager level, no explicit strategic goals were articulated as a high-level mission to guide the local relationship. Therefore, strategic goals did not contribute to a view of the local relationship as coming together. Conversely, the Tyrenco informants viewed their top-level goals, embodied in the strategic product line and cancer application as impetus for joint work between the two sites. However, there was within Tyrenco a similar perception that the strategic vision of the relationship was not explicitly communicated locally.

Within the WTC-CH relationship, the operational goals were clearly shared, rooted in the necessary coordination and embodied in the joint team goals, whereas in Tyrenco there were no shared operational goals. Indeed, given the separate organisation structure, not only was there no visibility of the other site goals, but there was a perception of conflict in that success in achieving one site goal - for example budget or inventory - could come about at the expense of the other site. Indeed financial issues were at the core of the inter-site rivalry. Such a situation was going to change with the introduction of the new product-aligned organisation.

Whilst the WTC-CH operational goals appeared as shared, there was also some evidence of an underlying concern that the own company interest should be safeguarded. This, to some extent, could be related to Tyrenco’s focus on achieving own site goals.

PM issues

In both cases, site goals driving the reward systems and bonus schemes appeared as a source of tension. There was a mismatch within WTC-CH because CH had aligned its site goals on the relationship goals, whereas WTC had not. At Tyrenco, the issue was that the internal performance management system was aligned on site goals, which were conflicting.

6.2.2 INFORMATION SHARING

Information sharing was at two levels: technical information that needed to be shared in order to jointly resolve issues; and information pertaining to process coordination.

Most informants within the Wheatco-Chemco relationship characterised information sharing as free and open, in that the sharing of technical information was necessary to jointly operate the local relationship. Conversely, the Tyrenco case was characterised by a lack of transparency referred to as “no natural inclination to communicate”. In both cases, process or quality issues were recognised as having fostered more communication and more interaction between the two partners.

There was a perception of lack of transparency, which affected process coordination at WTC-CH. This was particularly the case at operator level where there was a feeling of opacity amongst the three manufacturing units, which was associated with a lack of understanding of the other processes in the chain. There was frustration as well within the Tyrenco case, which centred on lack of visibility of production schedules and forecasts.

PM issues

In both cases, inability to work with people face-to-face was perceived as hindering information sharing. Indeed, indirect modes of communication such as telephone or e-mail were perceived as making information sharing more difficult than direct face-to-face interaction. The issue of language was raised in relation to information sharing. At WTC-CH, this pertained to developing a common language for discussing process issues at shop floor level. At Tyrenco, this was related to French people having to communicate in a foreign language, which made it difficult to capture the subtleties of the information.

6.2.3 RELATIONSHIP STRUCTURE

A key difference between the two cases lay in the type of relationship structure. While it had always been rather broad at WTC-CH - with interaction at corporate, local management, engineer and operator levels - the Tyrenco case had, until recently, been concentrated on few points of contact. There were four themes that cut across the two cases: 1) effects of the particular type of relationship structure, 2) management of the channels of communication 3) importance of inter-personal relationships, 4) effects of high people turnover.

The positive effect of the WTC-CH broad relationship structure was rich information sharing. At Tyrenco, the lack of cross-site interaction had induced a lack of natural inclination to communicate and therefore a limited amount of joint problem solving. A negative effect of the broad interface at WTC-CH was to disrupt communication flows, either because the information did not reach the right person or because it was distorted. A difference between both cases was that, whilst the WTC-CH corporate managers had been appointed to jointly manage the supply relationship at global level, the Tyrenco organisation structure did not favour any joint work between the PAR and LDN corporate heads. This was later changed with the appointment of the T-drug product leader.

In both cases, there was a need to develop tactics to ensure that the right people were talking to each other across the two firms. Within WTC-CH, this involved defining a communication protocol to identify points of contact and hence funnel the inter-site communication. Similarly, at Tyrenco, a need was expressed to identify key points of contact, but this time to broaden the interaction and ensure that it took place on a routine basis rather than only at periods of crisis.

In both cases, the development of a network of strong personal relationships across the firms or sites was seen as a strengthening factor for the supply relationship. This involved a necessity to allow people to interact face-to-face, especially in times of tension. Evidence was found of such a need to develop inter-personal relationships at each point of contact: from corporate (WTC-CH only) down to management, engineer and operative level (WTC-CH only).

PM Issues

The two cases showed a similar concern that high people turnover was seen as disruptive for the relationship, especially if it was not followed by a period of socialisation. Indeed, it disturbed the established inter-personal links and established routines. High turnover also meant that people were not perceived as being allowed the time to develop competence in their work. Whilst the issue of people turnover was raised at WTC-CH at operator level, it pertained at Tyrenco to management level.

6.2.4 COORDINATION MECHANISMS

The mechanisms that regulated the two supply relationships were either contractual or rooted in task interdependences.

There was no consensus at WTC-CH on the extent to which the contract agreement was driving the relationship. Within Tyrenco, the contract recently signed with the outside contractor was perceived as bringing increased communication. In both cases, the contract confirmed the ongoing aspect of the supply relationship.

Both “hybrids” were characterised by an interdependence that, to different degrees, called for mutual adjustment. This was enabled by structural coordination mechanisms, such as the TCS-CH telephone link (WTC-CH) or the empty sterile vessels (Tyrenco) and by procedural methods.

This interdependence led to a polarised view of the relationship with mutuality at one extreme and conflict at the other. Indeed, whilst there was more evidence of reciprocity within the WTC-CH case, collaboration was viewed in both cases as being an obligation. For WTC-CH, this was due to the supply chain loop and the joint process; at Tyrenco, it was to ensure that appropriate product quality was maintained throughout the T-drug supply chain. Interdependence was also a source of conflict, which was rooted in the perceived difficulty to coordinate tasks across the manufacturing units: shutdowns for WTC-CH, schedules and forecasts for Tyrenco. Another source of tension was the perceived negative impact of the other site on the internal operation, which was associated with a perceived lack of understanding of the partner’s process.

PM issues

In both cases, the lack of understanding of the partner’s organisation and of the issues encountered by the partner was viewed as a source of conflict. Indeed, frustration from task interdependence was enhanced by lack of knowledge of the partner’s constraints. The need for better understanding was prevalent at operator level within WTC-CH and to some extent as well within Tyrenco. Indeed one characteristic of this study was that the operators interviewed in both cases expressed a need to visit or learn about the other manufacturing process as a way to better control their own operation.

6.2.5 LOCUS OF DECISION MAKING

Two themes cut across the two cases to enable a comparison: rationale and process for decision-making, and role of hierarchy.

Whilst the WTC-CH drew on a “one company” heuristic, with a rather symmetric decision making process, the Tyrenco relationship was characterised by an asymmetric approach, with the local site interests appearing as conflicting, especially in a context of potential T-drug overcapacity. This meant that a local site solution could be chosen instead of one based on overall company benefit criteria. There were calls at Tyrenco for developing a more transparent and participative decision-making process to reflect

the similarity of status between the two sites and to ensure an ownership of the execution.

In contrasting the locus of decision making across the two cases, it was interesting to note that the tension at WTC-CH was between local management and corporate whereby managers from both UK sites resented corporate interference with issues they perceives as being local. Conversely, the two Tyrenco plants called upon their corporate hierarchy as arbitration for the resolution of their inter-site conflicts.

PM issues

These two scenarios raised different people management issues. At WTC-CH, this was expressed in terms of balance of authority at local as opposed to corporate levels and in terms of ensuring that internal communication took place regarding the relationship. At Tyrenco, the principal PM issue raised was the balance of authority and impartiality at corporate level to facilitate the resolution of local conflicts.

6.2.6 TOP MANAGEMENT COMMITMENT

Common themes across the two cases were top management commitment to the relationship at corporate and local site leadership levels, relationships at local management level and communication.

Whilst there was visibility at Wheatco-Chemco of senior management commitment to the supply relationship through regular contacts between the two CEO's, such commitment was not as clear within the Tyrenco relationship. Indeed, beside the SPAN programme, which advocated more integration, there were no clear guidelines ("tangible words") from senior IO management to explain what was involved in the inter-site collaboration. Similarly at WTC-CH, doubts were expressed as to the state of relations between the two corporate managers.

At local level, the two cases were similar in that a crisis had prompted more management involvement in the "hybrid". In both cases, the decision was made to implement Steering Committees after the outbreak of the crisis.

There was within WTC-CH perception of good relationships at leadership level, which were increased by the necessary interaction to coordinate the relationship. Conversely, at Tyrenco, although there was a perception of fairly good relationships between site managers, this was not facilitated by the organisation structure, which did not provide much opportunity for interaction for both site leadership teams.

PM issues

In both cases, a specific issue was raised in regards to communication at shop floor level. On the one hand, operators needed to be informed about what took place within the supply relationship to allow them to better understand the partner's problems (WTC-CH) or to avoid relying on rumours as a source of information (Tyrenco). On the other hand, operators needed to be insulated from possible upsets at management level, so that frustration at management level did not permeate the shop floor.

6.2.7 COMPATIBILITY

Within the WTC-CH case, there was a perception of a number of similarities that pertained to the fact that both firms belonged to the same industry, that they both had US based headquarters and had a similar concern for safety, quality and cost. Conversely, at Tyrenco, what prevailed in informants' reports was a feeling of disparity

between the two sites: on the one hand this was related to the difference in nationality and language, and on the other hand this pertained to the difference between API and DP sites.

Whilst there was evidence within Tyrenco that organisational dissimilarities were making working within the supply relationship more difficult, in line with WTC-CH it was also argued that such obstacles were not insuperable.

PM issues

Discussion on compatibility at WTC-CH could be related to the individual's decision making ability in comparison to the other firm. In fact, most informants either stated that their level of empowerment was similar to the other firm or that they were more empowered than their counterpart. At Tyrenco, the corporate values were referred to as a shared norm that could support collaboration, although it was also stated that their role should be reinforced in the context of inter-site relationships.

6.2.8 Question 1: In what ways do supply relationships exhibit specific characteristics and related PM issues?

In order to be able to compare the results from the cross-case comparison with the characteristics and PM issues developed from the literature, Table 6.3 below brings together a summary of the cross-case data with *Table 2.5: Specific characteristics of supply relationships and associated people management issues*. The empirical data displays two types of information. First similarities and differences between the two cases are indicated. Secondly, the extent to which there is a match with the specific characteristics is displayed visually: a blue print colour indicates that there is a match with the specific characteristics; a red print colour indicates that there is no match with the specific characteristics. Moreover, PM issues are shown in red in that they appear as disruptive for the relationship.

Dimension	Specific characteristics of Reciprocal supply relationships (Table 2.5)	Actual Characteristics: Cross-case comparison	Related PM issues (Table 2.5)	Related PM issues: Cross-case comparison
Goals	Goals are shared, explicit and clear at strategic and operational levels.	<p><u>Different:</u> WTC-CH do not have clear strategic goals, but they have shared goals at operational level. Conversely, Tyrenco see their joint goals at top level but have local site objectives, which are conflicting.</p> <p><u>Similar:</u> No explicit strategic direction articulated as guidance for both supply relationships. Concern over own company/site interest is expressed (more prevalent at Tyrenco)</p>	Goal communication; rewards support the goals.	<p><u>Similar:</u> Bonus schemes, driven by site goals, are a source of tension</p>
Information sharing	Open and prompt two-way information sharing	<p><u>Different:</u> Information sharing within WTC-CH is overall characterised as free and open because this is necessary to operate the local relationship. Conversely, at Tyrenco, there is a lack of transparency characterised as “no natural inclination to communicate”.</p> <p><u>Similar:</u> Process or quality issues have fostered more communication and more interaction between the partners. Frustration over information sharing regarding process coordination.</p>	Development of specific organisational routines to support information sharing.	<p><u>Similar:</u> Information sharing more difficult without face-to-face interaction</p>
Relationship structure	Multiple levels and functions are in contact. Clear communication channels. Inter-personal relationships	<p><u>Different:</u> WTC-CH has a broad relationship structure but complexity of interaction induces a distortion of information flows. Tyrenco has until recently been concentrated on few points of contact, which allowed limited amounts of joint problem solving.</p> <p><u>Similar:</u> A need is expressed to develop tactics to ensure that the right people are talking to each other across firms/sites: defining a communication protocol to funnel interaction (WTC-CH) or identifying key points of contact to broaden the interaction (Tyrenco). Importance of a network of inter-personal relationship across both organisations.</p>	Fostering social bonds. Frequent people turnover as disruptive	<p><u>Similar:</u> Disruptive effect of high people turnover as it disturbs inter-personal links, established routines and can give a perception of lesser competence.</p> <p><u>Different:</u> At WTC-CH the issue is at operator level, whilst at Tyrenco it is at management level.</p>
Coordination mechanisms	Formal as well as informal mechanisms govern the relationship	<p><u>Different:</u> no consensus on effect of contract on WTC-CH relationship. Contract with OC improves inter-site communication at Tyrenco.</p> <p><u>Similar:</u> Contract confirms the perennial aspect of the supply relationship. Interdependence induces a polarised view of the relationship with mutuality at one extreme and conflict at the other. Collaboration viewed in both cases as an obligation to operate the supply relationship. Interdependence as a source of conflict, which is rooted in the frustration over task coordination, and perceived negative impact of the partner on respective internal operations.</p>	Training, socialisation, teamwork	<p><u>Similar:</u> Lack of understanding of the partner's operations</p>
Locus of decision making	Clear decision making process, mandate from top management	<p><u>Different:</u> WTC-CH draws on a “one company” heuristic, with a symmetric decision making process, whereas Tyrenco shows an asymmetric approach with local site interests appearing as conflicting and competing, thus failing to meet the “overall company benefit”. At Tyrenco, call for more transparent and participative decision making process</p> <p>At WTC-CH there is tension between local and corporate management around decision making pertaining to local issues. Conversely, the two Tyrenco plants call upon corporate hierarchy as arbitration for the resolution of their inter-site conflicts.</p>	Empowerment of the teams; broader roles	<p><u>Different:</u> Balance of authority at local vs. corporate levels (WTC-CH) vs. neutrality and authority at corporate level to enable resolution of local conflicts.</p>

Top management commitment	Top managers jointly support the supply relationship	<p><u>Different:</u> Visibility at WTC-CH of regular contacts at CEO level, whilst at Tyreco there is a lack of clear guidelines from IO senior management about inter-site collaboration. At WTC-CH, doubts expressed as to the state of relations between the two corporate managers.</p> <p>Perception of good relationships at site management level at WTC-CH and to some extent at Tyreco but at Tyreco organisation structure does not foster interaction between both site leadership teams.</p> <p><u>Similar:</u> Quality crisis has prompted more management involvement in the supply relationship. Setting up of Steering Committees after the outbreak of the crisis.</p>	Communication about the relationship; resource allocation	<u>Similar:</u> Issue of communication at shop floor level
Compatibility	Organisational culture and compatibility of management philosophy	<p><u>Different:</u> Similarities are highlighted within WTC-CH whilst at Tyreco national and language differences are stressed.</p> <p><u>Similar:</u> Organisational dissimilarity not an insuperable obstacle.</p>	Socialisation as a way to bridge culture	<u>Different:</u> WTC-CH: issue raised in terms of differences in empowerment. At Tyreco, corporate values should support inter-site collaboration
Legend: In blue: matches the specific characteristics; In red: does not match specific characteristics				

Table 6-3 Summary of characteristics and PM Issues: Cross-case comparison

The following conclusions were drawn from table 6.3:

1) A comparison of the empirical data with the specific characteristics shows that neither of the two cases displays a unitary picture. Indeed, they both demonstrate, within each dimension, a mix of elements that pull the partners “together” and other elements that “separate” the partners.

Elements that bring “together” the partners are in line with the specific characteristics identified in the literature. They stress the importance of working jointly, for mutual benefit and shared success. Simultaneously there are elements that “separate” the partners, which are rooted in conflict, asymmetry and power. The similarities across both cases point to stable features of supply relationships that transcend the differences in governance structure, whereas differences result from a mix of case idiosyncrasies and inter- versus intra-firm context.

Moreover, a stratified view of the relationship emerges from each dimension, which shows that, at different levels, a diverse perspective can be adopted. This pertains to the corporate/local levels, but also, within each site to the various layers of interaction. This research has investigated seven dimensions of the relationship. Other dimensions, such as trust, commitment, conflict, dependence or power have also emerged from the empirical data, which have been captured under the “together” and “separate” constructs. It should be stated though that one limitation of this seven-dimension framework was that it did not attempt to capture as such the performance element. Indeed, for the purpose of this research, which did not seek to link PM practices and relationship performance, such data was associated with the goal dimension.

Although such a link to performance was not established, one could postulate that “together” characteristics will facilitate a stronger relationship and as a result will lead to business benefits and that conversely the “separate” characteristics will result in deteriorating the relationship and therefore deteriorating business performance.

2) PM issues were shown to be related to each dimension, thus illustrating how people management can contribute to the “separate” direction.

What is striking about PM issues is the way that they are intermingled with the relationship characteristics. Another striking feature was the extent of cross-case similarities, which point again to possible stable requirements of supply relationships in terms of people management.

Conclusions on PM issues will be drawn at the end of the next section that deals with the cross-case comparison of the PM practices.

6.3 PEOPLE MANAGEMENT PRACTICES

A detailed comparative analysis of each PM practice involves identifying common themes that cut across the two cases and highlighting similarities and differences in order to understand the effects of PM practices on the supply relationship and the extent of the adaptation process that took place. Therefore, the following seven PM practices will first be reviewed: staffing, job design, appraisal, rewards, training, socialisation and communication and the argument will be developed for answering the second and third research questions.

6.3.1 STAFFING

Two common themes that cut across the two cases are the impact of high people turnover and the “calibre” of the persons involved in the relationship.

High people turnover at WTC-CH was viewed as having an impact on the technical performance of the “hybrid” with new TCS operators seen as having less competence to operate the process. What was stressed at Tyrenco was the disruptive impact of frequent management turnover on inter-personal relationships as well as on established routines that allowed relationship coordination.

One difference between the inter- and the intra-firm context was that similar themes were discussed under different PM practices. Thus, the “calibre” of the people working in the supply relationship was presented as a staffing issue within WTC-CH (quality of the individual appointed to work on the relationship) and as a job design matter within Tyrenco (decision making power associated with a job). At WTC-CH the competence of the individual was seen as driving the relationship results. Hence, if the partner assigned a competent individual, it meant that the company was giving high priority to the relationship, and conversely lack of competence signalled lack of priority. On the other hand, within Tyrenco what was stressed in particular was the decision-making ability, which was granted to transversal jobholders, such as strategic SC leader or Product leader. This latter point is discussed in section 6.3.2.

A specific proposal within Tyrenco had to do with the possibility of organising transfers of people between sites. This referred to the prospect of allowing individual employees or managers to work in the other site for an extended period. The intent was for these people to act as “bridge-builders” by developing an in-depth understanding of the other site operations and routines in order to transmit them back to their original site. Such a practice was translated within WTC-CH in terms of extended visits. This is examined in section 6.3.6 on socialisation.

In both cases, staffing was managed separately within both partners, with internal criteria as main drivers for the selection. However, there was some evidence of a process of adaptation to meet the needs of the relationship better: at CH, feedback from the partner had influenced a QA appointment and a former WTC engineer had been hired to be the CH contact with WTC. At Tyrenco, there was recognition of the specific relational competences required to work across sites. Thus, the new PAR T-drug leader had been selected based on her language ability and her capacity to stand firm in front of her English counterparts.

6.3.2 JOB DESIGN

Whilst the lack of information on the partner’s job design was raised as an issue within WTC-CH, this was not the case at Tyrenco.

In both cases, there was a recognition that jobs involving a relationship were broader. Indeed, the job design within a manufacturing environment was presented as being typically internally focused; therefore, the relationship was seen as placing additional requirements in that it defined external interfaces. Thus, WTC-CH operators had to work across firms, and this placed new demands on them in terms of communication ability. At Tyrenco as well, with the SPAN and Mother plant implementation, new external interfaces were defined for some jobs.

A particular feature of Tyrenco was the creation of new jobs, which did not only operate on one site. This was expected to provide better end-to-end coordination of the SC. This however raised the issue of the jobholder’s aptitude to be neutral and impartial, for

example by not being located within one of the two sites. Another issue was their ability and power to make decisions, especially in a context of inter-site conflict, where corporate arbitration might be sought. Conversely within WTC-CH, the issue of headquarter-subsidiary relationships was viewed as an internal communication rather than a job design issue.

In both cases, job design was seen as a practice, which was handled separately by the two partners. This was most obvious within WTC-CH, with WTC resisting CH's attempts to influence the cross-training approach to TCS job design.

An obvious tactic for matching the work organisation across the firms or sites, involved defining key points of contact (WTC-CH) and roles and responsibilities (Tyrenco).

6.3.3 APPRAISALS

There was evidence within the WTC-CH case of alignment of individual employee objectives on the relationship goals at both firms, and there was also a lot of informal performance appraisal and feedback, which took place across sites, both laterally and through supervisors.

Conversely, at Tyrenco, the lack of joint goal setting was seen as the main reason for having no overlap in terms of performance management systems, whether through shared objectives or feedback mechanisms. There was however, a call for a joint goal setting process and for shared objectives that would include softer elements that pertained to the relational side of the supply relationship.

To some extent, WTC-CH was similar to Tyrenco because the formal performance appraisal process remained internal, based on internal criteria. Indeed the view was expressed that "hybrid" objectives should be weighted against other internal priorities.

6.3.4 REWARDS

In both cases, bonus schemes driven by site goals were seen as a source of tension. At WTC-CH, the conflict was mainly at shop floor level: the fact that the CH bonus scheme was directly linked to performance of the "hybrid" and the WTC one was not created a perception of disparity from the operators' perspective: aggressiveness on one side and lack of motivation on the other. At Tyrenco, the conflicting goals meant that the success of one partner was associated with the failure of the other, with consequences in terms of loss of bonus at management level.

It should be noted that both at WTC-CH and at Tyrenco, there were individual statements that provided a different view on the actual impact of rewards on the relationship.

I certainly don't think that when I trip my bonus is going up, going down, no. (CH-Op-4) You can't say that shared objectives and say shared rewards would be a bad thing. I am struggling to find out, to think of positive reasons why. But it can't be bad (LDN-Mngt-3)

Whilst this did not invalidate the findings about the disruptive effects of incentive schemes, it provided a different perspective, which highlighted the individual employee's priority concern for his job.

In both cases, the reward systems were viewed as separate, with no desire to pursue joint rewards. One reason for this was that rewards raised a concern for the intra-site consistency, which had to do with employee relations and, especially at shop floor level, the claim from other operators: "why not us?".

The WTC management resisted CH's attempts to influence their performance plan. Conversely, at Tyrenco, the perceived issue that SPAN had been introduced without any changes to the existing bonus system was to some extent corrected by the new product leader organisation, where key individuals had half of their bonus based on the product-team results.

6.3.5 TRAINING

A difference between WTC-CH and Tyrenco was that in the first case, the bulk of the learning took place through informal processes of work socialisation and teamwork, whilst at Tyrenco, this was driven by formal training processes (SPAN, Mother Plant) with joint workshops organised with the support from corporate functions.

A critique expressed within Tyrenco about SPAN was that it emphasised the technical side of the programme at the expense of the people management aspect. In a different context, within WTC-CH, there was disappointment over the fact that the joint "Team day" was cancelled. Both comments signalled a lack of priority allocated to people management within the supply relationship.

In both cases, there was a perception that the relationship coordination required learning about the other firm operation. To acquire such knowledge, formal training did not appear as the preferred vehicle. Instead, extended interaction and deep probing (why did you do that?) were required to be able to unveil the hidden side of the partner's operation.

The issue of induction of new people into the "hybrid" was specifically expressed by CH, where it was perceived that new people could disrupt the relationship through a lack of understanding of its specificities. This was not discussed within the Tyrenco case.

There was one joint formal training activity at WTC-CH, in the form of an SPC course, which was perceived as providing a basis for developing a common language. At Tyrenco, language was seen as a barrier to the organisation of joint training courses, other than the SPAN workshop sessions.

6.3.6 SOCIALISATION

In both cases, the inability to work with people face to face was perceived as making information sharing more difficult.

There was evidence of a lack of understanding of the partner's organisation within both cases. Hence, there was a call for extended visits or in-plants (Wheatco-Chemco), or transfers (Tyrenco) as a means of sharing knowledge. The operators interviewed, whether at WTC-CH or Tyrenco, expressed a desire to visit or learn about the other manufacturing process as a way to better control their own operation.

There was obviously a much broader and more intense interaction, throughout the levels within WTC-CH vs. Tyrenco. In both cases, a desire was expressed for a more formal programme of interaction: at shop floor level within WTC-CH and at an inter-functional level at Tyrenco.

Whilst there was overall consensus that work socialisation was beneficial, both in terms of inter-personal relations and of sharing of information and knowledge, there were some disconfirming views, which were expressed. These inferred that the impact of socialisation might not always be positive: (1) if it was of too short duration or (2) where there was lack of trust.

In both cases, an extended immersion into the partner's context appeared as the key to internalisation of the tacit knowledge or the inner routine processes embedded in the partner's organisation.

6.3.7 COMMUNICATION

The importance of communication at shop floor level was highlighted as a common PM issue related to top management commitment.

At WTC-CH, the informal processes of communication about the relationship that prevailed at the start of the research became more formal with writing up the Steering committee charter. At Tyrenco, the SPAN and Mother plant programmes provided a basis for communication about the other site. However there was little mention of PAR within the LDN site communication sessions and, in PAR, internal communication contained elements of competition over the split of the T-drug production. The need was expressed for a clear joint message and prioritisation of the relationship at site director level. The implementation of the new product leader and product team also included corporate communication sessions.

Whilst at WTC-CH communication with corporate was viewed as a source of tension, this was not a problem at Tyrenco. Here, in the broader political context of the company, the regional or divisional corporate hierarchy was viewed as an ally, who represented the interests of each site.

In both cases, the performance management system was viewed as a key vehicle for communicating company performance objectives.

A summary of the empirical data pertaining to PM practices is provided in table 6.4. In line with table 6.3, the display highlights similarities and differences and provides visual indication where there is a disruptive effect of the PM practice on the supply relationship by showing these elements in red.

Cross-case comparison of PM practice	
Set of PM practices	How managed?
Staffing	Separate Some adaptation in both cases
	<p><u>Different</u>: “Calibre” of the people is discussed as a staffing/competence issue at WTC-CH and as an issue with job design at Tyreco</p> <p><u>Different</u>: Transfers to improve understanding (Tyreco)</p> <p><u>Similar</u>: Disruptive effect of high people turnover as it gives a perception of lesser competence (WTC-CH) and it disturbs inter-personal links and established routines (Tyreco)</p> <p><u>Similar</u>: Staffing managed separately, based on internal criteria. However, some evidence of a process of adaptation to better meet the needs of the relationship</p>
Job design	Separate Adaptation at Tyreco (end-to-end jobs)
	<p><u>Different</u>: Lack of information on the other firm’s job design seen as an issue at WTC-CH, but not at Tyreco</p> <p><u>Different</u>: At Tyreco, new jobs are created with end-to-end responsibility. Issue with neutrality and impartiality of transversal jobs, as well as ability and the power to make decisions and arbitrate in case of inter-site conflict.</p> <p><u>Similar</u>: Jobs involving the other organisation are seen as broader, or with new external interfaces.</p> <p><u>Similar</u>: Job design as a separate practice. Matching work organisation across the firms or sites, involved defining key points of contact (WTC-CH) and roles and responsibilities (Tyreco).</p>
Appraisals	Separate
	<p><u>Different</u>: Joint goal setting process at WTC-CH with employee objectives connected to relationship goals and a lot of evidence of informal assessment and feedback. Conversely, at Tyreco there are no shared objectives or feedback mechanisms. <u>Desired</u> at Tyreco: joint goal setting process and performance tracking. Include relational objectives.</p> <p><u>Similar</u>: At WTC-CH the formal performance appraisal process is internal, based on internal criteria. “Hybrid” objectives to be weighted against other internal priorities.</p>
Rewards	Separate Adaptation at Tyreco
	<p><u>Different</u>: No adaptation of rewards within WTC-CH. A new bonus system is set up at Tyreco, which is based on results of the whole product team goals rather than only the site targets.</p> <p><u>Similar</u>: Bonus schemes, driven by site goals, are a source of tension. Disconfirming: Statements within both cases, regarding the impact of rewards</p> <p><u>Similar</u>: In both cases, the reward systems were viewed as separate, with no desire to pursue joint rewards, and a concern for the intra-site consistency</p>
Training	Separate/joint
	<p><u>Different</u>: At WTC-CH main learning is through informal processes of work socialization. At Tyreco, driven by formal training processes (SPAN, Mother Plant) with joint workshops organised with the support from corporate functions.</p> <p><u>Different</u>: Induction of new people discussed as an issue specifically by CH but not mentioned at Tyreco.</p> <p><u>Similar</u>: Disappointment over cancellation of “Team Day” (WTC-CH). One critique of SPAN is that it does not put enough emphasis on people management (Tyreco). <u>Similar</u>: The best way to learn about the other organisation is through visits (WTC-CH) or exchanges (Tyreco)</p>
Socialisation	Joint
	<p><u>Different</u>: Broader interaction at WTC-CH than Tyreco but in both cases limited interaction at shop floor level.</p> <p><u>Similar</u>: Information sharing more difficult without face-to-face interaction; Lack of understanding of the partner’s operations hence calls for extended visits (WTC-CH) or transfers (Tyreco) to improve understanding.</p> <p><u>Similar</u>: Operators expressing a need to better understand the other manufacturing process through visits. <u>Desired</u>: more formal programme of interaction.</p> <p><u>Similar</u>: Potential negative aspect of socialisation. Immersion in the partner’s organisation as a way to internalise the tacit knowledge pertaining to that organisation.</p>
Communication	Separate
	<p><u>Different</u>: Joint leadership communication at WTC-CH (Steering team charter) At Tyreco, no visible collaboration and communication at site leadership level.</p> <p><u>Different</u>: Issue of eliciting better communications between local and corporate levels (WTC-CH). Not expressed at Tyreco</p> <p><u>Similar</u>: Issue of communication at shop floor level: insulating operators from possible upsets at management level</p>
Legend: In red: disruptive effect of the PM practice on the supply relationship	

Table 6-4 Summary of PM Practices: cross-case comparison

6.3.8 Question 2: In what ways do PM practices influence supply relationships?

The following conclusions can be drawn about PM practices and the supply relationship:

1) *PM issues can be used to link PM practices with dimensions of the supply relationship.*

This is illustrated in figure 6.2 below, which shows the link between the seven dimensions of the supply relationship, PM issues and the PM practices to which each PM issue is associated. Thus, this research argues that a connection can be established between PM practices and the supply relationship.

Dimensions of the supply relationship	PM issues	PM practices
Goals	Bonus schemes as source of tension	Staffing
Information sharing	Information sharing without face-to-face	Job design
Relationship structure	Disruptive effects of high people turnover	Appraisal
Coordination mechanisms	Lack of understanding of the other plant	Rewards
Locus of decision making	Communication/ corporate; neutrality of transversal jobs	Training
Top management commitment	Communication at shop floor level	Socialisation
Compatibility	Difference in empowerment Communication of values	Communication

Figure 6-2 Dimensions of supply relationships, people management issues and people management practices

Figure 6.2 shows that two PM practices are not connected to the dimensions of the relationship via the PM issues. These are training and appraisal. Indeed, these two PM practices could be interpreted as facilitating the relationship rather than being central to its functioning. Hence, other PM practices could be substituted.

Work socialisation and teamwork were presented as being more critical than training: for example, at WTC-CH, Monday operator meetings were substituted to the “Team Day” training, which was cancelled. At Tyrenco, beside the SPAN workshops, planning meetings were organised by the PAR and LDN teams in order to resolve operational issues. With regards to appraisals, whilst feedback processes demonstrated the openness characterising WTC-CH, this did not appear as a critical element in the relationship. In a similar vein, the absence of joint appraisal process at Tyrenco was not as critical for the relationship as other practices such as rewards.

2) *The empirical data show that PM practices can indeed influence supply relationships by pulling the two partners either in the “together” or “separate” directions. as illustrated in table 6.5.*

PM practice	Cases	“Together”	“Separate”
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PM practice	Cases	“Together”	“Separate”
Staffing	WTC-CH	Good calibre of people assigned	High people turnover
	Tyrenco	Transfers	High people turnover
Job design	WTC-CH	-	Lack of information on job design
	Tyrenco	New roles end-to-end	Neutrality and power of decision makers
Appraisal	WTC-CH	Informal assessment and feedback	-
	Tyrenco	Desired: Joint goal-setting and feedback	Objectives solely driven by site
Rewards	WTC-CH	-	Bonus schemes as a source of tension
	Tyrenco	New product-aligned bonuses	Bonus schemes as a source of tension
Training	WTC-CH	SPC training and informal processes	Cancellation of “Team Day”
	Tyrenco	Formal joint workshops	Lack of people focus within SPAN
Socialisation	WTC-CH	Formal programme of interaction	Lack of understanding, lack of face to face
	Tyrenco	Formal programme of interaction	Lack of understanding, lack of face to face
Communication	WTC-CH	Joint leadership communication	Communication at shop floor level
	Tyrenco	Communication on product leader	Communication at shop floor level

Table 6-5 Summary of PM practices as “together” and “separate”(grey cells signal cross-case similarity)

The following conclusions can be drawn from table 6.5:

There is a lot of consistency between the PM issues that have emerged in both cases. High people turnover, site bonus schemes, lack of face-to-face interaction, and communication at shop floor level were viewed as critical. Communication at shop floor level appeared as particularly critical at WTC-CH, in view of the central operator role within the relationship. It could be justified as well at Tyrenco in that criticality of the product application required specific management attention on shop floor communication.

Another conclusion from the above table is that the influence of PM practices within the cases were not derived from isolated practices, but rather on their effects as a set or “bundle” (Delery, 1998) of PM practices.

Whilst it was not the intent of this study to look at a link between PM practices and performance, it should be stated that some informants established such a link. Within WTC-CH, a link was made between relations at operator level and mutual understanding of the processes and performance. Thus a “trip” (process shutdown) could possibly be avoided when operators had good relations or when they understood the other side’s requirements. At Tyrenco, there were some suggestions to send operators over to the other site to identify potential subtle differences in operations that could explain the T-drug issue. However, there was no consensus in both cases about the actual impact of such practices.

3) Whilst key PM issues have been consistent across the two cases, the way that PM practices can contribute to the “together” dimension was found different, with the exception of one practice: “a formal programme of interaction”.

It is not surprising that a formal programme of interaction should be at the centre of the “together” direction, in that the inter-firm or the inter-site context meant that, in the absence of a formal programme, socialisation may be overlooked as a central practice in order to support the supply relationship.

Table 6.5 also shows that, depending on the inter- and intra-firm context, similar themes are connected to different PM practices. One example provided pertains to the “calibre” of the people, which in the inter-firm context is viewed as a competence issue and in the intra-firm as a job design issue (the hierarchical level associated with the position).

6.3.9 Question 3: In what ways do firms adapt their PM practices to accommodate the requirements of their supply relationships?

Adaptation of PM practices is defined here as the process of adjusting the PM practice in order to accommodate the requirements of the supply relationship (Hallen et al., 1991). This can be contrasted with PM practices being internal or “insulated” (Scarborough, 2000), in that they are not adjusted to accommodate the supply relationship.

PM practice	Cases	“Adaptation”	“Insulation”
Staffing	WTC-CH	CH staffing is influenced; CH hires an ex-WTC employee	Main criteria are internal
	Tyrenco	Selection criteria based on relational competences	Main criteria are internal
Job design	WTC-CH	Dedicated roles (CH); Broader roles (WTC-CH)	Internal needs drive job design
	Tyrenco	New roles with end-to-end responsibility	Site job design is internal
Appraisal	WTC-CH	Feedback from the other firm influences appraisal	Ultimate decision is internal
	Tyrenco	-	No inter-site appraisal
Rewards	WTC-CH	-	Rewards based on site goals
	Tyrenco	New bonus scheme aligned on product team results	Rewards based on site goals: change process
Training	WTC-CH	Joint SPC training	Other training is internal
	Tyrenco	SPAN workshops as formal process	Other site training is internal
Socialisation	WTC-CH	Monday operator meeting; quality issues prompt more interaction	Little interaction at operator level: change process
	Tyrenco	SPAN, T-drug issue as driver for more interaction	Little interaction at all levels: change process
Communication	WTC-CH	Steering team charter but no strategic vision	Site communication is internal
	Tyrenco	Communication about SPAN and Product Leader	Site communication is internal

Table 6-6 Summary of PM practices as “adaptation” and “insulation”

The following conclusions can be drawn from table 6.6:

1) This study has shown that PM practices were, overall, seen as internal and focused on the priorities of the internal site work organisation rather than on the requirements of the supply relationship. However, evidence of adaptation could be identified across the different practices, to a lesser extent within the inter-firm than within the intra-firm.

Within the inter-firm context, table 6.6 shows that there was more evidence of an adaptation of the PM practices within CH than within WTC. This can be explained on the one hand by a higher dependency of the CH side of the “hybrid”, since the whole CH site was centred on the relationship. On the other hand, this can also be linked to the smaller size of the CH site, which meant that there were fewer constraints – such as the

absence of unionised employee relations – to prevent a customisation of the PM practices. Hence, what emerges from table 6.6 regarding WTC-CH is a series of isolated attempts to adjust the practices to the relationship. Evidence of a transfer of expertise from one firm to another could be found in the SPC training course, organised by WTC and which CH personnel attended.

The introduction of the new product leader organisation at Tyrenco can be viewed as adaptation of PM practices to support the supply relationship in that several PM practices are combined, i.e. job design (the new product leader role), rewards (bonus schemes are aligned on product goals) and communication (introducing the product leader role). However, such adaptation was not the result of an inter-site adjustment, but rather a purposeful hierarchical mechanism of strategy implementation at corporate level.

2) The analysis of the two cases has shown that a number of factors have influenced the fact that PM practices have appeared as rather insulated from the relationship:

Several reasons may be advanced for the fact that PM practices were, overall, viewed as “insulated”:

(1) People management was seen as a second priority within the relationship: in the case of WTC-CH, what was highlighted was a focus on the technical process (“focus on QIT and SPC charts, chasing down problems”), whereas at Tyrenco, SPAN implementation involved more emphasis on systems than on people dynamics.

(2) As indicated in Table 6.6, PM was concerned with the internal work organisation: “an intra-site coherence” (PAR), “consistency across the site” (WTC). This referred as well to the fact that resource scarcity was a barrier to the implementation of PM practices within the relationship.

(3) PM practices were perceived as having intangible benefits, which could not directly be measured in terms of relationship performance. Thus, socialisation was referred to in demeaning terms (emphasis added):

It (Team day) came down to finances and neither company wanted to pay overtime *for everybody to go on a jolly*, if you like, so it all fell apart (WTC-Op-2) A lot of people say that *it's just an excuse to go over to France for a drink* (LDN-Op-1)

These different elements influenced the fact that PM practices were, overall, viewed as insulated from the supply relationship.

6.4 Question 4: IN WHAT WAYS DO PM PRACTICES EXHIBIT REGULATIVE, NORMATIVE AND COGNITIVE FACETS?

This section draws on Scott (1995) to shed a new light on PM practices by evaluating to what extent they exhibit regulative, normative or cognitive facets within supply relationships. Consequently, the following definitions are used:

- A regulative facet pertains to formal rules and procedures, which aim to constrain and regulate behaviours. It involves the use of rewards or sanctioning power.

- A normative facet pertains to norms and values, which prescribe behaviours. It involves socialisation.

- A cognitive facet pertains to taken for granted assumptions and to the construction of a common framework of meaning. It involves an interpretation.

This next section is a review of the way that PM practices can be viewed to exhibit these different facets within the two cases. This is done by presenting a set of tables that illustrate each of the different facets. Within each table, themes are highlighted that are either similar or specific to each case. The PM practices that are related to each theme are identified. Where the theme is not related to a PM practice, this is also indicated in the table.

6.4.1 REGULATIVE FACET

A review of the evidence displayed in table 6.7 shows an illustration of how PM practices have contributed to the regulation of the two supply relationships.

Regulative facet (similar)	<p>Disruptive effect of bonus schemes aligned on site goals at WTC-CH and Tyrenco (Rewards)</p> <p>If we have our people really focusing on what we need to do then our scorecard's having the right effect. But what it may be doing is causing our people to be demanding and urgent because this is important to them. Whereas people at WTC are more relaxed about it and that may be raising stress. Now the interesting thing is I don't think I want our people to be less relaxed and urgent. (CH-Mngt-3).</p> <p>If our goal is solely to meet the budget then we're going to fight against things that prevent us from doing that (LDN-Mngt-2)</p>
Regulative facet (different)	<p>New Product Leader organisation at Tyrenco (Job design, rewards, communication)</p> <p>We're having to go to the strong product leader, who basically is going to be at a level above the site manager. Now there may be some collaboration but in the end whatever the corporation needs at a strategic level on these products these goals are more or less going to be .. the site has to take them on (...) The product leader is a leader not a co-ordinator. We're elevating the positions, we're doing the bonus thing, we're communicating, there's going to be a big role clarity workshop with all the key players (LDN-Corp-1)</p>

Table 6-7 Evidence supporting a regulative facet within the supply relationships

There was ample evidence within both cases of the disruptive effects of bonus schemes aligned on site goals, in as much as they displayed a regulative logic that influenced behaviours towards the "separate" direction.

A major difference between the inter- and the intra-firm contexts was that Tyrenco corporate were able to adapt their PM practices, as discussed in the previous section, in order to support the product-aligned organisation. This involved modifying jobs, rewards and customising internal communication. To some extent, this new focus signalled the failure of the former normative approach, which was based on collaboration.

This new role across traditional geographical, legal and site boundaries, requires skills and power to ensure the proper collaboration and consensus building through a tight schedule (Tyrenco SPAN documentation)

Indeed, the inter-site rivalries and conflicts had not allowed the normative approach to bring the expected results, which is why the new product leader organisation had been put in place.

6.4.2 NORMATIVE FACET

Normative facet (similar)	<p>Effect of high people turnover at WTC and Tyrenco (Staffing)</p> <p>You loose your association between a name and a face (CH-Op-3) As people move into different jobs, and areas, you've got different people and you've got to build it all up again, really, from scratch (WTC-Eng-2)</p> <p>The big issue with this collaboration is people turnover. This de-personalises the relationship, so that it is only an administrative one. You tend to have a contact only in case of issues and it makes it more difficult to use the phone to call your interface in order to understand what's going on. (PAR-Mngt-6)</p>
	<p>A formal programme of interaction at WTC and Tyrenco (Socialisation)</p> <p>You've probably got to make your external interactions a bit more structured to ensure that communication and interaction takes place otherwise there's a risk that it won't happen as much as it needs to. (...) What you need to do with an external customer is make sure those things are all timetabled and planned and then they're more likely to happen (WTC-Eng-6). It would be good to have a programme throughout the year of CH-WTC getting together, both operators and engineers. That could be just a rolling programme throughout the year. Just as we have PACE meetings. It would be good to have something similar going on for operators and everyone as a whole (WTC-Eng-9)</p> <p>We now have a calendar put together for the whole of 2002. So this is much more organised, with monthly meetings. Each one of us was aware that we needed to meet more often so, whether we have SPAN or not, we would have needed to meet more regularly. (PAR-Mngt-4) The people with a natural interaction, the people who deal routinely with at the moment a bit of a customer supply relationship, there's people in production and people in supply chain, people in purchasing. We need to get them dealing more routinely (LDN-Corp-2)</p>
	<p>Negative aspect of socialisation at WTC and Tyrenco (Socialisation)</p> <p>If they find that they're meeting with people on a face to face basis and they'd understand that his person is trustworthy. In the long run I think it would help but if they get somebody over who they think this guy isn't trustworthy then I think it will go the other way (WTC-Eng-6)</p> <p>One of the plants will say we will host so many people from plant B and we will show them how they should really do things. Plant A will go to plant B and instead of looking for the things that are good to take away they are looking for the things that are wrong so at the end of the visit plant A say well we really showed them, people from plant B go back and say they are really in a terrible state.</p>

Table 6-8 Evidence supporting a normative facet within the supply relationships (similar)

Similarities between the two cases show the central role of socialisation and the importance of ensuring a regular programme of interaction. Conversely, the effects of high people turnover were associated with the inability to build on personal relationships and the related negative effect on perceived competence. Disconfirming evidence was also found on the role of socialisation, which indicated that this PM practice was not a panacea but required to be combined with other elements to have a positive influence. This refers back to the earlier finding that PM practices did not influence the relationship in isolation, but rather as a set.

<p>Normative facet (different)</p>	<p>“One Company” heuristic at WTC-CH (Not a PM practice)</p> <p>My only very simple vision is: “If CH and WTC were one company what actions are the most optimal? (CH-Corp) It’s a stated unwritten common objective that WTC and CH will work together in a win-win situation to enhance the bus opportunity that both companies have (WTC-Corp) This is a joint approach to how do we do something that’s is not really beneficial to CH at all, but it’s beneficial to us (WTC-Mngt-1)</p> <p>Induction of new CH managers at WTC-CH (Training)</p> <p>When (he) came on board, his question was if we are doing something for WTC, what’s in it for CH? And there is only so much I can tell him. There are things that he needs to learn on his own, which I’m very glad he is learning on his own now, how this across the fence relationship is so special, so different (CH-Corp). I had to find out about this relationship and the things that mattered, not by someone saying these are our principles, this is our mission. I had to find our by practicing it, by having the meetings, by having the discussions, by finding out how the relationship worked (CH-Mngt-3).</p> <p>Informal assessment and feedback at WTC-CH (Appraisal)</p> <p>I know there was some discussion about operators. That our operating teams specifically said. There are one or two individuals when they come on shift and when people phone up and they hear a name they say Oh my god! (CH-Mngt-3) I think their PO (process operators) are good. The ones I’ve met they seem very talented, very capable people. Some of the engineering people we deal with I wouldn’t class them as high calibre (WTC-Eng-1) I’ve had positive feedback (WTC-Eng-6)</p> <p>Steering committee charter at WTC-CH (Communication)</p> <ol style="list-style-type: none"> 1. To set the direction and tone for the WTC/CH Wales strategic partnership, continuous improvement plans, and working interfaces. 2. To define and set performance improvement objectives and metrics. 3. To ensure that local issues, agreements and commitments are shared, discussed and reviewed with Corporate functions.
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	<p>Effects of Tyrenco values on the relationship at Tyrenco (Communication)</p> <p>One of our values is networking, one of the things you hear our CEO saying is that we've got to break down the silos and so forth. But in reality everybody is protecting their turf (LDN-Corp-1) Our people are demotivated, because the way that LDN operate doesn't match the company values (PAR-Eng-1). If we applied the values more it would help us (LDN-Mngt-2). I still feel that there is a lot of work to be done to improve the relationship, maybe to act with the Tyrenco values of Open & Honesty, but I'm sure that will happen as we work more closely as a team (LDN-Eng-3)</p> <p>Strong reaction to inventory accounting rules that affect the local bonus at Tyrenco (Not a PM practice)</p> <p><u>It sounds silly</u> because we're all one company but it's just to do with the inventory targets of each site (LDN-Eng-3). "<u>Stupid</u>" organisation (PAR-Corp-1). <u>It's all a joke</u>, because it's all the same company's money (LDN—Mngt-1). <u>To me it is irrelevant</u> because if it is being made and it is owned within the organisation then it does not matter if it is at PAR or if it is at LDN it is still Tyrenco owned material and it only becomes useful when it gets into a unit that is sold (LDN-Mngt-7). Especially when you consider once you move D-Synth from PAR the value for the company goes up 10-fold, on the books. So <u>it's not the wise thing</u> from a company perspective to want to do it (LDN-Mngt-5).</p> <p>Decisions are made which are <u>not for the benefit of the company</u> (PAR-Eng-1) LDN and PAR <u>have been guilty of pushing forward</u> to take actions in how we manufacture, the decisions of which have been <u>more based on our local view of impact rather than a Tyrenco view of an impact</u> (LDN-Mngt-2)</p> <p>Covert conflict over finance at Tyrenco (Not a PM practice)</p> <p>And <u>the finance that doesn't come out in the open</u>. Nobody actually wants to come round and say if we do this it will affect my budget. PAR will talk about the industrial relations issues they have if they have to switch off their shift pattern, they'll talk about this technical issue here and we'll talk about risk management there, and <u>we'll all talk around those areas but we never actually talk about finance</u> (LDN-Mngt-8).</p>
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Table 6-9 Evidence supporting a normative facet within the supply relationships (different)

There was evidence within WTC-CH of a “one company” heuristic, which signalled a conceptualisation by the individual actors of the “hybrid” as a normative background for the relationship that specified how decisions, for example, should be made. This “one company” vision, to some extent, made up for the absence of a broad vision statement, which had remained implicit at corporate manager level. The evidence showed this “one company” conceptualisation to be more prevalent within CH than within WTC. The researcher’s interpretation of this difference is that CH was situated in the middle of the supply chain “loop”, in between WTC upstream TCS and downstream Rubber, and therefore had to develop a stronger perception of the overall “hybrid”. This “One company” theme was not related to any specific practices.

Within CH, there was reference to the necessary induction of new managers who had to internalise the specificities of the “hybrid” drawing on tacit rather than explicit learning modes. The need for more understanding of each other’s processes, through extended visits, that had been expressed by operators from the three WTC-CH control rooms

seemed to draw on a similar need to better appreciate the overall functioning of the “hybrid”. In a similar vein, the informal evaluation and feedback process across the two firms signalled an implicit reference to common standards.

Although belonging to the same company, there was less evidence of shared norms across the two Tyrenco sites. However, this was indirectly expressed through the strong across the board negative reaction to the accounting rules that drove the inventory management (“silly”, “stupid”) as well as through the reference to overall company benefit in contrast to a local parochial view. One reference to the difficulty of overtly discussing financial issues also signals an underlying normative pressure.

With respect to the official Tyrenco values, although there was evidence of an awareness of these values, it was also stressed that they would need reinforcement to better support the supply relationship.

Whilst job design that pertains to the new product leader role has been identified in relation to a regulative facet because this role is presented as relying strongly on power and rewards as regulation mechanisms, it may be stated that dedicated roles where the job title specifies the partner’s name (WTC-CH), or supply chain roles (Tyrenco), which clearly involve collaboration, can be related to a normative facet. Moreover, transfers that have been described as a way to “build bridges” across the Tyrenco sites also rely on a normative facet in that they imply a process of “immersion” in the other site.

6.4.3 COGNITIVE FACET

Two factors appeared to contribute to the development of a shared meaning within the “hybrid”. One was the deeper effect of socialisation that allowed the development of a shared understanding that may develop thanks to deep probing because it allows a transfer of tacit, individual knowledge. Another obvious element in relation to the cognitive facet was the reference to shared language or to the language barriers that may have facilitated or hindered the interaction. There was evidence within WTC-CH of the joint language developed thanks to the SPC training, and to the shared meaning that may have been adopted across the control rooms over time. Within Tyrenco, there was no consensus on the extent to which the language barrier hindered the exchange, and this signals an ability to develop a common frame of reference at a different level from the immediate linguistic medium, possibly through shared technical knowledge.

Table 6.10 shows some of the evidence related to a cognitive facet.

Cognitive facet	<p>Face to face and deep probing (WTC-CH and Tyrenco)</p> <p>The CH operator asked a lot of questions and said why do you do this, why do you do that, and our guy explained it and had a bit of dialogue about it. But also our operators asked the CH operator, this gives us problems why do you do this, and why do you do that and they got some explanations and people have actually gone away and started thinking about these things and questioning whether they have to be done that way or whether they can be changed. (WTC-Mngt-1)</p> <p>Now that’s where she has proved very useful because she sat down with the LDN team and because she’s very knowledgeable and understands the supply chain properly, she really aggressively challenged and went through, why didn’t you do this, why did you do this, and it was like oh, OK, lets go through. (LDN-Corp-2)</p>
	<p>Language (WTC-CH and Tyrenco)</p> <p>Everyone talked the same sort of SPC language so that certainly helped. (CH-ENG-10) The acid towers are out of synch”. Though he was trying to describe how</p>

	<p>the problem was, I couldn't quite grasp what they were telling me. (WTC-Eng-2) CH is a different company, they have a different way of speaking about things (WTC-Eng-5) You can have an intelligent conversation because we all understand (SPC) the same way. I come to understand their jargon, and they've come to understand mine, so we're "bilingual" you could say (WTC-ENG-8)</p> <p>Over the times I've been witnessing it, real attempts by both sides to really understand the other person's point of view and the other persons terminology and people saying I don't think I heard that, please can anyone explain that. (LDN-Mngt-8)</p>
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Table 6-10 Evidence supporting a cognitive facet within the supply relationships

6.4.4 RELEVANCE OF THE THEORETICAL BACKGROUND

This study has provided a lot of evidence of the regulative, normative and cognitive facets of PM practices. A summary is provided in table 6.11.

Cases	Regulative	Normative	Cognitive
WTC-CH	Rewards	Staffing (turnover) Job design (dedicated roles) Appraisal (feedback) Training (induction) Socialisation Communication "One company" heuristic	Socialisation Training (link with language)
Tyrenco	Job design (product leaders) Rewards Communication (Product leader)	Staffing (turnover) Job design (transversal roles) Socialisation Reaction to accounting rules Covert Conflict on finance Communication (Tyrenco values)	Socialisation (language)

Table 6-11 Regulative, normative and cognitive facets related to PM practices (Highlight: where there is no link to a specific PM practice)

Table 6.11 shows that the set of PM practices can be aligned with the three facets. The table shows as well, in highlight, the elements, which do not match any specific PM practice. Such instances are located in the normative area and may be interpreted as proxy for the lack of explicit norms. Thus, the "one company" heuristic may be interpreted as a replacement for the absence of strategic mission for the WTC-CH "hybrid". At Tyrenco, the normative statements are in reaction to the strong inter-site conflict, which is perceived as sub optimising the company performance.

Table 6.11 shows as well that, depending on the context of the PM practice, it can be related to different facets. Thus, job design can be viewed either as "normative" for transversal jobs involving collaboration or as "regulative" when they involve the use of authority.

6.5 Question 5: HOW DOES THE INTER- AND THE INTRA-FIRM CONTEXT INFLUENCE THE SUPPLY RELATIONSHIP?

The intent of this section is to tackle the fifth research question:

“How does the inter- and intra-firm context influence the supply relationship?”

What has emerged from the comparison of the characteristics and of the PM practices across the two cases is that there are similarities and differences across the two cases in the way that characteristics and PM practices influenced the “together” and “separate” directions. These two constructs have been defined as follows:

- *Together*: stresses the positive aspects of jointly working within the “hybrid”.
- *Separate*: stresses the negative aspects of jointly working within the “hybrid” or the benefits of working away from each other.

Based on the literature review, two mechanisms can be advanced to be at work within the inter- and intra-firm relationships:

- *Lateral coordination*: pertains to horizontal arrangements, which take place within the “hybrid”.
- *Hierarchical control*: pertains to internal authority arrangements, which take place within each organisation, whether at local site or corporate level, which influence the “hybrid”.

The intent of the cross-case comparison is to compare a theoretical pattern with an observed one. Indeed the review of the literature in Chapter 2 has shown that mechanisms within an inter-firm relationship are expected to draw mainly on horizontal arrangements whilst within the intra-firm they are expected to draw essentially on internal authority.

6.5.1 LATERAL COORDINATION

6.5.1.1 Lateral -Together

A common feature across the two cases, was the higher degree of collaboration associated with joint work, which was required by quality or process issues, which equally affected both sides of the dyad. This collaboration was associated with a higher degree of technical information sharing, and more interaction which was necessary in order to jointly resolve the quality or process issues. Especially in the case of Tyrenco, which had a context of inter-unit competition, this was described as involving “no hidden agendas” (LDN-Mngt-8), or as being “logical” in contrast to political (PAR-Mngt-4). Issues also prompted more management involvement in the relationship. There was awareness that to a lesser (Tyrenco) or greater (WTC-CH) extent, collaboration was obligatory in order to attain the required “hybrid” outcome: reliability of operational process (WTC-CH) or secured quality product (Tyrenco). Indeed there was a perception of interdependence at the level of the process or product coordination, which involved mutuality and reciprocity, rooted in the necessary synchronisation of physical product flows. The necessity to build bridges by developing an understanding of the partner’s operations was underpinning this reciprocal view. This also involved recognition of the need to share knowledge and learn from each other.

Strong inter-personal links, which were built over time across the partners’ organisation, appeared to contribute to the relationship coordination because of the trust relations, which helped overcome the periods of tension or unreliability.

WTC-CH had a stronger reliance on lateral coordination. Indeed, it exhibited a joint goal setting process at operational level, supported by information sharing and a broad relationship structure, with a symmetric decision making process, which was not at work at Tyrenco. The strong lateral feature within this case was epitomised by two

elements: management collusion, in reaction to corporate involvement in local affairs as well as the use of “one company” heuristic as a rationale for decision making.

PM practices are in essence of an internal hierarchical nature. However, some of these practices required coordination in order to support the lateral interaction, or took place in an informal way, that followed horizontal processes.

The PM practice at the core of lateral linkages was work socialisation. This appeared as essential in that it allowed more or less extended processes of interaction amongst the people who worked within the “hybrid”. Overall, in both cases, this practice was perceived as having a reinforcing effect on the relationship through the personal relations that it helped to build.

In a similar vein, common training also brought the people together through increased interaction. Whilst marginal at WTC-CH, with the effect of building common language, it was central to the socialisation process at Tyrenco through the SPAN and Mother plant implementation workshops. Although an initiative of the corporate supply chain function, this initiative involved a lateral approach through collaboration across sites, regions and divisions.

The informal feedback mechanisms at WTC-CH could be seen as the necessary by-products of the quasi-integration, which characterised this relationship.

6.5.1.2 Lateral – Separate

Lateral coordination could also have the effect of bringing about separateness between the partners. As a counterpart to the increased collaboration due to shared issues, there was a perception that, in the absence of any concern, there was a lesser need for communication. Thus, the historical perspective within WTC-CH (section 5.1.3.5) showed that a period of stabilisation, characterised by improvements in process reliability also involved less interaction and collaboration. Likewise, one reason offered by LDN as explanation for the lack of dialogue with PAR was the lack of concern with supply. Indeed, in cases where the relationship did not present concerns, more resources were naturally dedicated to internal matters.

Joint work within the “hybrid” also involved the opposite of reciprocity and mutuality in the form of conflict, which could take various forms. Blame culture had to do with delineating the responsibilities for dysfunctions: centred on the accountability for unplanned shutdowns (WTC-CH) or T-drug Quality issue (Tyrenco). Frustration with task coordination was also expressed, which was associated with an opacity of the partner’s process, which negatively impacted own operation: thus WTC-CH operators felt powerless in front of the upsets of the joint process, whilst at Tyrenco, PAR in particular resented the lack of schedules and forecasts, which disrupted their work organisation. One specific feature of the Tyrenco case was the competition over the split of T-drug manufacturing between the two units and the perception of unbalanced power relationship in favour of LDN.

Whilst to a limited extent a concern for own company benefit existed within WTC-CH, in the form of separate goals, it was prevalent at Tyrenco, for reasons that had to do with the organisation structure, which favoured an individual site vs. an overall Tyrenco perspective.

The socialisation practice, which supported the lateral coordination of the relationship, could also have a negative effect, in cases where no basis was found for building trust at the interpersonal level. In a similar vein, in case of high turnover, personal relations

were disrupted by the inability to develop and sustain these personal relations over time across the two partners.

Within Tyrenco, the lack of joint goal setting was seen as the cause of lack of overlap of performance management systems. The issue of neutrality of end-to-end roles was also raised.

6.5.2 HIERARCHICAL CONTROL

6.5.2.1 Hierarchical – Together

There was little evidence of hierarchical mechanisms at work that brought together the WTC-CH relationship, inasmuch as the local operation appeared to be run independently from corporate hierarchy. However the contract could be assimilated to a hierarchical device (Stinchcombe, 1985) in that it specified the membership of the “joint coordination committee” to supervise the relationship and it secured as well the extent of information sharing, through the obligation of “confidence and non-use”. As observed in section 4.4.4, there was no consensus about the extent to which this contract influenced the local relationship; however there was evidence of management awareness of its content and the formation of the Steering committee could be interpreted as following its prescription.

Within Tyrenco, senior management scrutiny over the T-drug crisis was embodied in the T-drug crisis management team, which was led by corporate functions. The strategic character of the product raised the profile of the issue and increased the pressure on the two sites to resolve it: “When the T-drug crisis is discussed, it damages both PAR and LDN” (PAR-Mngt-1). Similarly, within WTC-CH, the local supply relationship performance drew CH senior management attention in that it could influence the outcome of CH’s expansion plans.

To some extent, the SPAN initiative had failed to induce a collaborative stance amongst sites, which were at equal level. Hence, the appointment of the product leader, who represented the next step in the direction of integrating sites – this time under a common hierarchical head rather than with a lateral approach.

Designing jobs that have responsibilities that spanned the different sites, could be viewed as a hierarchical measure to encourage collaboration. Similarly at WTC-CH, the creation of dedicated roles was a way to convey clearly the content of the job: “The title has got WTC in it” (CH-Mngt-3). Within Tyrenco, decisions to transfer employees or managers from one site to another was also viewed as removing inter-site barriers.

The hierarchical drive within the Tyrenco case was epitomised by the consensus around the need to call on arbitration as a way to resolve the inter-site conflicts as well as in the decision to change bonus schemes so that they were aligned on the whole product team goals, rather than on site targets.

6.5.2.2 Hierarchical – Separate

In both cases, there was an absence of strategic direction provided by hierarchy for the relationship, it was kept “implicit”. At WTC-CH, this was interpreted locally as adversarial relationships at corporate management level. At Tyrenco, the lack of guidance or “tangible words” (LDN-Mngt-8) as to how the inter-site collaboration should work might also have been the signal of an emergent process: “I don’t think at senior level it’s clear yet how the relationship will work in the future” (LDN-Mngt-6).

At WTC-CH, the contract specified the limits of the relationship: “nothing in this agreement shall be deemed to create a partnership or joint-venture”.

Within Tyrenco, the internal authority arrangements pulled the relationship in two opposite directions: at one level, the corporate impact was to push both sites towards collaboration, as seen in the previous section. At another level the overall Tyrenco organisation structure, drew the two sites apart, inasmuch as it did not foster any cross-site contacts and it drove incentive systems with accounting rules that induced a parochial view and adversarial relationships at site level: “The way those monies are controlled across the sites is in direct conflict” (LDN-Mngt-8).

The WTC corporate decision to funnel all business decisions through a global contact was an attempt to control the information flows at local level.

6.5.3 SUMMARY

From the foregoing, the following three general conclusions were made:

- 1) Positioning case data in the “together” or “separate” directions is influenced at two levels: (1) Lateral coordination: what takes place within the “hybrid” or supply relationship itself (2) hierarchical control: internal authority arrangements that take place within each organisation, whether at local or corporate level.
- 2) As expected from the theoretical pattern, there is more evidence of a lateral approach within the inter-firm case and of a hierarchical approach within the intra-firm case. However, there is also evidence of a hierarchical approach within the inter-firm and lateral approach within the intra-firm.
- 3) Hierarchical mechanisms involve both headquarter- subsidiary relations and local site.

As a result of these conclusions, a framework of inter- and intra-firm supply relationships was constructed, which is presented in the next section.

6.6 DISCUSSION

Conclusions from this cross-case analysis can be summarised using two matrices: One matrix representing lateral coordination (Figure 6.3) combined with the regulative, normative and cognitive facets as well as the “separate” and “together” directions.

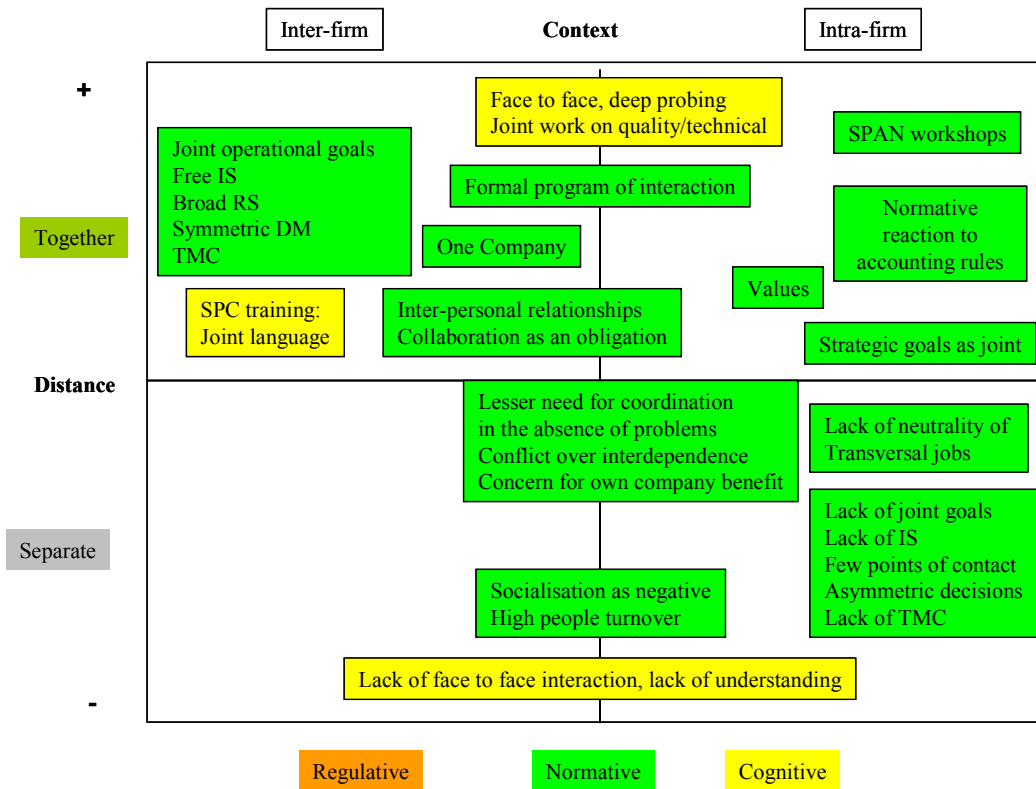
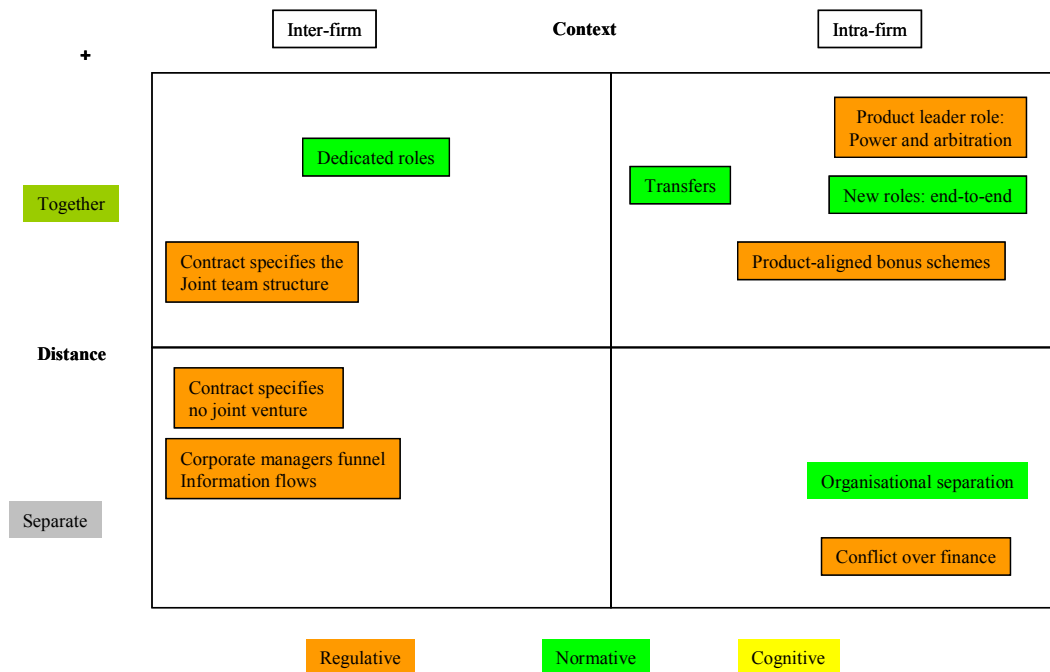


Figure 6-3 A framework of inter- and intra-firm supply relationships: Lateral coordination

One matrix showing hierarchical control mechanisms (Figure 6.4) as well as the same combination of regulative, normative and cognitive facets and “separate” and “together” directions.

Figure 6-4 A framework of inter- and intra-firm supply relationships: Hierarchical control



Thus, figure 6.3 and figure 6.4 provide a basis for a different interpretation of the characteristics of the two supply relationships as well as of the PM practices and the emergent themes from the research.

Specific comments are required in regards to the different facets of the relationship. Indeed, as could be expected, the regulative facets are all located in the hierarchical control figure. Conversely, and similarly expected, the cognitive facet pertains to lateral coordination, in that it involves the development of shared meaning. Elements that can be tied into the normative facet are numerous: again this would be expected in that this study looks at “relationships”, that require shared norms and socialisation for their operation. Whilst the normative facet prevails in the lateral coordination context, it has also been identified within the hierarchical quadrant. Indeed, a large number of remaining themes that have not been located in the above figure could be related to the normative facet.

What emerges from the above two figures is the tight interrelation between the management of the characteristics of the relationship, which has been operationalised through the seven dimensions, and the PM practices. This implies that separating the study of the relationship characteristics (goals, information sharing, relationship structure, coordination mechanisms, locus of decision making, top management commitment and compatibility) from a concurrent study of the PM practices that support these dimensions may provide a view of the relationship that is partial and insufficient.

Moreover, new emergent themes also contribute to the relationship, in particular in the area of the normative and cognitive facets that can be powerful for drawing the partners together or in pulling them in the “separate” direction. These themes cannot be related to specific PM practices, they are produced in an informal way by the actors who interact within the relationships.

6.7 CONCLUSION

It is problematic to move from particular observations, which are based on case study evidence to general theory, a point that is elaborated in section 3.9. In this research project, evidence is based on the study of two very different cases, the main contrast of which is the inter- vs. intra-dimension. The cross-case analysis in this Chapter has been facilitated by considering elements in common between the cases and uniqueness of each, and by a research design that allowed cross-case comparisons to be made on similar criteria and following a similar structure.

Elements in common provide evidence for the relevance of considering the seven relationship characteristics to diagnose the way that the supply relationship is managed and to study the way that they are supported by PM practices. Similarly, evidence is provided for a role of PM practices as influencer for the relationship. The uniqueness of each case stresses the contrasting role of the different facets of the relationship as well as the “lateral” and “hierarchical” mechanisms that concurrently appear to pull the relationship in two opposite directions: “together” and “separate”.

CHAPTER 7 CONCLUSION

7.0 INTRODUCTION

The purpose of this concluding chapter is to summarise the research project, to present the main findings, to evaluate their contribution to knowledge and limitations. Proposals for further research are then made and implications of the research are articulated.

7.1 SUMMARY OF THE PROJECT

This thesis has addressed our understanding of the way that reciprocal dyadic supply relationships are managed. Having identified seven dimensions of reciprocal relationships and their related people management issues, the study went on to explore the relation between PM issues and PM practices in order to assess the influence of PM practices on supply relationships within an inter- and an intra-firm context.

The review of the SCM literature has shown a focus on management of inter-firm relationships and a tendency to exclude from the research studies the management of the internal chain (Ellram, 1991b; Harland, 1996). In parallel, the literature on MNCs calls for an inter-organisational approach (Ghoshal and Bartlett, 1990), which may involve an inter- and intra-organisational comparison (Tsai and Ghoshal, 1998). Thus an argument was developed for a comparative study of dyadic supply relationships within an inter- and an intra-firm context, using the framework of the “hybrid” (Borys and Jemison, 1989).

While a number of authors have proposed different dimensions to characterise supply relationships, no single comprehensive framework has emerged. This review has categorised supply relationships through seven dimensions (goals, information sharing, relationship structure, coordination mechanisms, locus of decision making, top management commitment and compatibility). Specific characteristics of reciprocal relationships have been identified for each dimension, together with tentative PM issues.

Many studies have discussed PM issues or have prescribed PM practices within relationships. But this has not been helpful in providing a framework for understanding the way that PM practices influence supply relationships, for two reasons. Firstly, the literature review has shown a prescriptive approach for best practices within partnerships, without providing empirical evidence (Lorange, 1986). Secondly empirical studies have taken the perspective of a focal firm, concentrating on the asymmetric effects of supplier relationships on the internal work organisation, with an emphasis on work pressurisation (Bresnen, 1996; Roper et al., 1997).

Two studies have been more helpful in providing a framework for studying PM within supply relationships. Hunter (1996) has proposed that there may be an adaptation of PM practices to the supply relationship in order to develop a common set of coordination mechanisms to operate the relationship. Scarbrough (2000) has viewed PM practices as exhibiting regulative, normative and cognitive facets and has highlighted the potential conflict between process requirements of the supply chain and internal hierarchical work organisation.

This study builds on these two seminal studies. Firstly, it uses the seven dimensions and related PM issues as a framework for assessing the way that the supply relationship

exhibits specific characteristics and for exploring the relation between dimensions of supply relationships and PM issues. Secondly, it connects PM issues to PM practices in order to assess how these influence supply relationships. Thirdly, it assesses the extent to which PM practices are adapted to accommodate the requirements of the supply relationship. Fourthly, it analyses the way that PM practices exhibit regulative, normative and cognitive facets. These facets contribute to regulating the supply relationship, either by constraining behaviours through the use of sanctioning power (regulative) or through prescriptions and expectations (normative). The cognitive element pertains to the joint construction of shared meaning. These three facets contribute to highlighting the multi-faceted effects of PM practices on the supply relationship. Finally, the study seeks to uncover the underlying mechanisms that underpin the inter- and the intra-firm context.

7.1.1 RESEARCH STRATEGY

In order to explore the dynamics of people management within supply relationships, case study research was selected as a preferred strategy to investigate the effects of PM practices. The choice of the “hybrid” as the conceptualisation for the unit of analysis was central to the research to ensure the focus of the study was not shifted to the internal organisation of each partner.

A critical feature of the research design was its main research instrument, which drew on interviews with multiple informants across different levels and functions from both sides of the dyad, with deliberate symmetry in the sampling of informants. This evidence, together with other data sources, such as survey (WTC-CH), documentation and observation, could be triangulated in a conscious attempt to seek disconfirming evidence. Contextual analysis involved the vertical level of the respective corporate organisations and the local sites. Horizontal level pertained to the evolution of the relationship over time.

7.1.2 RIGOUR IN CASE STUDY DESIGN

A major concern with case study research is rigour in its design. Yin (1994 p33) introduces four tests to safeguard the quality and the overall validity of case study research. These were addressed in the research design as follows:

- Construct validity: As indicated in the previous section, this case study has drawn on several sources of evidence across two contrasted cases. Additionally a case study report was provided to each organisation, with a formal feedback session for WTC-CH and an informal feedback from key informants for Tyrenco, which helped to corroborate the essential facts of the cases. The chain of evidence was maintained from the initial case data, the within-case study analysis, the cross-case analysis and the juxtaposition of the research findings with the literature, which is performed in section 7.2.
- Internal validity: was obtained by using a common logic for defining the units of analysis across the two cases. Pattern matching was used to compare theoretical with empirical patterns. This was done with respect to the seven dimensions of the relationship, by comparing the actual evidence with specific characteristics from the literature. Moreover, such an approach was used to compare the expected “pattern” of hierarchical and relational approaches to inter- and intra-firm relationships.
- External validity: the same research instruments were used across each case and this has facilitated cross-case comparisons to be made on common criteria. Replication logic was followed to conduct the second case. The comparison with theory provided the

basis for analytical generalisation in order to link the conclusions to other theoretical views.

- Reliability: a case study protocol to guide data collection. N’Vivo provided a case study database, complemented with other documentary evidence in paper form.

7.1.3 LIMITATIONS

The seven-dimension and PM issues framework have been used to explore the relationship between two organisations and provide a diagnostic on the state of this relationship at a point in time. This has been done by using each dimension to understand the views of people at multiple levels within the dyads, and to allow emerging the associated PM issues. This framework has allowed capturing other dimensions of the relationship, such as conflict, power, commitment or dependence. The performance dimension, however, has not been captured. Indeed, the framework has sought to understand the extent to which actors see themselves as working together, as opposed to separately, but no attempts were made to establish whether “togetherness” meant higher performance of the relationship through better business results or whether PM practices influenced performance of the relationship.

This research has looked at two studies of dyadic relationships, and therefore it has not sought to provide insights into wider effects that pertained to the supply chain. The dyadic view was justified by the fact that the two dyads were core to the strategic relationship and controlled the upstream side of the supply chain. Moreover, this was justified by the study of PM practices, which were embedded into each organisation. However, it should be recognised that this study did not include effects on the downstream part of the supply chain.

A sample of two constrains generalisability. Such concern on generalisability may be witnessed by the fact that the two cases were extreme in that the inter-firm case was far more integrated than the intra-firm case. However, a rich picture could be drawn from the contrast between such polar cases: indeed, it allowed elements of “togetherness” and “separateness” that appeared as inherent features of supply relationships to be highlighted.

7.2 SUMMARY OF THE FINDINGS

This section provides an overview of the findings from the research project and a comparison with the literature. This process involves asking what is this similar to, what does it contradict (Eisenhardt, 1989).

7.2.1 Question 1: IN WHAT WAYS DO SUPPLY RELATIONSHIPS EXHIBIT SPECIFIC CHARACTERISTICS AND RELATED PM ISSUES?

1) A comparison of the empirical data with the specific characteristics shows that none of the two cases displayed a unitary picture. Indeed, they both demonstrated, within each dimension, a mix of elements that pulled the partners “together” – which matched the specific characteristics – and other elements that drew the partners apart as “separate”.

Findings from the two case studies highlight informants’ statements that stress the separateness, the “us and them” and adversarial perspective of the supply relationship, which has been labelled “separate”. Simultaneously, and sometimes within the same

interview, other statements stress the reciprocal, “together” direction. Thus, a contrasted view of the supply relationships emerges, which shows a tension between these two polar extremes. Figure 7.1 illustrates this graphically.

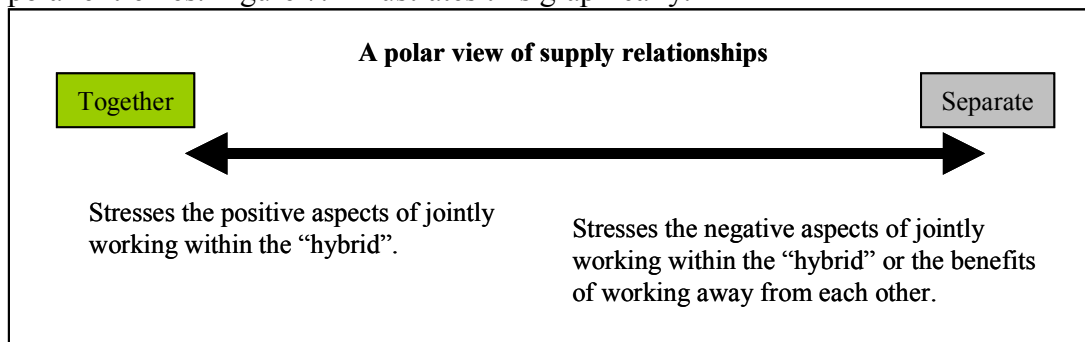


Figure 7-1 A polar view of supply relationships

The above representation of the polarity of supply relationships echoes the idea that the literature has a contrasted view of supply relationships between the rhetoric of “partnership” and the “realpolitik” (Scarborough, 2000). However, the above representation is different in that it argues for a concomitant interplay of the two directions: “together” and “separate”.

In her review of six contingencies of inter-organisational relationships (IOR), Oliver (1990) highlights the probability of an interplay between contingencies. Thus, a relationship initially rooted in power and conflict can also include elements of reciprocity or can evolve into a reciprocal one, when a mutually acceptable compromise is achieved. This latter scenario can be compared with the findings from this research where the initial – to different degrees – adversarial stance evolved into more collaboration after joint work over quality/process issues was conducted.

The polar view of conflict coexisting with cooperation is a central theme within the inter-departmental conflict literature, especially in the context of mutual task dependence (Walton and Dutton, 1969). Indeed conflict is also a way to ensure that the relationship retains its vitality (Dwyer et al., 1987) and competition can be viewed as an indispensable feature of relationships (Das and Teng, 1997). What emerged from this thesis was the inherent tension between, on the one hand, the obligation to collaborate in order to accomplish the purpose of the relationship (the “together” direction) and, on the other hand, the concern for achieving other internal priorities that could to different extents, conflict with the relationship (the “separate” direction).

Some authors have focused on proposing conflict resolution techniques, (Mohr and Spekman, 1994; Monczka et al., 1998), or have argued that, for example, divergent goals could be a source of conflict (Dwyer et al., 1987). The “conflict” element within each case was captured within the “separate” direction, which stressed the negative aspects of working together, and which can emerge in relation to each dimension of the relationship or from distinct PM issues.

In conclusion, this thesis has found that the seven-dimension framework was useful to develop a view of the requirements of supply relationships that are linked to the need to jointly work together to achieve the relationship purpose. Moreover, it allowed to capture other underlying themes that pertained to the polar view embodied in the “together” and “separate” directions.

2) PM issues have been related to each dimension, thus illustrating how people management can contribute to the “separate” direction.

There are three key similarities between PM issues identified in Chapter 2 and the case data:

- Bonus schemes as a source of tension: The reference to rewards as a source of conflict when they emphasise the separate performance of each party, has been highlighted in the inter-departmental conflict literature (Walton and Dutton, 1969). The finding that rewards are a source of contention is also in line with Scarbrough's research on SC relationships, who found that the existing pay system was a key constraint on the implementation of process-based work practices (2000 p16)
- Disruptive effects of high people turnover: this has to do with the fact that individuals who work within the "hybrid" develop personal bonds over time, so that the effect of turnover is to "restart the clock" of these inter-personal relationships. Thus, a loss of flexibility and efficiency is associated with the arrival of new people (Ring and Van de Ven, 1994 p104). A specificity of the WTC-CH case was to show the effects of people turnover at operator level.
- Lack of understanding of the partner's operations, associated with a lack of interaction: this issue, related to the management of the "hybrid", is mentioned in Borys and Jemison as inducing "resistance (...) from unexpected sources" (Borys and Jemison, 1989 p241). The possibility, central to the WTC-CH case, of having exchange visits of shop floor and supervisory personnel has been referred to in other studies (Hunter et al., 1996 p243). The development of an understanding of the partner's constraints also points back to the central relational element that is at the core of the relationship.

There are three key differences between PM issues identified in table 2.5 and the case data:

Whilst goal communication was presented as a recommended practice (Bessant et al., 1994; Slowinski, 1992), this has not been so much supported by the case evidence, in that the preferred way for communicating relationship goals was through the existing performance management system rather than through any other form of internal communication.

Specific attention to communication at shop floor level emerged as an important issue in both cases, although it was not specifically referred to in the literature reviewed.

The issue of different levels of empowerment mentioned in the literature (Kanter, 1994) did not emerge as such, in that employees from each firm would perceive themselves as more empowered than their counterpart – but this was not expressed as an issue.

The three PM issues that have been identified are in line with the literature. However, other PM issues identified in the literature show that this list is not complete and can be contingent on the case context.

In conclusion, this thesis has shown that the "together" and "separate" directions were the result of the interplay between dimensions of the relationship and people management issues. This highlights the importance of including a review of people management effects as an integral part of the study of supply relationships.

7.2.2 Question 2: IN WHAT WAYS DO PM PRACTICES INFLUENCE SUPPLY RELATIONSHIPS

1) *PM issues that were identified in relation to each relationship dimension can be connected to PM practices, thus establishing a link between dimensions of the supply relationship, PM issues and PM practices.*

In line with the literature on people management within joint ventures (Schuler, 2001), this research establishes the link between the PM practices and the supply relationship through PM issues that are related to dimensions of the “hybrid” and can be linked back to individual PM practices.

2) *PM practices can contribute to the “together” or “separate” directions*

Figure 7.2 illustrates how different PM practices can contribute to the “together” and “separate” directions.

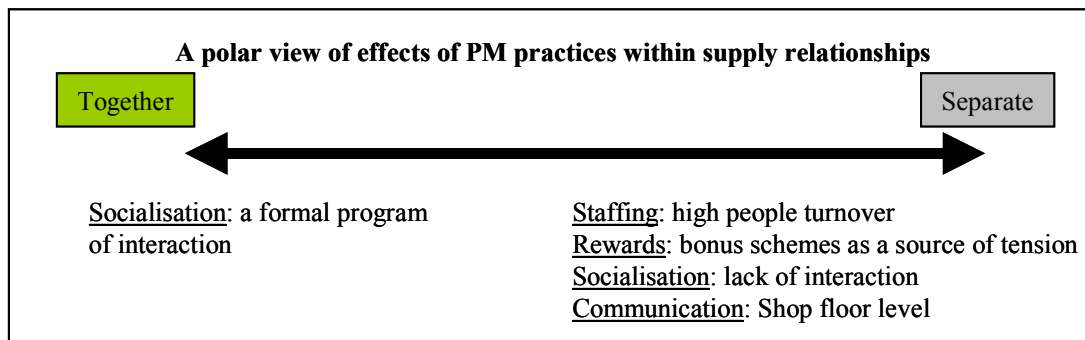


Figure 7-2 A polar view of effects of PM practices within supply relationships

The conclusion that socialisation is the key practices across both firms and across levels, is not a surprise and is in line with other findings related to an extension of lateral relations across organisational boundaries (Bresnen, 1996 p138). However, it may be contrasted with the literature, which has highlighted the central role of interpersonal relationships with an emphasis on the relationship manager (Spekman et al., 1998b) or other managerial level, whilst possibly overlooking the importance of socialisation at other levels across both organisations.

Lorange (1986) argues that future career relevance is an important element for employees working within various cooperative ventures. This research has not found much evidence that a concern about future career prospects was influencing the way that people were interacting within the supply relationship.

3) *Whilst key PM issues have been fairly consistent across the two cases, the way that PM practices could contribute to the “together” direction was found different.*

Socialisation was found important within both cases, thus highlighting the overall importance of social relations (Granovetter, 1985). In contrast to this research, findings from the construction industry have highlighted, among other findings, the crucial aspect of internal role clarity (1996 p138).

Similarities between the two cases may indicate that there are elements, which are constant across supply relationships, whilst the difference between highlighted practices may indicate more idiosyncratic findings. Hence, no attempt is made here to draw any inferences about a prescribed set of practices.

Other researchers (Delery, 1998; Gratton et al., 1999) have argued that PM practices needed to be coherent among each other and that the effectiveness of any practice depended on other practices in place. This research has highlighted the individual effects of PM practices, whilst also showing that the “together” and “separate” directions were influenced by a combination of different PM practices.

This thesis has shown that PM practices influence supply relationships in that they pull them in the “separate” or “together” directions. Their effects pertain to all levels of interaction rather than only to the managerial one. PM practices should be considered as a set rather than as individual PM practices.

7.2.3 Question 3: IN WHAT WAYS DO FIRMS ADAPT THEIR PM PRACTICES TO ACCOMMODATE THE REQUIREMENTS OF THEIR SUPPLY RELATIONSHIPS?

This study has shown that PM practices were, overall, seen as internal and focused on the priorities of the internal site work organisation rather than on the requirements of the supply relationship. However, evidence of adaptation could be identified across the different practices, to a lesser extent within the inter-firm than within the intra-firm context.

Overall, this research has provided support for studies, which viewed PM practices as being only loosely connected to the supply relationship (Bresnen and Fowler, 1998; Roper et al., 1997). However, there has also been some evidence of efforts from both sides to adjust the practices to the requirements of the supply relationship.

In contrast to other studies that have highlighted the transfer of management practices from one organisation to another (Hunter et al., 1996), this research has shown little evidence of an influence being exerted from one organisation to another, whether as coercive or mimetic behaviour. Indeed the commonality of PM practices across the organisations studied seems to have drawn far more from management fashion (Abrahamson, 1996) at corporate level than on diffusion at local level. One explanation of the difference between this research and other studies may be the MNC context as opposed to smaller organisations. Another explanation may be the reciprocal contingency, which is contrasted with the asymmetric context displayed by other studies.

The intra-firm case has shown much adaptation of PM practices to the new product-aligned organisation, however this pertained to hierarchical decisions that supported strategic programmes rather than to lateral arrangements between the partners.

This research has not shown much evidence of adaptation of internal PM practices to accommodate the supply relationship. Although there has been some joint work and informal influence of one partner on the other, the actual practices have been rather insulated from the supply relationship.

7.2.4 Question 4: REGULATIVE, NORMATIVE AND COGNITIVE FACETS

This study is in line with Scarbrough’s (2000) call for an institutional approach (Scott, 1995) of the study of people management within supply relationships.

Overall, the two cases have shown evidence of the regulative, normative and cognitive facets, however, these facets were not limited to PM practices. They involved the

overall “hybrid”, with intermingled effects of PM practices, relationship dimensions and other contextual elements.

Both “hybrids” have drawn on the three facets. This research has illustrated the powerful effects of the regulative facet, and the way that it could be a source of conflict within the hybrid and therefore inhibit the other facets. Conversely, the intra-firm case illustrated how such rules and procedures could be adjusted to better support the normative side of the supply relationship.

Normative elements, such as the “one company” heuristic (WTC-CH) or the strong reaction to accounting rules governing exchanges between sites (Tyrenco) emerged in both cases. This highlighted the central role of the normative facet for the functioning of the supply relationship and is in line with Lamming’s “quasi-firm” framework, which shows that employees would develop a concern for the relationship in its own right. The normative facet could be related to the cognitive facet, in that extended socialisation allowed the move from a relational effect to a cognitive one through the shared understanding and generation of tacit knowledge (Nahapiet and Ghoshal, 1997). However, the negative aspects of socialisation were also stressed (Granovetter, 1985). This research has shown that the three facets were meaningful for shedding a light, not only on the role of PM practices within the supply relationships, but also on the way that the dimensions of the relationship and other emergent themes were influencing the supply relationships.

7.2.5 Question 5: THE INTER AND INTRA-FIRM CONTEXT

Whether the case data are in the “together” or “separate” directions is influenced at two levels: (1) Lateral coordination: what takes place within the “hybrid” or supply relationship itself (2) hierarchical control: what takes place within each organisation, whether at local or corporate level.

Findings from Scarborough have highlighted the “uncomfortable co-existence within supply chains of a range of ‘organising practices’ (Hennart, 1993) and hierarchical control” (2000 p7). This research has provided evidence of such underlying mechanisms, which have been defined as “lateral coordination” and “hierarchical control”.

Lateral coordination

The obvious “together” aspect of lateral coordination is represented by the specific characteristics of reciprocal supply relationships, which have been used as a guide for conducting this research. In addition to that, this study has highlighted the “separate” direction that is involved in coordination, and which is rooted in the inherent conflict that pertains to task interdependence (Walton and Dutton, 1969) as well as in the potential conflict that is embedded in social relations (Granovetter, 1985).

Hierarchical control

Borys and Jemison (1989) raise the issue of boundary definition within the “hybrid” in that each partner organisation has legitimate power over the hybrid and therefore has control over the elements – resources, authority, obligations - that are allowed to cross it. This research has shown that such boundary definition pertained to the local and to the corporate levels.

This research shows in both cases that corporate headquarters have not explicitly articulated strategic goals. In a similar vein, Bessant et al (1994) found that strategic goals had not been explicitly articulated in seven out of the eight pairs of relationships

they studied. Reasons for that may be related to the competitive background of inter-firm relationships (Das and Teng, 1997).

Other corporate intervention has to do with the mandate that is granted to local management for the running of the relationship (Ring and Van de Ven, 1994), as well as with the extent of top management commitment. (Kanter, 1989). The WTC-CH research in particular has shown a lot of evidence of corporate interference in the local supply relationships with attempts to control information flows and bind local decision-making. Within Tyrenco, corporate Industrial Organisation had a key role in redesigning PM practices to better support the product-aligned organisation. A different perspective emerged from the two cases, where one was resenting corporate interference and the other was seeking arbitration from them.

Bresnen (1996 p138) stresses the gap between decisions and actions taken by management at a more strategic level and how these are then translated at operational level. This study supports the view that the literature has overlooked aspects of inter-organisational dealings that are related to the wider intra-firm context (Bresnen and Fowler, 1998 p134). Such tensions highlight the conflicting pressure between global integration and local responsiveness (Doz and Prahalad, 1991).

This research has illustrated the way that the local site could affect the “hybrid”, through the effects of PM issues, such as local bonus schemes, people turnover or decisions not to allow people to interact. Thus the supply relationship is in conflict with company wide management practices, as well as local policies and practices enforced through employee relations (Scarborough, 2000).

This research has overall provided corroboration for calls in the literature for an inter-organisational approach to the management of inter-site relationships (Ghoshal and Bartlett, 1990). Limitation of such approach would be that it did not account for the reason for the failure of the lateral approach, as opposed to the hierarchical approach within the intra-firm. Such reasons may be sought within the wider political arena of the intra-firm context.

This research has highlighted many similarities between the inter- and the intra-firm context, which seem to indicate that there are a number of underlying requirements that are constant within supply relationship, independently of their context. This has pertained in particular to the “lateral coordination” mechanism. Within the “hierarchical control”, the pervasive role of headquarter- subsidiary relations has been highlighted in addition to the local site influence.

Hence, this research has provided corroboration for the use of an inter-organisational framework within an intra-firm context, although such framework fulfils descriptive rather than explanatory purposes.

7.3 REVISED CONCEPTUAL FRAMEWORK

Figure 7.3 shows the revised conceptual framework:

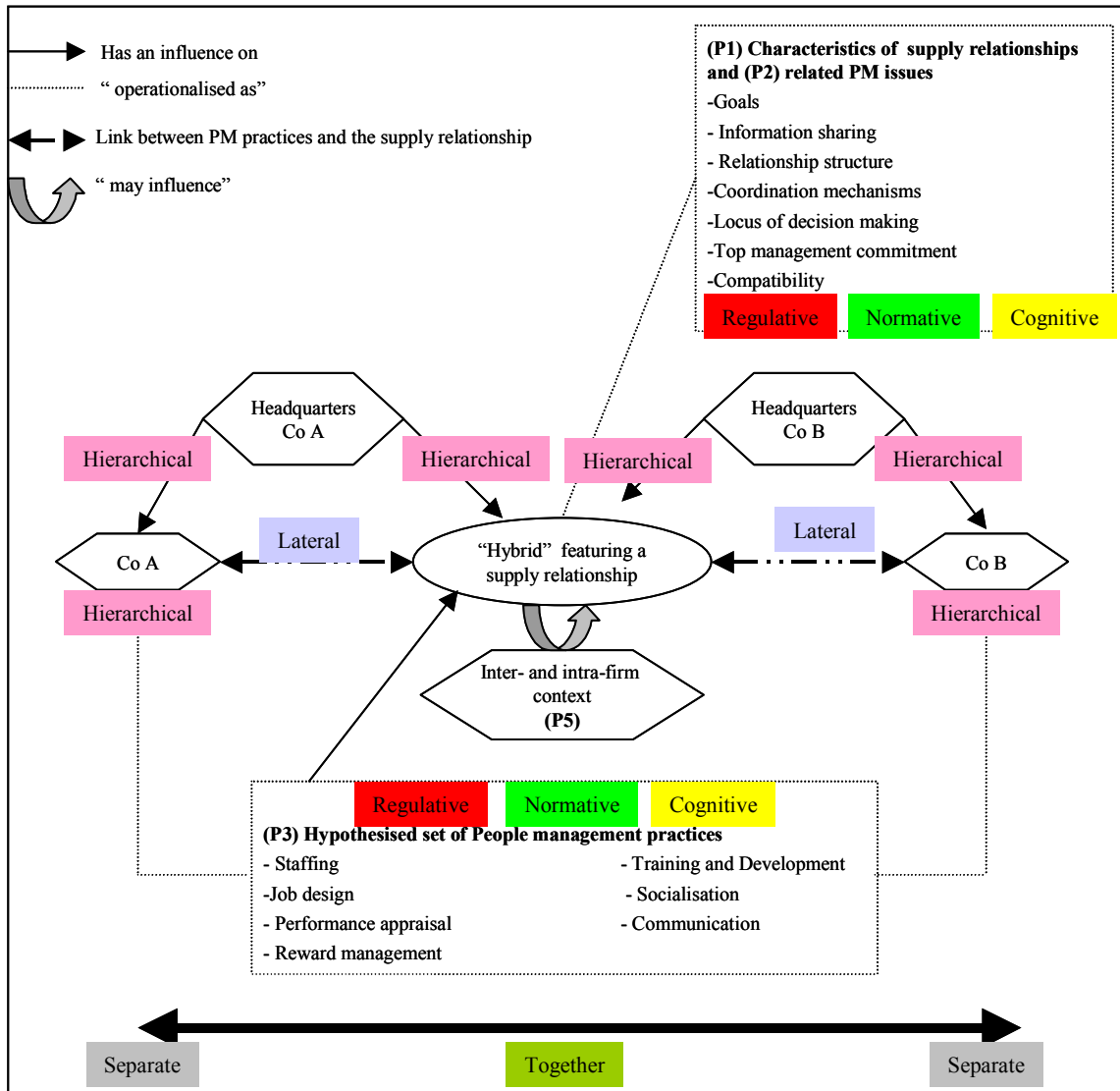


Figure 7-3 Revised conceptual framework

As a result of the findings, the conceptual framework has evolved from the initial model proposed at the end of Chapter 2. The following elements differentiate the new conceptual framework from the previous one:

- (1) An arrow indicates the polar view of the supply relationship. It shows how the partners are, on the one hand, pulled "together" in order to work within the "hybrid" to coordinate their relationship and to achieve its purposes, and on the other hand drawn to the "separate" direction, either through conflict over the joint operation or through a concern for own interest.
- (2) A box indicating the role of headquarters has been added on top of the two partner organisations, with arrows indicating a dual influence on the individual organisation and on the "hybrid". This headquarter influence has been shown within the "hierarchical control" mechanism, which has highlighted the role of the internal authority arrangements that are controlled at local and corporate levels.
- (3) The hierarchical and lateral influences on the relationship are represented visually, with the lateral coordination showing the horizontal links of the two organisations within the "hybrid".

(4) Whilst the initial conceptual framework only referred to regulative, normative and cognitive facets in relation to the PM practices, the revised framework relates these three facets to the seven dimensions of the supply relationship and related PM issues.

7.4 CONTRIBUTION OF THE THESIS

This research has contributed to knowledge in the following ways:

(1) New insights into the management of supply relationships:

- The development of a seven-dimension framework that provides a comprehensive diagnostic tool for studying reciprocal supply relationships has shown the fragile equilibrium between elements that draw the partners together on the one hand and elements that separate the partners on the other. This has also highlighted the pervasive effects of PM issues and therefore has stressed the importance of jointly considering dimensions of the relationship with their implications in terms of people management.
- The rationale developed for the influence of PM practices within supply relationships through the link between dimensions, PM issues and PM practices has highlighted the value of considering the potential effects of PM practices as an inherent part of the management of supply relationships. Indeed, this research has shown that, while the characteristics of supply relationships could be driving the partners towards collaboration, internal policies and practices could on the other hand prevent such collaboration. Conversely, PM practices could contribute to the way that the partners were brought together.
- The role of headquarter- subsidiary relations has been highlighted both within the inter- and the intra-firm context. This means that studies of supply relationships involving MNCs should not omit to take into account the corporate context.

(2) Better understanding of people management within supply relationships:

- This research has built on earlier work on people management within supply relationships (Hunter et al., 1996; Scarbrough, 2000) by either trying to understand whether PM practices are adapted to the supply relationship or to study how they exhibit regulative, normative and cognitive facets.
- Whilst this study has not attempted to define a precise list of PM practices that contributes to the “together” or “separate” directions, it does demonstrate the relevance of considering the effects of a set of PM practices rather than individual ones. The central role of socialisation in supporting supply relationships has been confirmed. However, effects of individual PM practices are also contingent on other PM practices and therefore require an approach of those PM practices as working as a set, rather than independently from each other.
- In contrast to the literature, which has highlighted the role of inter-personal relations within the supply relationship, this study has shown the role of people management across all levels of the interaction. In particular, this study has highlighted the significance of the shop floor level as opposed to the traditional focus on managerial level.

(3) Relevance of comparing an inter- with an intra-firm supply relationship

- This study has built on earlier work using an inter-organisational framework for studying intra-firm context (Ghoshal and Bartlett, 1990). It has shown the relevance and

limitations of using an inter-organisational framework for the study of the intra-firm context.

- The contrast between the inter- and intra- firm context has provided deeper insights on the role of lateral as opposed to hierarchical arrangements within supply relationships. Indeed, the role of corporate headquarters within the inter-firm context may indicate that there should be more cross-fertilisation between literature on SC relationships and literature on MNCs when research focuses on relationships between vertically integrated firms. Moreover, the intra-firm case has shown that headquarter-subsidary are tightly intermingled with inter-unit relationships and therefore there may be room for more research on the inter-play between the two levels.

(4) Cross-disciplinary approach

This thesis has shown that PM practices are tightly intermingled with the characteristics of supply relationships. Therefore, there is a call for a more holistic and cross-disciplinary approach of the management of supply relationships where the people management elements are not investigated as a separate study, but rather as integral part of the main studies. This may call for more cross-disciplinary collaboration between the SCM and inter-organisational literature, human resource management literature and literature on MNCs.

7.5 NEW AREAS FOR RESEARCH

Whilst the focus for this thesis has been on a manufacturing context, which gives much emphasis to processes involving physical product and information flows, it should be recognised that supply relationships can also involve other processes, such as design and development work, which call attention to knowledge and expertise flows. A new area of research would be to compare a reciprocal dyadic supply relationship within the inter- and the intra-firm context – this time involving a new product development process. Figure 7.4 shows the possible design of this study in comparison

		Context	
		Intra-firm	Inter-firm
Processes	Knowledge and Expertise flows	New area of research	New area of research
	Material and Information flows	Tyrenco	Wheatco-Chemco

to the current one.

Figure 7-4 New area of research: Knowledge and expertise flows

Indeed it may be hypothesised that, using the seven-dimension framework, characteristics and PM practices would be different in such a context, which may put more emphasis on people than a more technologically-oriented manufacturing context. The need to do joint development work may involve more processes of interaction and different PM issues. Such study would provide rich data to further develop the normative, regulative and cognitive facets within supply relationships.

- Other areas of research would also involve applying the seven-dimension framework to a broader set of partners – possibly starting with a triad, to capture the wider SC effects.

7.6 A FINAL WORD

This study has researched in great depth the multifaceted interaction between two large organisations, in the inter-firm case, and two parts of a single large organisation, in the intra-firm case. The project has exposed the complexity and intricate nature of the reality of such interactions, which involve a vast number of relations that take place every day across the organisations concerned. It has attempted to provide a balanced representation of the views of the people who interact at different levels in each organisation and who stand at the heart of such relationships.

The research methodology was very intensive in terms of the researcher and in the way that the project was addressed in that a broad sample of informants contributed to the project. I believe that as a result I have contributed to throwing more light on the amazingly complex and fragile phenomenon of supply relationships.

ACRONYMS USED IN THIS THESIS

API	Active product ingredient (Tyrenco)
BPR	Business process reengineering
CAQDA	Computer assisted qualitative data analysis software
CEO	Chief executive officer
CH	Chemco
CO	Commercial operations (Tyrenco)
DP	Drug product (SPAN)
IJV	International joint venture
IO	Industrial operations (Tyrenco)
KPI	Key performance indicator (Tyrenco)
IOR	Inter-organisational relationship
LDN	London site (Tyrenco)
MNC	Multinational corporations
MOM	Monday operator meeting (Wheatco-Chemco)
OC	Outside contractor (Tyrenco)
PACE	Acronym for Technical team within the Wheatco-Chemco case
PAR	Paris site (Tyrenco)
PM	People management
PSCM	Product supply chain manager (Tyrenco)
QIT	Quality improvement team
R&D	Research and development
SCM	Supply chain management
SPC	Statistical process control
SPAN	Acronym for Tyrenco supply chain initiative
TCS	Name of the upstream Wheatco manufacturing team

WTC

Wheatco

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APPENDICES

WHEATCO-CHEMCO INTERVIEW BRIEF
N’VIVO CODING STRUCTURE
SURVEY QUESTIONNAIRE
SAMPLE OF SURVEY RESULTS
DETAILED DATA TABLES

TYRENCO
DETAILED DATA TABLES

ORGANISATION CHARTS
PERFORMANCE MANAGEMENT PROCESS

WHEATCO-CHEMCO INTERVIEW GUIDE (Wheatco side)

This interview guide was the result of several iterations: originally it was more structured and longer. It then became more of a “checklist” to guide the interview as this was viewed as a way to better explore, especially the people management side of the project. This was later used with little modification to run interviews at Tyrenco.

Introduction: present project, credentials and anonymity of the project results.

What is your position and role?: Activities and length in the job, Reporting line

Objective: Document job, position and length in the job. Previous exposure to Chemco?

1. How do you see your role in the SC relationship and how do you interface with CH?

- Role within the WTC internal SC? And specific role vs CH?
- Interaction: Who? How often? Why? How?
- In what ways does the WTC’s internal SC influence the relationship (local vs corporate, Basics vs Rubber SC?).
- How do you perceive CH’s relationship with Basics vs rubbers? Could it be different? How is the relationship influenced from CH’s side?

Objective: Map internal and external SC and SC relationship structure (who interfaces with whom?) Assess level of integration of WTC internal SC and how it affects CH and the relationship with CH.

2. How would you describe the relationship? (What are the elements that reinforce or hinder the relationship? In what ways is it a partnership vs. non-partnership relationship? Give examples of key issues or events. How have you seen it evolve?). (20’)

- Goals (shared or individual? Clarity?)
- Communication (clarity of lines) and information sharing (extent of).
- Relationship structure (breadth and depth? Clarity of interfaces?)
- Co-ordination mechanisms (formality, contract-related; types of coordination).
- Decision making process (symmetry, decision making process, clarity)
- Top management commitment (local and corporate levels)
- Time frame (long vs short?).
- Compatibility: compatibility of management philosophy..

Objective: Describe “hybrid”, partnership characteristics, and evolution of “hybrid”.

3 – What are the requirements of the partnership in terms of people management? (In what ways can PM practices facilitate or hinder the relationship? Within CH, within WTC? within the hybrid? In what ways does the partnership create different requirements for PM?).

- Skills, motivation, job clarity.
- Appraisals, incentives, rewards. Teamwork.. Selection. Career planning. Communication. Training and development. Empowerment.

Objective: In what respects are PMP aligned on the partnership? Are there specific PMP within the “hybrid”?

WTC-CHEMCO RELATIONSHIP – N’VIVO CODING

Following coding structure was used to collect the coding for analysis of the Wheatco-Chemco data. A conscious attempt was made not to generate too many codes that would have fragmented the analysis. Hence, it is mainly by using Word that the “nodes” or categories were broken down into “clusters” or sub-themes. One exception to that was “information sharing” or “socialisation”, where the breadth of the data made it necessary to use N’Vivo to break it down.

Whilst there are categories that were provided by the literature review, new themes emerged from the data, which are highlighted. More over, memos were generated within N’Vivo, which are

WTC-CHEMCO relationship/SCM/intra-firm context

WTC-CHEMCO relationship/SCM/Characteristics/Process

WTC-CHEMCO relationship/Relationships

WTC-CHEMCO relationship/Relationships/asymmetry

WTC-CHEMCO relationship/Relationships/reciprocity

WTC-CHEMCO relationship/Relationships/efficiency

WTC-CHEMCO relationship/Relationships/Stability

WTC-CHEMCO relationship/Hybrid

WTC-CHEMCO relationship/Hybrid/Goals

WTC-CHEMCO relationship/Hybrid/Information sharing

WTC-CHEMCO relationship/Hybrid/Information sharing/Operators

WTC-CHEMCO relationship/Hybrid/Information sharing/Engineer

WTC-CHEMCO relationship/Hybrid/Information sharing/Management

WTC-CHEMCO relationship/Hybrid/RelStructure

WTC-CHEMCO relationship/Hybrid/CoordMech

WTC-CHEMCO relationship/Hybrid/CoordMech/Contract

WTC-CHEMCO relationship/Hybrid/LocDecision

WTC-CHEMCO relationship/Hybrid/TopMgtCommitment

WTC-CHEMCO relationship/Hybrid/Compatibility

WTC-CHEMCO relationship/Hybrid/Time

WTC-CHEMCO relationship/Hybrid/Barriers to Hybrid

WTC-CHEMCO relationship/Hybrid/one company (Theme)

WTC-CHEMCO relationship/Hybrid/one company/Internal~External

WTC-CHEMCO relationship/Hybrid/Trust

WTC-CHEMCO relationship/PM Practices

WTC-CHEMCO relationship/PM Practices/Socialisation

WTC-CHEMCO relationship/PM Practices/Socialisation/face to face

WTC-CHEMCO relationship/PM Practices/Socialisation/Visit

WTC-CHEMCO relationship/Hybrid/Socialisation/Impact on process

WTC-CHEMCO relationship/PM Practices/Staffing

WTC-CHEMCO relationship/PM Practices/PMP appraisal

WTC-CHEMCO relationship/PM Practices/Empowerment

WTC-CHEMCO relationship/PM Practices/PMP rewards

WTC-CHEMCO relationship/PM Practices/PMP rewards/Rewards (search)

WTC-CHEMCO relationship/PM Practices/Training & development

WTC-CHEMCO relationship/PM Practices/Job design

WTC-CHEMCO relationship/PM Practices/Communication
WTC-CHEMCO relationship/PM Alignment or adaptation
WTC-CHEMCO relationship/PM/PM other
WTC-CHEMCO relationship/PM/New people (Theme)
WTC-CHEMCO relationship/PM/Individuals (Theme)
WTC-CHEMCO relationship/PM/People management is not a priority (Memo)
WTC-CHEMCO relationship/PM/Why align PM practices on the relationship? (Memo)
WTC-CHEMCO relationship/PM/PM barriers
WTC-CHEMCO relationship/PM/PM function

WHEATCO-CHEMCO OPERATOR SURVEY: Assessment of Wheatco – Chemco relationship

I would be grateful if you would spare a few minutes to complete this questionnaire. This study attempts to assess the human relations aspects of the relationship between Chemco and Wheatco operators.

Please answer all questions and return the completed questionnaire in the attached envelop to:

Marie Koulikoff-Souviron

Home address

France

All responses will be kept anonymous and will only be used for the purposes of this study. No names of respondents are required.

Please circle the appropriate answer proposed for each question

About yourself:

1. What is your age?

Under 30 30-39 40-49 Over 50

2. How long have you been working as an operator for Wheatco UK?

<1 year 1-2 years 3-4 years 5-10 years >10 years

3. How long have you been working as an operator for TCS?

<1 year 1-2 years 3-4 years 5-10 years >10 years

I do not currently work on TCS

About the relationship between Wheatco TCS and Chemco:

4. How good do you feel is your understanding of following?

The way that the Chemco plant operates	Not good	quite good	good	very good
The effect that Chemco has on TCS plant	Not good	quite good	good	very good
The effect that TCS plant has on Chemco	Not good	quite good	good	very good
The problems encountered by Chemco	Not good	quite good	good	very good

5. Have you visited the Chemco control room?

Yes No

6. If you have visited the Chemco control room, please answer following questions, otherwise, please turn to question 7:

6.1 How often ?

Once Twice 3 times More than 3 times

6.2 When? (Circle several answers if appropriate)

In 2001 In 2000 In 1999 In 1998 In 1997 Before 1997

6.3 Who did you meet? (Circle several answers if appropriate)

Operator(s) Shift manager(s) Engineer(s) Other (s) _____

6.4 Who else from TCS was with you for this visit (Circle several answers if appropriate)

I was alone I came with:

Operator(s) Shift manager(s) Engineer(s) Other (s) _____

6.5 What was the purpose for the visit? (Circle several answers if appropriate)

Special project Other meeting Informal visit

Training Other (explain) _____

6.6 How long did you stay? (Circle several answers if appropriate)

1 hour or less 2-4 hours 5-8 hours one full shift

More than a day Other (explain) _____

6.7 Thinking back about your visit to Chemco:

- 6.7.1. Did you feel it improved your understanding of:
- 6.7.1.1 The way that the Chemco plant operates Not at all partially fully
- 6.7.1.2 The effect that Chemco has on TCS Not at all partially fully
- 6.7.1.3 The effect that TCS has on Chemco Not at all partially fully
- 6.7.1.4 The problems encountered by Chemco Not at all partially fully
- 6.7.2 Did you feel it improved the Chemco's operator's understanding of:
- 6.7.2.1 The way that the TCS plant operates Not at all partially fully
- 6.7.2.2 The effect that Chemco has on TCS Not at all partially fully
- 6.7.2.3 The effect that TCS has on Chemco Not at all partially fully
- 6.7.2.4 The problems encountered by TCS Not at all partially fully

7. Have you had other opportunities to meet with the Chemco operators?

Yes No

8. If you have had other opportunities to meet with the Chemco operators, was it:

At Chemco At Wheatco Outside work Other (explain) _____
 In 2001 In 2000 In 1999 In 1998 In 1997 Before 1997

9. If you have attended a "Monday operator meeting", can you tell me:

9.1 Did it improve your understanding of:

- The way that the Chemco plant operates Not at all partially fully
- The effect that the Chemco plant has on TCS Not at all partially fully
- The effect that TCS plant has on Chemco Not at all partially fully
- The problems encountered by Chemco Not at all partially fully

9.2 Did you feel it improved the Chemco operator's understanding of:

- The way that the TCS plant operates Not at all partially fully
- The effect that the Chemco plant has on TCS Not at all partially fully
- The effect that TCS plant has on Chemco Not at all partially fully
- The problems encountered by TCS Not at all partially fully

10 In your opinion, what could be done to improve the "Monday operator meeting"?

11 Is there information or data on Chemco that you don't have, which you feel if it was available to you would improve the way that you do your job?

12 What is your perception of the current working relationship with Chemco operators?

Not at all good not too good good very good

13 Is there any thing else that you could suggest that would improve the TCS – Chemco working relationship at operator level?

About the relationship between TCS and Wheatco W115/Rubber:

14. How good do you feel is your understanding of following?

- The way that W115 plant operates Not good quite good good very good
- The effect that TCS has on W115 Not good quite good good very good
- The effect that W115 has on TCS Not good quite good good very good
- The problems encountered by W115 Not good quite good good very good

15 Have you visited the W115/Rubber control room?

Yes No

WHEATCO-CHEMCO: Sample of results from Operator survey –run in February 2001

This survey has investigated relationships between operators by investigating the various “nodes” within the supply chain loop:

- Interaction with “First plant” (primary link):

TCS link with Chemco

Chemco link with TCS

Rubber (W115) link with Chemco

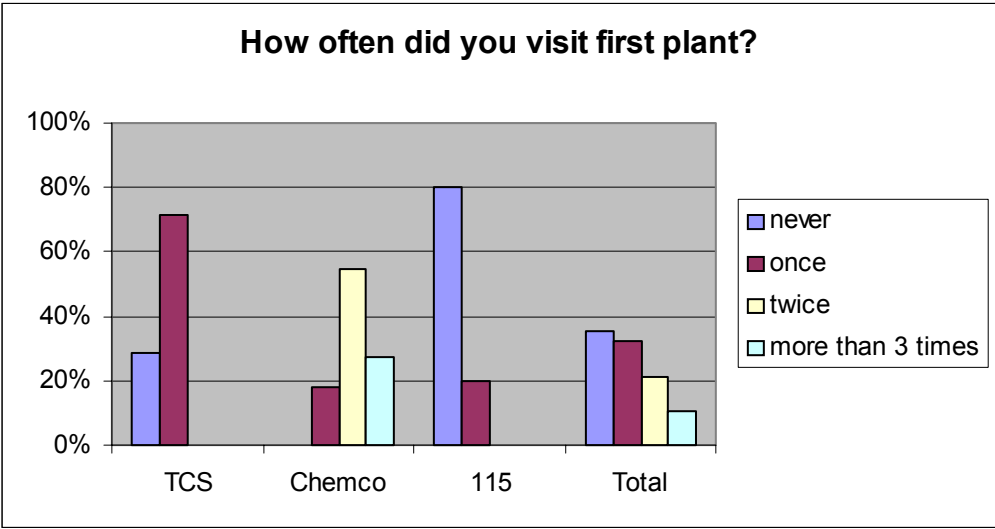
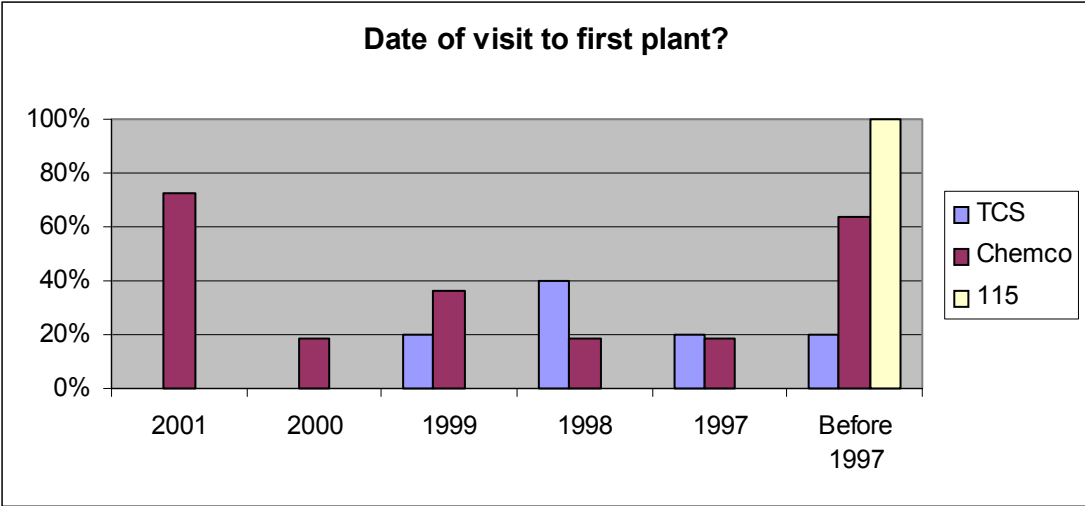
- Interaction with “Second plant” (secondary link):

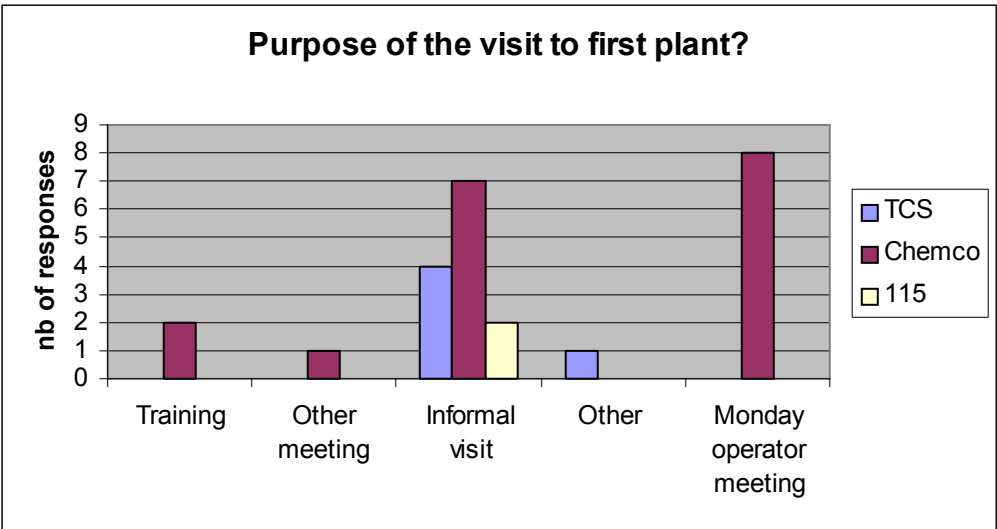
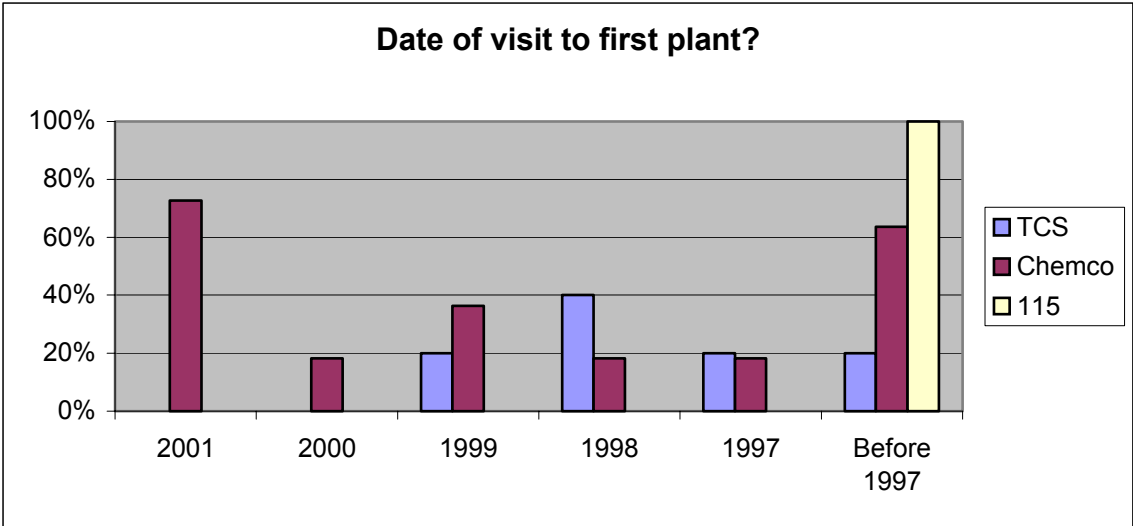
TCS link with rubber (W115)

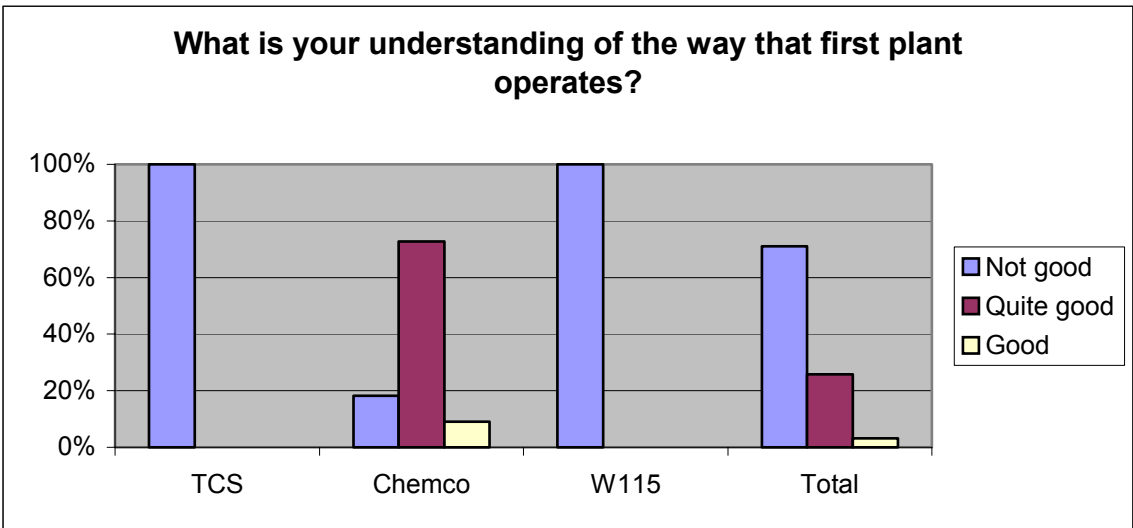
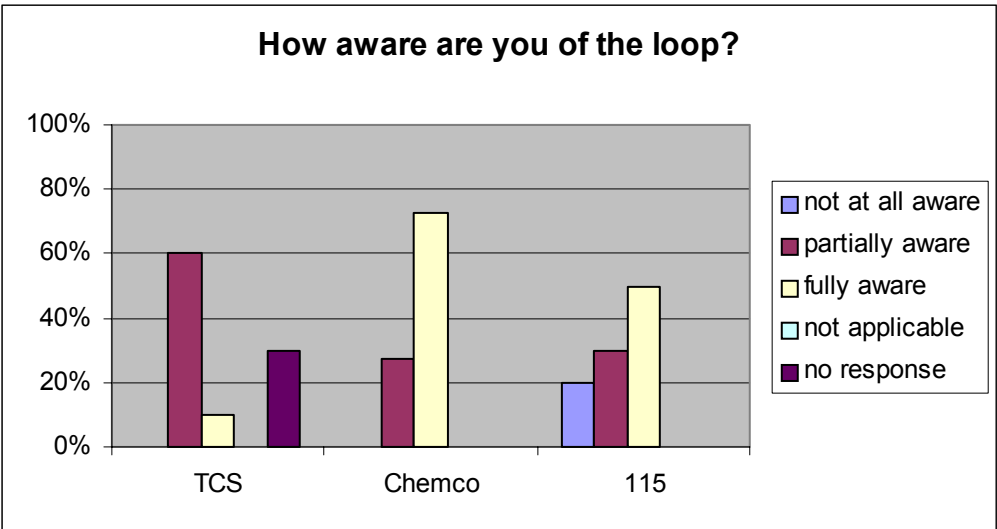
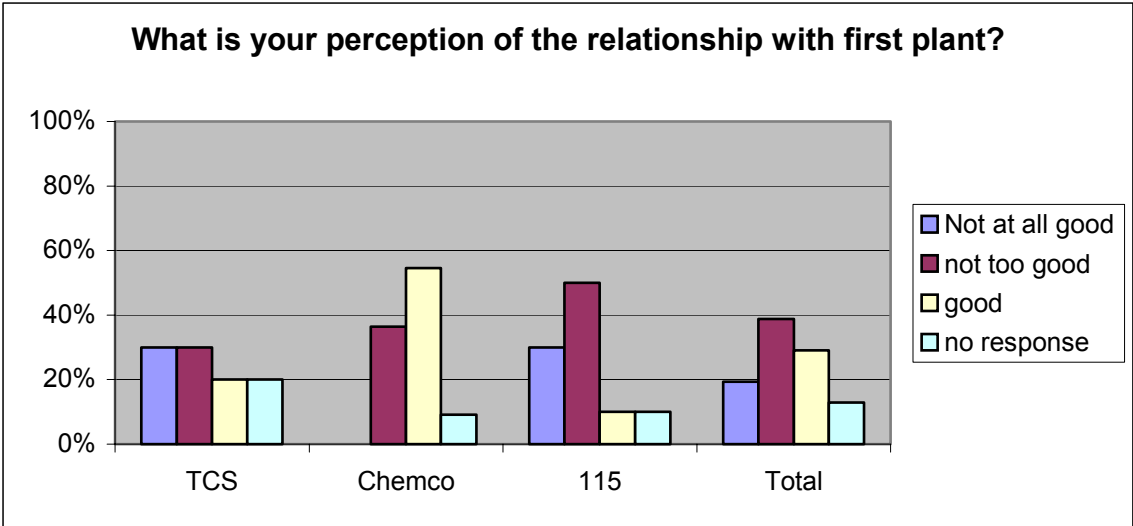
Chemco link with Rubber (W115)

Rubber (W115) link with TCS

A sample of survey results is provided here below that focuses on the responses pertaining to “First plant”







DETAILED DATA TABLES: WHEATCO-CHEMCO

Table A4.1 : Detailed data on Goal dimension (Researcher's comments in italics; disconfirming statements highlighted)

Goals not discussed at operator level	
Theme	Corporate
Strategic goals	<p>My only very simple vision is: "If CH and WTC were one company what actions are the most optimal?" That's very simple, that's all I need to do. I think that we are going there but... by unplanned steps. It's not a deliberate vision. I don't think we have really formalised what I call how we would work together. Some kind of broad vision statement that somebody could pull out and say this is the way we are working together. On a case by case and issue by issue basis we communicate within our organisations. (CH-Corp)</p> <p>I think that's still emerging (...) It's a stated unwritten common objective that WTC and CH will work together in a win-win situation to enhance the bus opportunity that both companies have. (...) I wouldn't want to put things in concrete and say this is absolutely the way that has to be done. I'd want to let it evolve, some kind of working document. (WTC-Corp)</p>
Operational goals	<p>We are across the fence with WTC and we look for all kinds of operating synergies between WTC and CH (CH-Corp)</p> <p>The fence line plants, their goals are perhaps more day to day short term work out the bugs to make sure this whole thing continues to operate smoothly and any day to day issue get resolved quickly and most effectively. (WTC-Corp)</p>
Separate	<p>We are separate companies and we are in some avenues</p>
	<p>I know what CH's goals are at high strategic level with</p>
	<p>I'm clear about the overall goal locally. Basically it's for us and CH to operate together to maximise profitability for the companies (WTC-Mngt-1) The goals for me are the results we have in the quality improvement plans (WTC-Mngt-3) Cost, value, quality, on line time. It is crystal clear in my mind what we need to accomplish (WTC-Mngt-4) There is a lot of money to be made by both CH and WTC with this relationship we ought to work together to the best of our ability so that it's a comfortable relationship not strained (WTC-Mngt-6)</p>
	<p>The joint WTC/CH goals were expressed in both the QIT and PACE. They are operational goals (CH-Mngt-1) On quality they are definitely joint goals. We sit down with the QIT team for the WTC and decide what the goals are going to be (CH-Mngt-2) CH goals are defined at site level, some are specific WTC (CH-Mngt-3).</p>
	<p>There's no sort of written down overall strategy, obviously new things come up and new things happen. I think at corporate level it's more complicated and there's probably more to it than just our relationship with CH (WTC-Mngt-1) Disconfirming: Yes, clear from global SC meetings (WTC-Mngt-3) We seldom know what (Corp) have done or have said or agreed to. It makes it more difficult as you're aiming at something and you don't know what you're aiming at. So you try to figure out at the local level what makes sense (WTC-Mngt-6)</p>
	<p>We don't feel that we get fed down from corporate what the global plan is, what's going on, what their strategic plans are very well (CH-Mngt-2) At a high level, I'm not aware of set strategic goals, no high level mission. Nowhere have I seen this high-level mission statement or set of objectives that articulate that. We don't understand the big picture, we don't understand the global relationship (CH-Mngt-3)</p>
	<p>Management</p>
	<p>Engineers</p> <p>the holistic goal is we want both companies to be successful ; the holistic goal isn't written down anywhere (CH-Eng-1). I can't think of any document I've seen where it's actually written down in black and white (CH-Eng-4)</p> <p>Slightly vague, no clear direction of where the relationship is heading.(WTC-Eng-9)</p>
	<p>(we) sat down and produced an overall plan to define the goals for both the PACE and the QIT. (CH-Eng-1). That's where I get the goals from: the CIP for PACE and QIT (CH-Eng-9) Make as much as we can, with as little downtime as possible and as high a quality and as low a cost (CH-Eng-8)</p> <p>In the QIT there are some very well defined targets.(WTC-Eng-1) But we're all here for the same goal, to basically run these units. if we don't run we're not making any money, and the same with CH. (WTC-Eng-2) My main objective with regards to CH is to meet the required production schedule. we've got a combined understanding of where we're going (WTC-Eng-6) We've got a common goal to stretch and expand and obviously there's a benefit to both companies (WTC-Eng-7) QIT meeting is helpful for setting the goals (WTC-Eng-8) We have to be as reliable as possible between the 2 processes and maximise profit (WTC-Eng-9)</p> <p>We seem to take all the risks...I don't know what relevance</p>

goals	competitors so this is not like having a vision of an internal bus in WTC and we have to be careful not to project image that there is a collusion between the 2 companies that could result in anti-trust litigation (WTC-Corp)	WTC, yes, we've worked on that. They are not joint, not as far as I'm aware, they are not joint (CH-Mngt-1) But then you go back to your sites and fix the goal that's relevant for your site, because we're all in totally different businesses as well (CH-Mngt-2) Somewhere along the line you have to have people who have allegiances to one company or the other. (WTC-Mngt-1) Sometimes we think that they don't do as much as we do. (WTC-mngt3) And it didn't take a meeting or two to realise that we were quite often talking at cross-purposes and not really agreeing I mean the words may say we agreed but we weren't agreeing on philosophical things and approaches (WTC-Mngt-6)	that has to WTC side of goals. Where ultimately our only interest is what is best for CH. I still wonder whether everything that we do really benefits CH or not (CH-Eng-1.) They're different companies aren't they? They do have different agendas in the end, different objectives (CH-Eng-10). I can't see what their incentive is to improve because if they send us bad material we still pay them for it (WTC-eng-1) Lots of people came to me and said when something affects their bottom line, they'll do it (WTC-Eng-5) (they are) maybe more keen in looking after their own needs (WTC-Eng-6) Some suspicions about are we getting the best price for this, how much profit are they making (WTC-Eng-7)
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Table A4.1 Goals

Table A4.2: Detailed data on PM issues related to goals (Researcher's comments in italics; disconfirming statements highlighted)			
Reward systems not discussed at Corporate level			
Theme	Management	Engineers	Operators
Rewards as a source of tension	If they could design a system where the people who run TCS could be rewarded based on that plant's performance rather than on the total site performance, that would be better. But they can't because of the unions. They've got a terrible year and still got a good recognition. It doesn't motivate them to succeed does it? (CH-Mngt-1) They have CH operators with this carrot, which is this bonus, the reliably operation, very frustrated because a lot of the problems lie in our plant and they can't do anything about it and that leaves them to put an awful lot of pressure on our operators. we actually have the same reward system but in the CH case as a small plant, they focus it fully on the relationship. WTC rewards its productivity, production rates, reliability, and it covers the whole operation of which CH is only a part (WTC-Mngt-1)	In 98-99, WTC had 11 or 12% bonus whereas CH had been negatively affected by TCS unreliability (CH-Eng-8) And that directly affects people paid by performance so that will instil a blame culture.(CH-Eng-10) The only compensation package that we would have would be the yearly bonus. But that's reflected on the site. they might think I'm not going to reach my target there and this is directly because TCS isn't running. So they may think oh God it's their fault. And that could put a strain on relations (WTC-Eng-2) As soon as our operators knew that their operators were on a bonus scheme than I think that created a bit of a mismatch (WTC-Eng-6)	if they trip and it's a lengthy trip then we have down time. We get penalised for that. Whether it's WTC's fault or our fault, it does not matter. You know sometimes we get penalised when it's out of our hands which is not ideal (CH-Op-1) Disconfirming: I certainly don't think that when I trip my bonus is going up, going down, no. (CH-Op-4)

Table A4.2 PM issues related to Goals at Wheatco-Chemco

Table A4.3: Detailed data on Information sharing dimension (Researcher's comments in italics; disconfirming statements highlighted)	
Information sharing at Corporate level discussed in the body of the report	

Theme	Management	Engineers	Operators
Information sharing and confidentiality	<p>I don't think you can have a relationship like ours and not have that kind of sharing and openness with each other. let the WTC people and the CH people share the technical details of what each other do. We would be far more successful. (CH-Mngt-1) They openly share technical things, the performance of their plants, the bi-products streams and the volumes and ... it's very open. (CH-Mngt-3)</p> <p>My experience has been any time I've asked CH for any information I received it. In that CH-WTC PACE team meeting, no one is really sensitive to what happens with the information (WTC-MNGT-4) And part of getting the operators together, I think you throw away a lot of those boundaries because they're going to say what's on their mind. I guess I wouldn't see any issue there because there's such a small amount that's proprietary because it is public knowledge and in the literature. (WTC-MNGT-6)</p>	<p>I've been at WTC and they've put information up on the screen without any problem (CH-Eng-9) I've never sensed that there's a confidentiality thing that we don't want to show them the process in that sort of detail. I've never really sensed that (CH-Eng-10)</p> <p>At that meeting we were being very genuinely open with them, we told them that we would open up on the science (WTC-Eng-5) Initially we thought are we giving them too much information here. But to be honest, I think it's been very beneficial because now they are not always asking why are things varying they just tweak it anyway and keep their own process stable. (WTC-ENG-6) there are certain things I'm sure the business decide we don't want to divulge. (WTC-Eng-7)</p>	<p><u>Desired:</u> Well classroom based overviews and proper tours and information we can keep if you like. Official information that WTC is happy to provide is obviously not going to compromise their business integrity which I can't see it doing that at that level (CH-Op-4)</p>
Information not shared	<p>I think at the very top levels, WTC and CH have held information too close to chest. In other words, I do think that there is some opportunity out there that we haven't taken advantage of because we haven't shared enough our information. My personal view is that WTC is a bit paranoid these days in terms of what we can share (WTC-Mngt-4) WTC historically has been a very private, secretive company in terms of its technology. Based on this paradigm, we will continue that to a large degree because my understanding of our contracts and the commercial agreements is that we don't let those things out any more than they will allow specific things about their equipment works etc. (WTC-Mngt-6)</p>	<p>if something's happened we just need to say this has happened and this is the reason why and this is what we do to put it right. And I don't think either of us are very good at that (CH-Eng-3).</p> <p>it's just the feeling that there's not always total honesty from the CH side as to what they go down for and exactly what's happening. (WTC-Eng-6) because there are always these barriers about how much they think they ought to tell you, future plans. Sometimes we get the feeling that they don't tell us everything that's going on and we do a similar thing (WTC-Eng-7) Still slightly opaque. Sometimes I still get the impression that they are not telling us all the truth. It's not quite an open book. they think when something goes wrong at CH we have to shut down and we don't know what the real reason is.. (Wtc-Eng-9)</p>	<p>We never seem to sort of be open and upfront with each other. There's always a worried feeling I think between the two plants that one is going to keep the other one down (CH-Op-1) And again without transparency, if one of their products goes out of spec we can only rely on the information that comes back to us as to why it's out of spec and what they can do about it, so we're a bit blind from that point of view. We can see the effects of it coming through but we don't know the real reasons or whatever. (CH-Op-3)</p>
Openness	<p>If there is a piece of information that you can't divulge rather than pretending and making excuses, you can say I'd like to tell you but I'm not allowed to if you can't share an information you just have to tell them so (CH-Mngt-3)</p> <p>In a good relationship you can say we're not ready to talk about that. there will be times when it's perfectly acceptable and most constructive to be very open and there</p>	<p>I think we've got to be quite open with each other where things have gone wrong. (in the past where things went wrong we didn't always tell each other, we kept it quiet). (CH-Eng-3) I'm always open and honest I think that goes a long way. I don't try to cover on anything (CH-Eng-7) For a relationship to work well.. you need to show all your cards (CH-Eng-</p>	<p>this year we knew that we weren't going to make the deadline and I think we came clean and said at the start that we aren't going to make it and things were done as they should be. (CH-OP-1) I do try to communicate to them the problems our side, the reasons why they haven't got the silica, not just saying you haven't got any, that's the end. I'll actually try to explain to them</p>

	will be times when it's not a good thing to do (WTC-Mngt-1) At times I have probably given them less than the full response and have told them why I had to withhold information.(WTC-Mngt-4)	10) this year we begin to give a lot more information (WTC-Eng-1)	the reasons why we haven't got it. (CH-Op-4)
Learning	We both pump acid and things like that so if one company has a really reliable pump and the other doesn't then we might as well share the information. And that's 2 way speak. I think we have a lot of expertise to offer each other there (WTC-Mngt-1)	I'd like to develop more relationships with engineers in WTC to share experience, best practices. That's more of a joint learning process. (CH-Eng-1) I guess the other thing I'm trying to do is speak to the people in maintenance department where we've had problems to try and take advantage of their knowledge (CH-Eng-9) You're more open and openness is what this kind of partnership depends upon. something where they've got issues out there might be an opportunity for us to save money on the work we do and vice versa (WTC-Eng-7)	At operator level, learning was discussed in terms of process knowledge, which acted as a co-ordination mechanism and therefore is discussed in this later section
Information on internal work organisation	I don't know how their (reward) system works. Mike gave us a broad outline yesterday. It sounds very similar but in fact I don't know how it works (CH-Mngt-1) <u>Disconfirming: Nobody's communicated it to me but I don't feel confused. For me nobody's said this is how it is and I understand how it is and yet I don't feel confused, I sense I could always know where to go (CH-Mngt-3)</u> I don't think he understands our organisation and I need to talk to him some more about that and explain it more to him so he has a better appreciation of what we're doing and why we're doing it and what we think the benefits are. (WTC-MNGT-1)	When operators are over there, they see how the actual organisation works, so if they need maintenance support, if things do go wrong and the guy says I'm waiting for Joe or something like that, they understand better then what the WTC guy is having to wait for, whereas on this site we may go out and like do that ourselves, because our practices are different(CH-Eng-10) But I think there's a lot of information that perhaps isn't relevant that I could tell them that I don't (e.g. organisational changes in the rubber department) (WTC-Eng-8)	I don't know what goes on over that side. We're not aware of their chain of command if you like, or I'm not. I don't know if other people are, but I'm not. 9 times out of 10 there are no problems, but they get quite a high operator turnaround as well because they're moved to other plants.(CH-Op-3) Communication as in when they've had problems they've written e-mails across to our site explaining what went wrong, what they're doing about it, so we can actually understand what they're up against, you know (CH-Op-4)
Boundaries of information sharing	I've hesitated not knowing about what things to share. I've just got on one sheet that shows the reaction mechanisms and the differences in the feedstock that impact our plant. I've hesitated to share this. But I've thought if I don't share it how are they possibly going to understand? Obviously you never expect them to share financial things with us (CH-Mngt-3) Obviously there are things that we don't and wouldn't tell them about the details of our costs and cost structure (WTC-Mngt-1) I'm not sure that there are any defined boundaries at least that I'm aware of. (WTC-MNGT-6)	we wouldn't talk about our external customers we don't seem to have anyone who just sets the boundaries. We seem to be able to go and talk to WTC on almost anything we like. (CH-ENG-1) We may have partnerships with them, we may have contracts with them but there comes a point when you know what you can say and what you can't say.(WTC-Eng-3) there are certain things I'm sure the business decide we don't want to divulge. (WTC-Eng-7) I think we could have some more guidance as to what level you're meant to communicate, what information	Not discussed at operator level

		to communicate both ways. (WTC-ENG-9)
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Table A4.3 Information sharing at Wheatco-Chemco

Table A4.4: Detailed data on PM issues related to information sharing (Researcher's comments in italics; disconfirming statements highlighted)			
Theme	Corporate	Management	Engineers
PM Issue with information sharing	Not discussed as an issue at corporate level	Opaque. I think a lot of it depends on faxed or e-mailed results, picking up the phone and saying something that the other person doesn't necessarily understand. It's more like there's a wall between the two sites and we phone and say we've got this problem, can you send the spreadsheet over. Yes, here's the results. (WTC-Mngt-3).	The acid towers are out of sink". Though he was trying to describe how the problem was, I couldn't quite grasp what they were telling me. (WTC-Eng-2) CH is a different company, they have a different way of speaking about things (WTC-Eng-5) <i>Disconfirming: We don't need to have a common language with people at CH (WTC shift manager)</i>
			Operators I didn't have a clue, he could have been anybody, it could have been somebody off the street, it's just it's Jason this end. (CH-Op-1) I don't mean language as in accents and things like that, what I mean is I suppose we have abbreviations for certain things which we've developed over 8 years of running the plant of which we did originally with the original Siltet plant operators. Now we've got these new people coming in, we might try and explain things, which they don't understand. (CH-OP-2)

Table A4.4 PM issues related to information sharing at Wheatco-Chemco

Table A4.5: Detailed data on Relationship structure dimension (Researcher's comments in italics; disconfirming statements highlighted)			
Theme	Corporate	Management	Engineers
Disrupted lines	There are so many points for synergy, which also means that you can mess up, because there are so many interactions between us (CH-Corp) as we've grown and it's become more complex between the relationships around the fence line plants, it's often difficult to keep everyone pointed in the same direction.(WTC-Corp)	There's a sense that things have been a little "fraught" over the last two months and that the increased breakdown events have revealed weaknesses in our systems (CH-Mngt-1) If something goes wrong, there's a shot down of phone calls that come over to 5 or 6 different people here, where ideally we'd only want one person contacted (WTC-Mngt-1) I think the biggest problem of the relational side has been the different messages that they have gotten, and consequently that can cause confusion. And we have got different	Operators Sometimes I've asked them to get hold of the shift manager to ring me because I know I can get the right answer that I'm looking for from those or they can give me the answers that I need.(CH-Op-1) If we still don't get any joy after a few hours we'll tend to get hold of the shift manager at Dow. We don't like to do that first thing because it does get a bit of trouble. (CH-Op-2) <i>Disconfirming: we'll talk to the operators, nobody else. If we're not happy with what we're hearing then we'll pass it by the shift manager and they'll talk to their shift manager if you</i>
			Engineers there's probably more of an osmotic effect that says information flows between both companies via all sorts of different routes. And sometimes it gets through and sometimes it gets held up in one of the chains (CH-Eng-1) And obviously they want information and if they're not getting information then obviously they tend to ring a bit more.. they are sort of pressing, they phone more regularly (WTC-Eng-2) 4 or 5 people in the organisational chart all saying different things (WTC-Eng-4) If I tell them something they don't like to

Table A4.5: Detailed data on Relationship structure dimension (Researcher's comments in italics; disconfirming statements highlighted)

			<p>messages back from CH as well, which has caused confusion on our side.(WTC-Mngt-4) Where we've struggled is that a person any level over there may tell a person any level over here and it may not be the right person in order for the communication to be effective, to accomplish what was desired.. (WTC-Mngt-6)</p>	<p>hear they'll go straight to my boss or site manager. (WTC-Eng-8) I would phone up and if I couldn't get hold of someone I'd speak to so else and then the person I'd speak to wouldn't relay the msg back to the plant. So things get lost (WTC-Eng-9)</p>	<p>Mike. (CH-Op-3)</p>
<p>Defining communication protocol, single point of contact</p>	<p>Our intent is to try to minimise the gate through which information flows so that it will all be consistent. . In some ways you need to channel information rather than having mass interaction with everyone. Hopefully it will make it more consistent, fewer people. He will be able to ensure that everyone has the right information and that everyone's action are in line with the stated global vision. (WTC-Corp)</p>	<p>it was somewhat unclear to people who should talk to whom, and when and we formalised and just clarified a little bit for people (CH-Mngt-1)</p> <p>To make sure we don't bother to communicate with people who don't need to know. It's a good thing to document so that when there are things to talk about people know who is the right person to get in touch (WTC-Mngt-1)</p>	<p>Mike is now nominated as shutdown coordinator whereas in the past, it was all very "hearsay". (CH-Eng-5)</p> <p>I keep telling my own people WTC keep away, let certain people communicate. If they do that I think it will break down a lot of barriers (WTC-Eng-4). I just had a note to define communications lines between CH and WTC with regards to plant operations which is something that we haven't had in the past. I think we've had people that we prefer to speak to, whether they are really the people that you need to speak to or not is.. probably isn't always true. (WTC-Eng-9)</p>	<p>Not discussed</p>	<p>Not discussed</p>
<p>Dedicated resource</p>	<p>Not discussed: to some extent both corporate managers are a dedicated resource to the other firm.</p>	<p>Ideally you would have a defined communication level, you would have a customer representative or someone that was designated on WTC side that really took care of this customer, that communicated well, that understood the issues and work with them on a regular, daily basis. And that would be your primary contact (WTC-Mngt-6)</p>	<p>you need people specifically focused on WTC, that's all they do, serve WTC (CH-Eng-3)</p> <p>the fact that we have our own dedicated focus group planned is good news (WTC-Eng-1) They'll be having two people concentrating purely on the problems that WTC have and not being distracted by day to day plant issues or anything else of that nature (WTC-Eng-8)</p>	<p>Not discussed</p>	<p>Not discussed</p>

Table A4.5 Relationship structure at Wheatco-Chemco

Table A4.6: Detailed data on PM issues related to Relationship structure (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
Issue of high people turnover and associated lack of competence	Last year was very confusing because there was a lot of new people. There were people in roles that they didn't know (CH-Corp)	The feeling here is that they use the TCS plant as a place where the operators who really aren't up to running the main plant go. (CH-Mngt-3)	TCS seems to be a training ground for their operators. Some of their operators are quite inexperienced so obviously until they gain the experience it's possible that things are going to go wrong (CH-Eng-3) we've got experienced people in the right job whereas I think there have been a lot of job changes over in WTC and they've got a lot of inexperienced people in. (CH-Eng-7) The difficulty is that we are in the situation where we've got again some new operators on the plant. a pool of operators that are running TCS who again are going to be new to the people over at CH. (WTC-Eng-2) We have a number of operators on plant which are new to this so we have quite a lot of training to do. They are not new to the control room, but new to the processes within the control room (WTC-Eng-9)	I think there's a lot of inexperience in the TCS plant. They seemed to move them all out together (CH-Op-1) I think it's because in my eyes they tend to put their trainee operators on and if they have got a problem, if we don't tell them some of the problems we've had in the past and how they fixed it, it's a few hours then before they get hold of somebody who can sort it out for us. I talk to different operators on different shifts and you'll get a different response. But then they changed operators so you've got to start all over again. (CH-Op-2) I think they move people around quite a bit. A lot of them you lose track of who their names are. You lose your association between a name and a face if you like (CH-Op-3) if they could keep their operators at the TCS plant for longer rather than move them on to other plants I think that is the biggest part for improvement (CH-Op-4) As you say a lot of new faces came in and we're in a bit of another change around now. (WTC-Op-2)

Table A4.6 PM issues related to Relationship structure at Wheatco-Chemco

Table A4.7: Detailed data on Coordination mechanism dimension (Researcher's comments in italics; disconfirming statements highlighted)

Coordination mechanisms at Corporate level discussed in the body of the report				
Theme	Management	Engineers	Operators	
Contract	it's in neither party's interest to write 50 page contracts (...). There are all sorts of different complexities that can go wrong here. For instance if there's a bit of a tanker spillage or whatever, and of course you can try and write that in the contract and the contract becomes like this and in the end we agreed if this happens, this happens we investigate. (CH-Mngt-3) I think the business partnership is very much defined by the contractual arrangements. (WTC-Mngt-2) Although I understand the contract, I can't say that it even drives our activities (WTC-Mngt-4) It kind of sets the boundaries for us. But I guess in spite of the contract, it should not have	The management of the contract of 2 companies could get to the point where you were almost fighting each other if you go for every last little 't' in the contract so I think we've got to try and keep it on a reasonable level and try and reach agreement (CH-Eng-9)	whatever this contract is, and I don't know what the contract is, whether it's for 20 years or whatever I think it's made CH lazy to the fact of trying to sort these problems out. If there was no contract there WTC could have said to CH either you sort the multi problems out or we'll go somewhere else. But obviously with this contract they don't seem to be able to do that and I don't think CH wants to sort the quality problems out enough. I don't think they've got enough .. I think they should be under more pressure. We have to put out top quality stuff, so should they, but they don't. (WTC-Op-1)	

Table A4.7: Detailed data on Coordination mechanism dimension (Researcher's comments in italics; disconfirming statements highlighted)

	<p>such a great impact (WTC-Mngt-6)</p>		
<p>Reciprocal Interdependence</p>	<p>We are symbiotically linked, if you take away the CH and the WTC signs, we're really one site. what we get into this facility from WTC in terms of quality of the feedstock determines to a large extent the quality of the chemical additive we can supply to the rubber business (CH-Mngt-1) They're basically one plant linked together. One is owned by CH, one's owned by WTC. (CH-Mngt-2) we have a relationship and it's an umbilical cord. You can't turn it off: You know there's nowhere to hide (CH-Mngt-3)</p> <p>They are joined to us via a pipeline so if we have a problem, then CH has a problem 10 seconds later. That plant was built almost as if it was built as part of our site except there was a fence there. (WTC-Mngt-1) We've both got a lot to gain and a lot to loose. If CH can't supply us the material, we'll start loosing customers and when we start loosing, they do as well (WTC-Mngt-3)</p>	<p>If WTC is successful than we can be successful (CH-Eng-1) The problem may be generated in CH say, but the solution or the most economical safest solution may be in WTC and vice versa (CH-Eng-2) we're both customers and suppliers. So we rely on each other (CH-Eng-3) problems are rarely on one side, even if they appear to be on one side (CH-Eng-6) if you want to change anything that we are doing between the two sites then obviously they have to ring up. (CH-Eng-7) Effectively it's the same process, it just happens that it was a fence line but effectively it's the same company, it's all on the same site (CH-Eng-9)</p> <p>We rely so much on CH running with us that we can't run without them. (WTC-Eng-4) we do we feed them they feed us (WTC-Eng-5) One of us is down, the game is stopped. There are similar loop relationships on site only not really as intense, with CH it's more instantaneous. (WTC-ENG-6) it's like they're part of WTC but they're not quite. (WTC-Eng-7)</p>	<p>we get a liquid feedstock blend from WTC which is vitally important to our quality (CH-Op-2) If we need to change step we have to communicate with them and make sure that they understand what we want that it's possible for them to do what we want depending on their plant conditions and they then do it in a satisfactory manner to enable both plants to keep functioning if you like to make sure they don't do it too harshly or whatever (CH-Op-3)</p> <p>you're not just looking out to keep your own plant running, you are aware that there is another plant on the other end of the line (WTC-Op-2)</p>
<p>Co-operation as obligation</p>	<p>we're interacting as regularly and as intimately as we need to work on the issues that are affecting the business, which is to keep that whole loop running (CH-Mngt-1) there is no buffer capacity so it forces us to work extremely closely (CH-Mngt-2) . I don't think you can have a relationship like ours and not have that kind of sharing and openness with each other?). (CH-Mngt-3)</p> <p>there are all sorts of safety reasons that we have to work together (hazardous materials going backward and forwards). we're so inter-dependent that the only way we'll succeed is to work together very closely and we need to do that. (WTC-Mngt-1) you can't not co-operate at this level,</p>	<p>what we've come to realise over the years that you can't be blinkered and say well this side of the little river is us and over the fence is WTC. You can't do that. You've got to think outside that and co-operate (CH-Eng-6) so it's in everybody's interests in that circle to work together (CH-Eng-8)</p> <p>We can almost tell them what's gone wrong in their process just by seeing what's happened in our process (WTC-Eng-1) if we don't work with these people and help them to help ourselves, then we're basically cutting our own throat (WTC-Eng-5) The problem may be generated in CH, but the most economical safest solution may be in WTC and vice versa. (CH-Eng-6)</p>	<p>Not discussed as such at operator level</p>

Table A4.7: Detailed data on Coordination mechanism dimension (Researcher's comments in italics; disconfirming statements highlighted)

	<p>if you stop co-operating, then you get into lots of problems (WTC-Mngt-2) Really right now we couldn't run this plant without CH and obviously they couldn't run their plant without us (WTC-Mngt-4)</p>	<p>They have someone very easy to the point to, when you've got a third party who's not even on this site, there is little risk to say well that's nothing to do with me it was those guys at WTC (CH-Mngt-3).</p> <p>They don't know when they are suddenly transferring much more slowly. Apart from when our operators phone up. And immediately you get the defensive reaction, well we can't see that! So if there was a link where their operators actually see the rate and an alarm comes up... it takes away the subjectivity from it (WTC-Mngt-3) every time we've got a problem, it is tremendously frustrating for them and it's easy for them to get the impression that we're not doing everything we can to solve that (WTC-Mngt-4) We still got this bickering back and forth where things happen and people draw their own conclusions and they're quick to jump to some conclusion that's negative. Someone is doing something to make me unsuccessful is the way it comes across. (WTC-Mngt-6)</p>	<p>They don't seem to sort of need to drive, to change things as quickly as we might do (CH-Eng-1) Frustrating because it is out of our control, because if the TCS plant shuts down, there is nothing we in CH can do to influence that (CH-Eng-2).</p> <p>When WTC has problems they don't necessarily let us know earlier enough (...) sometimes they say oh we're not ready because of so and so problem but they wouldn't have necessarily told us that problem, you see. (CH-Eng-7)</p> <p>They seem to blame a lot of their problems on TCS. (WTC-Eng-1) you never get to the situation where you're both ready at the same time. I wouldn't say it causes friction but people will be on hedge (WTC-Eng-2) the problems on the plant have been the sort of biggest damaging factor in the relationship because we're under stress from it, they're under stress from it and each side becomes less tolerant of the other. (WTC-Eng-6) they say oh it's your fault (.) and we'll say no, it's yours. if they came back to us and said oh we're going to be late coming up, we'd breathe a sigh of relief. you don't want to take the blame and it's hard to measure (WTC-Eng-7) I find it very difficult for them to take ownership of some of their problems (WTC-Eng-8) their underhanded methods of trying to prove us wrong (WTC-Eng-10)</p>
<p>Interdependence as source of frustration</p>	<p>It always seems to me we never seem to sort of be open and upfront with each other. There's always a worried feeling I think between the two plants that one is going to keep the other one down (CH-Op-1) No because they have got a temperature problem on one of the probes so we can't get anybody to fix it until 7.00/8.00 in the morning and this is 2 o'clock in the morning so, you know, they did not ring us and tell us they had a problem, it just came over by chance. (CH-Op-1) To try and explain to the WTC operator why it's important to us and the effects it has on us, and then to try and get him to do something, it's falling on deaf ears, he doesn't seem to realise that that does affect us, our direct quality (CH-Op-2) If he does something with it or not, who knows. it's the different explanations or excuses that they give us which it's not consistent, every operator has got his different answers so we can't really make headway with it. They could be using any old excuse couldn't they (CH-Op-3)</p> <p>Operators tend to look on them as the enemy because they cause us a lot of extra work. the quality problems for us mean more work and heavier work. I don't know if they're aware of how much it is hurting us (...)</p> <p>sometimes it is us but it's easier to blame CH (WTC-Op-1) CH operators seem to be "hell bent" on shifting any blame for problems from themselves, even to the point of "scoring points off" TCS operators where little or no problems exist (WTC-op: survey data).</p> <p>Perhaps sometimes put CH first rather than WTC. A trip has more of a knock on effect to us than what it has to them. (CH-Op-1) we're such a small site and they're so huge that we're just like an afterthought (CH-Op-2) the general opinion is the rest of WTC possibly doesn't care. There's a lot more that they can affect us with if you like than we can affect them with (CH-Op-3) We can only affect the TCS plant whereas they affect every</p>	<p>Interdependence as source of frustration</p>	
<p>Asymmetry and level of priority</p>	<p>It's in WTC's advantage to look after the relationship as it gives them access to low cost chemical additive. (CH-Mngt-1) A sense here that the plant that they run for us is small, a satellite plant on a big facility (CH-Mngt-3)</p> <p>There's a little bit of imbalance here because if our TCS plant shuts down, it's one out of 15 processes. But CH are totally out of business, all they can do is sit down (WTC-</p>	<p>I feel that there's not a sense of urgency there (CH-Eng-3) they do look at CH as being an important customer (CH-Eng-5)</p> <p>I would say they're more reliant on getting feedstock from us than we are. Well the only process it will impact will be 115, but that's not my area again (WTC-Eng-2) Disconfirming: We rely so much on CH running with us that we can't run without them. they can shut us down (WTC-Eng-5) CH is not a very</p>	<p>Asymmetry and level of priority</p>

Table A4.7: Detailed data on Coordination mechanism dimension (Researcher's comments in italics; disconfirming statements highlighted)

<p>Mngt-1) Clearly one issue is eroded trust and a belief at CH that TCS is a small part of our operation and doesn't get high enough priority when the chips are down. There are lots of things that go on here in support of the CH link. They are not directly visible to you, partly because we take them for granted, and partly because it would take extra time and effort to communicate them all. (Memo from WTC to CH)</p>	<p>big part of our operation, there's no real impact to us. We need CH, the basics plant rely on CH as well to take feedstock I think we get sufficient priority to address problems on this plant in a timely manner (WTC-Eng-6) they're more reliant on getting feedstock from us than we are (WTC-Eng-9)</p>	<p>part of our business (CH-Op-4) because we couldn't run and CH couldn't run and we couldn't use our stock of feedstock <u>Disconfirming</u>: so the whole lot came tumbling down and we took the whole train down so I think after that ICS got a bit more of a highlighted mark on it (WTC-Op-2)</p>
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Table A4.7 Coordination mechanisms at Wheatco-Chemco

Table A4.8: Detailed data on PM issues related to coordination mechanisms (Researcher's comments in italics; disconfirming statements highlighted)

Not discussed at Corporate level

Theme	Management	Engineers	Operators
Understanding	<p>I'm not sure it's passed all the way down the chain in Basics so that every operator truly understands that not only do they hurt CH, but they hurt WTC as well. (CH-Mngt-1) It is a lot better than it used to be so that the people on the CH side know exactly why the WTC people are doing something sometimes that annoy us and vice versa (CH-Mngt-2). If there is a quality issue, if they don't share with us what their processes and important parameters, how can we possibly help them? Likewise we need to open our process to them so that they understand (CH-Mngt-3)</p> <p>The CH operator asked a lot of questions and said why do you do this and that, and our guy explained it and had a bit of dialogue about it but also our operators asked the CH operator, this gives us problems why do you do this, and they got some explanations and people have actually gone away and started thinking about these things and questioning whether they have to be done that way or whether they can be changed (WTC-Mngt-1)</p>	<p>I sometimes feel that within the WTC operators there is a lack of understanding of some things that impact can have on our plant. (CH-Eng-2) at the lower level they don't understand that what they do send us is ultimately affecting WTC. (CH-Eng-3) we probably don't appreciate all of the problems that each other has. (CH-Eng-9) if you understand why you're doing it that way, if something then goes wrong you can immediately make a decision rather than it being like a random choice. (CH-Eng-10)</p> <p>I think building the understanding of what the WTC site is going through with these problems is probably the important bit because it makes them a little more tolerant (WTC-Eng-6) It was excellent from my perspective to see the things that really affect CH and what they are aiming for (WTC-Eng-9)</p>	<p>More knowledge of their plant would be useful, certainly them having more knowledge of our plant and the effects they have on us would be useful. (CH-Op-3) the more we understand their plant the better relationship is coming because we understand the problems they're up against and vice versa They understand our problems a lot better now (CH-Op-4) I don't think TCS operators have any idea of what their actions have on material CH produces i.e. how important purity of feedstock (CH-Op: survey data)</p> <p>I mean the average operator here thinks that chemical additive appears from nowhere, comes over the lines and that's it. (WTC-Op-1) When he actually came over and sat for 3 hours with Glen he walked away thinking I cannot believe you have that many problems. So he could sympathise. That was good. (WTC-Op-2) TCS operators spending a whole week at CH learning how the two plants affect each other (WTC-op: survey data) TCS operators should visit our site and see our plant quality problems when feedstock and Gas B2 not in control (CH-Op: survey data)</p>

Table A4.8 PM issues related to Coordination mechanisms at Wheatco-Chemco

Table A4.9: Detailed data on Locus of decision making dimension (Researcher's comments in italics; disconfirming statements highlighted)

Locus of decision making: Not discussed at operator level	
Theme	Corporate
Rationale	<p>My only very simple vision is: "If CH and WTC were one company what actions are the most optimal? We pull the information we have and we say given the impact on us the impact on you, what is the right decision to make? And then say, how can we now make sure that we recognise we are two legal entities (CH-Corp)</p> <p>Yes my counterpart and I have talked about really.. we need to make decisions as if we were one company.(WTC-Corp)</p>
Clarity of decision making	<p>Decisions to be made at the local level regarding operational issues those would be carried out between the local plant and the CH people. I would say that really needs to be sorted and managed at the local site.(WC-Corp)</p>
Local decision making: bounded	<p>Discussed in terms of tension global/local next line</p>
	<p>Management</p> <p>In the last 18 months, we're trying to get the understanding that it is a strategic partnership. We need to view this as one site, which is owned by different companies. But we need to be able to run it as if it's one facility. Because it is only in that way that we will be able to take advantage and actually deliver the potential that's here from this relationship. (WTC-Mngt-1) This relationship is not about CH making money from WTC, All we want to do here is to make sure that WTC cover our costs for doing this. (CH-Mngt-3)</p> <p>This is a joint approach to how do we do something that's not really beneficial to CH at all, but it's beneficial to us (WTC-Mngt-1)</p> <p>Operational decisions will be made on this site (running of a unit). If it's a question of capital investment, a lot of the work will be done on this site but the final approval will come at several levels up.(CH-Mngt-1)</p> <p>Inside the team everybody understands that we don't have unlimited authority to commit the company to different things. If you don't have to hire people, to spend money, to affect customers, than anything (WTC-Mngt-1) If a decision needs to be made regarding the running of a unit, it will be made on this site. If it's a question of capital investment, a lot of the work will be done on this site but the final approval will come at several levels up. (WTC-Mngt-2) The time when we need outside help is when we need capital. Any issues of quality, reliability or anything like that that cost let's say £50,000 or less we feel we can make those decisions (WTC-Mngt-4)</p> <p>You're responsible for this facility and people are going to hold you accountable, but much of it is outside your hands (CH-Mngt-3)</p> <p>We need to be careful that we know the limits of our</p>
	<p>Engineers</p> <p>Disconfirming: Both of us questioned whether we should be doing it or not. Because there is no apparent benefit to CH. We seem to take all the risks. The only benefit is to keep WTC happy (CH-Eng-1) if there was a payback that could be shown, even if that payback was to CH because he could then show that payback to CH would influence say WTC's product in 115 or whatever quality, then it would be approached in that way. (CH-Eng-6) To a large degree we try to run as one company (CH-Eng-8) That's really how we have to try and work, so it's basically the same plant but people on each side are report to different companies (CH-Eng-9) 90%</p> <p>Unless it is about spending money. Obviously we're going to refer back. (CH-Eng-1)</p>
	<p>Not discussed at engineer level</p>

Table A4.9: Detailed data on Locus of decision making dimension (Researcher's comments in italics; disconfirming statements highlighted)		
Locus of decision making: Not discussed at operator level		
Theme	Corporate	Engineers
	Management	Engineers
	authority (WTC-Mngt-1) we both just recognise that we don't have control over everything. Some things are just dictated to us (commercial agreement) (WTC-Mngt-4) .. the only time when I find out something like that is if we've done something and have let people know and it's counter to what they wanted to have happen than they let you know what you have done it wrong. (WTC-Mngt-6)	
Tension corporate/local	Sometimes the local people will go in a direction that's not consistent with what the overall bus direction should be. The difficulties I think primarily surround issues that need a balance between local resolution and global consistency of a bus strategy. For sometimes the local resolution may be fairly easy but it may not be consistent with the global vision. So the local people might say those bus people in USA don't know what they're talking about (WTC-Corp)	but then politics in both companies don't always allow it to go as far as you might want it to, or there are some things done which if we genuinely were one company we would take one solution. (CH-Eng-8)
	Hang over from the corporate feeling that we're not sure may be how far to go (CH-Mngt-1) In terms of knowing what could be possible here people best placed are the people here, not the people who are sitting in America. I think because we're closer we can understand those linkages sometimes better than people at corporate level can. (CH-Mngt-3) Quite often our corporate people and CHs corporate people will get together and agree something but when you look at it at a local level it just isn't practical at all and then we have to go back and say this doesn't work. (WTC-Mngt-1) So here where you are at the sharp end, your priorities are rather different from somebody up here who says I don't see why we're doing that. Down here it's very clear why we're doing that. From the point of view of both parties the local people sometimes get frustrated with the corporate structure. (WTC-Mngt-2) There are times where our management team is talking with theirs and we're just expressing our frustrations with corporate. (WTC-Mngt-6)	

Table A4.9 Locus of decision making at Wheatco-Chemco

Table A4.10: Detailed data on PM issues related to Locus of decision making (Researcher's comments in italics; disconfirming statements highlighted)		
Theme	Corporate	Operators
	Management	Engineers
Communication	You just have to communicate to people that the business is in the business of making money. And sometimes although we don't understand the big picture, we don't understand the global relationship	Not discussed

	it might be a very simple thing to resolve your local problem the long term issue drives a different decision. Help them understand the global reason for doing it. Help them understand that sometimes there has to be a short term local sacrifice in order to make the longer term perspective more attractive.	with WTC (CH-Mngt-3) Perhaps we don't communicate enough between the local people and Corporate. if somebody in CH decides to pass this on to CH Corp, and nobody here decides to pass this on to WTC Corp then there's a risk that the CH Corp guy will contact the WTC Corp guy and say: "Hey do you know what these idiots in UK are talking about?". (WTC-Mngt-1)	
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Table A4.10 PM issues related to locus of decision making at Wheatco-Chemco

Table A4.11: Detailed data on Top Management Commitment dimension (Researcher's comments in italics; disconfirming statements highlighted)				
Theme	Corporate	Management	Engineers	
Top management commitment (TMC)	<p>I think the one company vision happened at the upper level. And I think he and I took it as far out as we could take it (CH-Corp)</p> <p>I should say that the relationship that our CEO and their CEO have is a very positive thing. They talk and meet by teleconference once a month to discuss and make sure that there are not issues between the companies that aren't getting resolved. It shows that our top management is committed to this relationship growing. (WTC-Corp)</p>	<p>I mean our president and their CEO get together quite often (CH-Mngt-1) our chief executive officer meets with WTC's chief executive officer once a month. TMC I think is very strong. I think at all levels. I've not seen anything to the contrary, not at all. but if you didn't get top management commitment you would be confused about how to act. (CH-Mngt-3)</p> <p>The only perception I really have is that CH senior management and WTC senior management are both committed.</p> <p>Disconfirming: I know there's been some kinds of hassle a couple of years ago between the senior management but I really don't know about that. I don't even know which of our senior executives speaks to CH. (WTC-Mngt-3) Disconfirming: Because if you go back a couple of years, it was like: "who cares?". I think there was even a consideration on both sides of do we dump each other? Now it's very clear, I think it's strong, it's growing. I think that some of the animosities that had built up a couple of years ago have dissolved and I think it's OK. (WTC-Mngt-6)</p>	<p>Certainly from the CH side, yea. (From WTC?). It's hard for me to say. All the people that I deal with seem to show a reasonable commitment. I assume that's reflected from what their senior management want. (CH-Eng-1) Local management, the site manager, pretty supportive of anything that goes on. If I am having problems they will address it at the next level up or at whatever levels they need to address that (CH-Eng-8)</p> <p>Well considering we've just bought another plant in the US, I think TMC is probably high. (WTC-Eng-5) I think they are committed to making the relationship work and improving it. (WTC-Eng-6) I'm sure if you talk to the 2 CEOs that would be what they would see as the way forward but how that filters down to corporate I'm not sure. (WTC-Eng-7)</p>	<p>Operators</p> <p>Disconfirming: I don't know the sort of relationship they have with the WTC side. we're such a small company we're told what to do by WTC rather than a customer relationship; we're just stuck with it. That's the way it is so take it or leave it. (CH-Op-2)</p> <p>The above statement is also related to a perception that WTC does not consider CH as a priority</p>

Table A4.11: Detailed data on Top Management Commitment dimension (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
Interaction at corporate level	How we are working together. SF knows it very well. But I don't know how far below us this goes (CH-Corp)	And again it's not local but I guess on our business side they don't have a particularly intimate relationship. But at the corporate level at the kind of business interaction I think it is quite a formal customer-supplier type of relationship. (CH-Mngt-1) This is CH corporate (on board) this is WTC C and this is CH UK. I sense that the relationships here are stronger and more constructive than the relationships here (corporate) (CH-Mngt-3) The only thing I would say is that if their relationship deteriorates, it would take time to have an impact on the local relationship (WTC-Mngt-1) TMC went through a rocky patch here because we felt we were not getting an optimum deal on it. I think the relationship more varies here (higher level (WTC-Mngt-2) There's probably more adversarial relationships at higher level because they are dealing with the business people who are both looking for the best for their companies.(WTC-Mngt-2)	I think that away from the site and away from the actual interaction between the 2 sites I think sometimes it goes back to being them and us (CH-Eng-8) I'm sure if you talk to the two CEOs that would be what they would see as the way forward but how that filters down I'm not sure. (WTC-Eng-7)	Not discussed at operator level
Role of management	And me and my counterpart at WTC have to create this kind of culture: think longer-term and think more collaboratively (CH-Corp)	I suppose that the way I behave or what I practice must have a significant impact on all the relationships we have. If I were to say that being open and working closely with WTC was not important then I'm sure other people would treat it like that. (CH-Mngt-3) I wanted to get involved for about 2 years, to help to develop that direction with the CH folks and pass it on (WTC-Mngt-4) So that's really our role as management is to keep opening the doors and to keep the communications going the way they should especially in times when things aren't going well. To some degree you almost have to have the management involved and him buy into this, if he doesn't think it's important, the rest of the team aren't going to	If senior management do it I think there's a chance here it will trickle down to the lower levels and I think we are doing it, we are open. (WH-Eng-3) I think the communication link between the two sides has improved. Certainly thanks to the higher mass they've made the operators and the shift managers on both sites aware that we should need to talk. (CH-Eng-7) I think obviously the management lead, like if people were told not to be open and things like that, you know, and I think in the past people haven't been as open as they needed to be. (CH-Eng-10)	What I seem to find is with the joint projects, if there is an engineer or a manager involved, it seems to go quite well. Probably that it has been pushed from a higher level I would have thought rather than at operator level (CH-Op-1). We can actually see their efforts being made to change and I think it's working vice versa (CH-Op-2). At the moment they seem to be making some sort of headway with it. I believe they are serious about sorting it out now. They never were before (WTC-Op-1) I think we're making the right noises and I think it's getting more

Table A4.11: Detailed data on Top Management Commitment dimension (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
Relationships at management level	<p>We had to go through some difficult negotiations. Then we developed respect for each other. We are sometimes closer to each other than sometimes we are with our own colleagues. (CH-Corp)</p> <p>And as a result of these negotiations we had to be very open and honest with each other. It is important that the other party understands your basis and that you in fact are being open and honest with one another. (WTC-Corp).</p>	<p>spend their time on it. (WTC-Mngt-6)</p> <p>we get on pretty well with the technical people at WTC, the kind of MBa who have a very technical approach, they understand the technicalities of their business. (CH-Mngt-1)</p> <p>We spend time together face to face regularly and not just that, we are faced with weekly challenges that test our commitment, integrity and competence. I've found I've had more answers or commitment that made more sense to me sometimes here than I got there (CH-Mngt-3)</p> <p>We have in WTC a closer working relationship with CH than we do our own finishing buildings (WTC-Mngt-4) Better than it was, since we started having really bad problems with the chemical additive, the last 6 months. I think management have realised they've got to do something about it. (WTC-Mngt-6)</p>	<p>I think it's there in the management, well I'm pretty sure it's there because of this QIT and PACE meetings. I'm pretty sure it's there. (CH-Eng-3)</p>	<p>proactive and people aren't just talking about doing things now, we're not just talking about having meetings, it's actually happening. (WTC-Op-2)</p> <p>I think the higher the level you go the better it gets. Personally I think that could be to do with, you know, at the top of the ladder. They have more meetings face to face with the people they are dealing with rather than we are sort of on the telephone (CH-Op-1)</p>
Issues prompt more management involvement	<p>Not discussed at corporate level</p>	<p>I think from the time that I originally spoke to you until now I decided to take a stronger role in that relationship. It appeared to me that the working relationship on the ground floor between operators on the two sites was not particularly healthy. So I tried to take something of a lead role on that, may be kind of the overseeing of the whole process and trying to give it some guidance. So that's the role I tried to take (WTC-Mngt-6)</p>	<p>More recently my supervisor got more involved because he is aware now what the size of the problem we actually have. But a year ago he wouldn't have been involved. (WTC-Eng-1) And there was the one occasion where we had to get one of our higher managers involved to speak to one of their higher managers (WTC-Eng-2)</p>	<p>Management interact better than it was, since we started having really bad problems with the chemical additive, the last 6 months. I think management have realised they've got to do something about it. I know they have been over there. (WTC-Op-1)</p>

Table A4.11 Top management commitment at Wheatco-Chemco

Table A4.12: Detailed data on PM issues related to Top Management Commitment (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators

Communication at shop floor level	Not discussed at corporate level	<p>It doesn't feel that the basics guys, the whole people underneath understand how much they are hurting their own business. And that's an education thing. It's started now. (CH-Mngt-1)</p> <p>it is important that the managers in both companies whatever the tone of the relationship from a business perspective may be at a particular time, just keep it away, don't let the operators start not trusting each other, or things like that (WTC-Mngt-1) I think from a management perspective they understand how they hurt the WTC business if they are not a reliable supplier of feedstock. I'm not sure it's passed all the way down the chain in basics so that every operator truly understands that not only do they hurt CH, but they hurt WTC as well. (WTC-Mngt-3) if you go to TCS, everybody understands the nature of the relationship (WTC-Mngt-4)</p>	<p>I would like to have the time to pass on information that I have to the operators, to give them an idea of how the whole loop interacts (WTC-Eng-9)</p>	<p>Normally that is left until like the last day we are supposed to start and we say I know we can do that in a couple of days. Ever since Dick got started they had a meeting and they've said right okay we know we're not going to be ready but let's give them as much notice now (CH-OP-1)</p> <p>We are aware of it, but I'm not sure how much information I've had on that TCS downtime and how that might impact US\$ coming into Dow from an off production at W115. I've never been shown any of those figures. (WTC-Op-2)</p>
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Table A4.12 PM issues related to Top management commitment at Wheatco-Chemco

Table A4.13: Detailed data on PM issues related to compatibility (Researcher's comments in italics; disconfirming statements highlighted)				
Theme	Corporate	Management	Engineers	Operators
Levels of empowerment	Not discussed at corporate level	<p>But definitely we used to be able to make decisions that the WTC would have to go back to WTC for at site management level. (CH-Mngt-2)</p> <p>My gut reaction is that our people are more empowered than the CH people. But that's not true 100% of the time (WTC-Mngt-1) I don't see a lot of difference. Similar levels of decision making. The CH management people I have met, I can't see very much difference (WTC-Mt-2) No. I think both sites have fairly slow decision making processes. I see them and us accelerating (WTC-Mngt-3) There are enough people in WTC to be empowered to make decisions so that it can happen. Whereas</p>	<p>I think their set up is that they leave the operators to run the plant. I don't know if there's any supervision on shift, right? And I don't know whether I come from the old school, but I feel that you need somebody to lead on shift and to make the decision and that's what the shift manager's there for. (CH-Eng-3) I think some operators over there don't like speaking out or ringing up if there's a problem until ... because? They probably think it should be their manager's job to do it or their supervisor perhaps. (CH-Eng-7) No difference between the 2 operators in terms of jobs or responsibility (CH-Eng-8)</p> <p>quite often if you talk to them and they</p>	<p>I would say at my level and people on other shifts if there's a problem we would be more than capable of making any decision you know whether it be a major problem or a minute problem or a quality problem, we would be capable of doing that and I'm not so sure that they would. I would say they had to be an engineer or a shift manager to make that decision. (CH-Op-1)</p> <p>I was quite surprised that an operator or lead operator down here would be dealing one on one with the outside company. I was slightly phased by it at the start, a little intimidated, only at the start. Once you're on the phone to people a couple of times it's fine (WTC-</p>

		<p>with CH we get lots of delays because the final approval has to come from the US (WTC-Mngt-4)</p>	<p>need to make a decision about something, they quite often go to the shift manager just to get a consensus. I think .. may they say the same thing about us? Yes they may do. (WTC-Eng-6) I get the feeling that he is not as empowered as I am to make decisions. (WTC-Eng-8) I think we have much more of a free round than CH. (WTC-Eng-9)</p>	<p>Op-2)</p>
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Table A4.13 PM issues related to Compatibility at Wheatco-Chemco

Table A4.14: Detailed data on Staffing (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
People turnover	Discussed as a PM issue related to Relationship structure			
Calibre	It's a matter of making sure that you have the right kind of people at those interfaces. (WTC-Corp)	I think that the calibre of individuals that we have needs to be as good as the calibre of individuals that WTC has. (CH-Mngt-3) It's a question of balance: if the overall quality of the people in one co was different from the other it would be a problem but it's not the case I don't think. (WTC-Mngt-1) We've often been frustrated in the past with the lack of progress and it's mainly been due to the calibre of the people involved. (WTC-WMngt-3)	some of the people are highly qualified and more so that... I don't know about the shift managers and people like that in WTC but the people that I deal with and I've spoken to are highly qualified, they're chemists or they've got a doctorate and all that kind of stuff (CH-Quality)	Not discussed at operator level
Link to priority	Not discussed at corporate level	It's a feeling from our operators that the TCS plant is used as a kind of training ground for operators that then move on to the core WTC competence places. It upsets our guys a bit because they think: "Are they really giving this the attention it deserves?". (CH-Mngt-1) I see more of an urgency from CH to make results and put good people in place of poor people.(WTC-Mngt-3)	They obviously see their other business as more important than WTC because the 2 people that they've put on that other team are people who have really delivered results and made improvements for us in the past (WTC-Eng-1)	Last year or 2 anyway putting the trainee people on the plant that we deal with which as you can imagine is a nightmare (CH-Op-2)
Specific skills?	It has to have a particular person who demonstrates the willingness and capability of doing well in an environment where there are issues to resolve and you have to know when to say no and when to compromise. (WTC-Corp)	<u>Disconfirming</u> : It's not similar because it is another company but the core skills that you require are the same..(CH-Mngt-2) It demands a calibre of individual that are more mature. I think broader skills, technical skills of running our plant as well as the interpersonal skills, when they speak on the telephone to people at WTC. (CH-Mngt-3) Be able to say what you want to say somewhat bluntly but also politely to get your point across, to treat people with respect and this all wraps into something called leadership ability. (WTC-Mngt-6)	The wrong type of person can cause problems and upset people. You need to have a maturity, for people who are going to be involved in a relationship, the selection process might be quite important. You want to make sure you don't have too many "live wires", get up setters etc.. (CH-Eng-1)	Not discussed at operator level
How individuals can impact the relationship	We changed people. I was put in the role, and my counterpart was put in the role (CH-Corp) He is an easy person to get along with and bring up issues, he's willing to	It's got better because of the individuals that got put in place. (CH-Mngt-1) Fortunately people at WTC are good people. It might have been different if individuals had been different (CH-Mngt-3) I think that they are going about putting people with the	I think it tends to get better, get worse depending on which operator is on (CH-Eng-7) It depends upon which operators are interacting. (WTC-Eng-2)	Not discussed at operator level

Table A4.14: Detailed data on Staffing (Researcher's comments in italics; disconfirming statements highlighted)

	listen to the opposite side. So without that type of person it would have been difficult to mend this relationship (WTC-Corp)	right skills in place. (WTC-Mngt-3)	
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Table A4.14 Staffing at Wheatco-Chemco

Table A4.15: Detailed data on Job design (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
Differences in job design:	Not discussed at corporate level	If the plant was running today and broke down tomorrow we would be able to call people from all over the place, get them in there and sort of do the review and get on with the job. Whereas they would seem to have to follow a much more rigorous process, (CH-Mngt-2) If you don't understand, you assume that the other company does things the same way as you do and it may not be the case. And obviously our shift manager cover a big area of which the CH area is a small but important part (WTC-Mngt-1)	Shift manager role: Shift managers are that thinly spread between several plants that they haven't got a clue what is happening on say TCS or 115 (CH-Eng-3) their shift manager will say he'll get back to me on a problem and all he will do is go to his operator, get some advice and then ring me back. (CH-Eng-7) We have a bigger area to look after, more plants if you like. We spend less time looking after our TCS plant then they spend looking after CH's because it's one plant. (WTC-Eng-2) Maintenance roles: WTC's system seems to be so rigid that they have to wait for an instrument man to come in, an electrician to come in, then a fitter's got to come, and it's quite frustrating that you're waiting for these people whereas our people would just rip the thing apart and get it done (CH-Eng-3) over here our operator takes spanners out and do something, over there at WTC I think they may have to wait for someone else to come and do it (CH-Eng-10)	On plant shutdowns work along side a fitter on more complex pieces of equipment. (CH-Op-job description) They're got a shift manager the same as us. Whether... I'm not sure they fulfil the same role. I don't know. The chap who just phoned he said my shift manager asked etc. about that super heater but I don't know if their shift managers are all the same as ours, they might be more of an engineer than ours. (WTC-Op-1)
Cross-skilling		(Cross-training) will help in the long run because they will have more people able to run the plant. In the short and medium term it means that		I think they have done a bit of multi-skilling so I could be talking to Jason now and on my next call I could be talking to somebody else (CH-OP-1)

		we have operators with less skills (CH-Mngt-1)		
Broader jobs	He suggested to me that his job description as a FGM is not the same as the standard CH one. And I would say that I have the same issues in the sense that with regards to my job description, I don't think that I capture the time and the effort that I need to spend on the relationship aspects at WTC that are non-si related. It is not captured. (CH-Corp)	I need to be focussed on, conscious of and be aware of, much more than just this facility. I have to work with, and facilitate and help WTC's facilities and I have to be patient, understanding when they're having problems. I think it demands more of our employees than it might if we didn't have a relationship. (CH-Mngt-3)	I would say it probably makes it more interesting. On an isolated chemical plant you don't have much contact with people outside (CH-Eng-9) It's the first time I've dealt with an external company in such depth. It's something new which is a challenge. (WTC-Eng-7) It was very interesting because you don't very often get an opportunity to work quite so closely with a supplier (WTC-Eng-8) I enjoyed the interaction with someone else off-site, the contact with an external customer it's reasonably unique within basics. (WTC-Eng-9)	In a sense, I perhaps didn't expect it so much as we were dealing with an outside customer, certainly not at my level. I certainly thought the engineers or shift manager might be dealing with them. I was quite surprised that an operator or lead operator down here would be dealing one on one with the outside company. I was slightly phased by it at the start, a little intimidated, only at the start. Once you're on the phone to people a couple of times it's fine. (WTC-Op-1)

Table A4.15 Job design at Wheatco-Chemco

Table A4.16: Detailed data on Appraisal (Researcher's comments in italics; disconfirming statements highlighted)
Not discussed at Corporate level

Theme	Management	Engineers	Operators
Objectives	We wondered if we challenged them to show us their objectives I wonder if they would say CH. (CH-Mngt-3) If I spend 20% of my time on CH, then that is a significant part of my performance appraisal. So one I need to get these activities into my own objectives. Two I need to be communicating with my boss so that he knows what I'm doing.(WTC-Mngt-1) My objectives this year would be related to service to CH, and maintaining the on-going communications and any of the specific issues like bringing in the product through CH etc. (WTC-Mngt-2) If we pick key people and actually build that into some of their objectives and feedback that would be pretty good (WTC-Mngt-3)	No my objectives are not specific to WTC. Other people might do (CH-Eng-1). The objectives do not actually quote WTC but most of them relate to work with WTC. One of the objectives is based on the PACE team, other objectives actually appear in the PACE team objectives (CH-Eng-9) My objectives say "Lead Chemical additive QIT" - nothing else (WTC-Eng-1) Contribute to development of positive relationship with CH (WTC-Eng-6) It's more of a job standard keeping in touch with CH. It seems it is my role to keep contact with them and to understand the issues they are having and the problems they are having (WTC-Eng-8)	Not relevant at operator level
Informal appraisal	there's been the odd complaint in the early days about people's attitudes and behaviours but that wasn't taken as far as a disciplinary, that was maybe even an off the cuff comment that someone wasn't as friendly or helpful as he could be.(CH-Mngt-2) I know there was some discussion about ops. That our operating teams	there's a bit of an inexperience over there and they're not quite sure of what's going on if they have serious problems. (CH-Eng-7) I think their PO are good. The ones I've met they seem very talented, very capable people. Some of the engineering people	I think there's a lot of inexperience in the TCS plant. (CH-Op-1) putting the trainee people on the plant that we deal with which as you can imagine is a nightmare (CH-Op-2) in general the more experienced operators

	<p>specifically said. There are one or two individuals when they come on shift and when people phone up and they hear a name they say Oh my god! (CH-Mngt-3)</p> <p>In both companies, everybody at every level forms their own opinion of the person they interface with. I think between the two of us there is a lot of informal people management. (WTC-Mngt-1)</p>	<p>we deal with I wouldn't class them as high calibre (WTC-Eng-1) I've had positive feedback. Where they would say we appreciated them working so hard to solve such and such a problem out. (WTC-Eng-6) My boss has formed his own opinion about who he thinks is good and who he thinks could improve (WTC-Eng-8)</p>	<p>are good but some of them are not very experienced. (CH-Op-3)</p>
Actual feedback	<p>He has expressed concerns about the capability of some of the people in our quality organisations. He's right, but it's nice to feel that he can say that and for us not to be defensive about that. The change we made on quality was happening anyway. All his comment did was reinforce that this was the right thing to do. (CH-Mngt-3)</p> <p>In fact we've had some talks about that. CH have come to me saying "our people don't think that all your operators are competent". My boss may well go to my counterpart in the other company and ask him: "Are you getting what you need from this guy?". Because he talks to CH as well. (WTC-Mngt-1) we don't have a formal mechanism for giving feedback, we don't do it in a structured way. I will ask how is X doing or how is Y doing. What do you think of those. I get feedback on our people from some of the CH people (WTC-Mngt-3) I don't think that we've gone out and solicited across the board positives, negatives, strengths and weaknesses and all those things. (WTC-Mngt-4) I asked them if I could be blunt and they said OK. So that's what I did. And they made changes and that's good (WTC-Mngt)</p>	<p>I've never had any feedback, either positive or negative via Terry from CH. So I don't know. (WTC-Eng-6)</p>	<p>Not discussed at operator level</p>

Table A4.16 Appraisal at Wheatco-Chemco

Table A4.17: Detailed data on Rewards (Researcher's comments in italics; disconfirming statements highlighted)	
Not discussed at operator and at corporate levels	
Theme	Management Engineers
Disruptive effects	Discussed as a PM issue related to Goals
Joint rewards	<p>We've talked about that last year but we never actually got anywhere with it. We haven't actually had any joint rewards (CH-Mngt-2) So if there is downtime on Chemco plant because WTC have a problem, our responsibility is not to discount it from our performance records (...) You want to offer help, you want to offer support and that's how you can help. (CH-Mngt-3).</p> <p>If it was one company it would affect the people in basics as well as the people on site of the CH process, whether it be the bonus schemes or whatever (CH-Eng-2) Their bonus is at site level whereas ours is specific. It would be one way of getting better interaction between WTC and ourselves if we could drive some sort of reward to their team (CH-Eng-5). I think building the trust up has created this and yes we probably need to make the most of that, even if it's some kind of recognition of a job well done</p>

	<p>Four years ago we had a manufacturing achievement award for a step change we'd made on chemical additive, some people from basics and us. And we actually put a CH person on the award as well. (WTC-Mngt-3) I'm not sure we could convince management to allow us to do a CH/WTC based on the performance plan that's coming up. But we might convince them to allow us to do something out of our local budget (WTC-Mngt-6) if you focus your awards around objectives that are consistent with that ultimate goal, then I'm not sure that it particularly matters if you've got to have for example a common compensation system or not. (WTC-HR)</p> <p>No agreement to pursue joint cash payments, but both companies have the structure and the desire to reward co-operation. (Steering Committee-March 2000)</p>	<p>(WTC-Eng-1) I don't know whether it would or not because I don't know what the structure is over there (WTCV-Eng-3)</p>
Barriers	<p>The barrier was if we have a joint bonus between our people and their 20 people, the other 980 WTC people might go on strike if they think their colleagues have got another bonus that they didn't get. (CH-Mngt-2)</p> <p>We have to be careful if we were to take the TCS operators out for dinner or whatever the others would say, why not me. So there has to be a balance.(WTC-Mngt-1) I think the hesitancy I would have is you don't have enough trust that the other guy will do what he says he'll do yet, so that you feel confident that you're going to get your reward. (WTC-Mngt-6)</p>	Not discussed

Table A4.17 Rewards at Wheatco-Chemco

Table A4.18: Detailed data on Training (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
Shared language	Not discussed	So when they talk to you about the technicalities of their process and when you talk to them about the technicalities of our process when they see that we're reaching an understanding with one another, that builds a relationship. (CH-Mngt-3)	<p>Everyone talked the same sort of SPC language so that certainly helped. (CH-ENG-10)</p> <p>You can have an intelligent conversation because we all understand (SPC) the same way. I come to understand their jargon, and they've come to understand mine, so we're "bilingual" you could say (WTC-ENG-8)</p>	<p>I don't mean language as in accents and things like that, what I mean is I suppose we have abbreviations for certain things which we've developed over 8 years of running the plant of which we did originally with the original Siltet plant operators. (CH-Op-2)</p>
Learning about the relationship	when he came on board I had to allow him to get educated. And there is only so much I can tell him. There are things that he needs to learn on his own, which I'm very glad he is learning on his own now, how this across the fence relationship is so special, so different that you can't think like WTC is just a	It doesn't feel that the basics guys, the whole people underneath understand how much they are hurting their own business. And that's an education thing. It's started now. (CH-Mngt-1) part of the reason why I got involved was to help train others so that they can learn and we get it back on track. (WTC-Mngt-6)	Where you've got this very strong relationship, where you've got people coming in, particularly at reasonably senior level, ensuring that we don't disrupt the upper card if you like (CH-Eng-1) there's still quite a lot to do between getting the WTC operators to gain a better understanding of how the 3 plants are integrated and the	they don't seem to be as aware of the two way: "they send us, we send them". Desired: Well classroom based overviews and proper tours and information we can keep if you like. Official information that WTC is happy to provide is obviously not going to compromise their business integrity

	customer and a supplier (CH-Corp) If the objective of the training is to train everybody who has an interaction with CH, I'm not sure that's what's required. There needs to be common guidelines that everybody has about the communication interaction (WTC-Corp)	to set up an induction process for WTC personnel who come onto the CH site (Steering Committee October 2000)	basics to CH (CH-Eng-2) it does harm the relationship initially when new people come in, until they sort of understand the tie up between the 2, getting them to understand that there is a relationship (CH-Eng-8) One of the things we've missed out in terms of the interaction part is that as we've brought new operators in we haven't made sure that they've spent time over there and just got that fundamental understanding of each others processes (WTC-Eng-6)	which I can't see it doing that at that level. (CH-Op-4)
Team Day	Not discussed at corporate level	We've actually planned a team day between ourselves, basics and rubber. A couple of days. We were going to sit down and go through the loop. And then we were going to have a brainstorming around operational problems. But it got cancelled because of the workforce reduction plan at WTC. (CH-Mngt-1) We were going to organise in September a joint team day with CH but it was cancelled due to the workforce reduction program. Some of it was about making sure that people understood how the interactions work. But some of it was "free for all", a sort of team building exercise. (WTC-Mngt-1) Need to improve communication and credibility at operator/shift manager level, planned team day should help" (Steering Committee minutes, March 2000)	It had been planned to have a day or a couple of days together as a team building thing, but that was cancelled. That's a pity. That would have been very good. (CH-Eng-9) We were going to have operators meeting each other to discuss issues, in September. It was cancelled and I was a bit disappointed about it. I know we're trying to save money but it wouldn't have been an expensive thing. (WTC-Eng-1)	Personally at our level, some sort of team building exercise ought to put names to faces to meet the people (CH-OP-1) bring back on line these get togethers(CH-OP-2) I think we did plan a couple of team days to go and meet other and so on but it came down to finances and neither company wanted to pay overtime for everybody to go on a jolly, if you like, so it all fell apart. I think it's probably the way forward (WTC-Op-2) Extend the meetings to have operator awareness of both processes, ie training days (WTC-Op-survey)

Table A4.18 Training at Wheatco-Chemco

Table A4.19: Detailed data on socialisation (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
Effect on relational	We had to go through some difficult negotiations. Then we developed respect for each other. (CH-Corp) Perhaps we ought have more opportunities to bring everybody or more of the key	To get the people to interact with each other on a face to face level, build some of these personal relationships, right down into the organisation which are important and benefit from that during times of high stress, I would hope. (CH-Mngt-1) We spend time	I'd like to see WTC come in over here, I'd like to see us going back over there regularly, have some presentations perhaps, and sometimes you've got to spell it out what impact say our chemical additive is having on their rubber manufacture.(CH-Eng-3)	I don't think it's a very good relationship, definitely and I would say we'd never ever even met any of those people. (CH-Op-1) Just more familiarity with working with that person, confidence in their ability to do what we're asking them to

<p>players to some of these joint sessions where we talk about the direction we're going and what we want to do. These days are cost controlled and WTC doesn't allow for that much travel. So ideally yes once or twice a year we'd bring the global team together and sit down and had some good discussion. That would be a way to build this commonality. (WTC-Corp)</p>	<p>together face to face regularly (CH-Mngt-3)</p> <p>The reason I think would be to get the better working relationship at the operator level. They have to work together 24 hours a day 7 days a week at opposite ends of the pipeline and it's got to be easier and more effective if they know each other. (WTC-Mngt-1) I'm not sure that there are any defined boundaries at least that I'm aware of. And part of getting the operators together, I think you throw away a lot of those boundaries because they're going to say what's on their mind (WTC-Mngt-6)</p> <p>what we should perhaps learn from this is to be more proactive and to sort of keep a level of face to face meeting and communication between the operators so that when things do go wrong they already do know each other and trust each other so they're more likely to deal successfully when things go wrong than they would be if they didn't (WTC-mngt-1) I think that's the value of building those relationships and trying to make them strong and good working relationship and trying to make them strong. It prevents wasting a lot of time. Because I see on the WTC side quite often here from the engineers and from the operators: "Oh yea, they said that but I don't believe that" and that's because the trust isn't there. we've had comments back that "he wasn't such a bad bloke after all, was he?". And part of it is being able to sit down and see the person face to face and have a conversation (WTC-Mngt-6)</p>	<p>they gain a better understanding and appreciation of how their plant can affect CH and vice versa, I think it helps (CH-Eng-6) I think by having visits on either side, that could help improve communication more as well by having a better understanding of each other's sites. (CH-Eng-7) I think the more interaction you can get at that level the better, because the people here know immediately what the impact would be at WTC of one of their actions and likewise (CH-Eng-10). a courtesy call just to say hope you are having a good night tonight or whatever and there are no problems and they could do the same (CH-Eng-7)</p> <p>there has one time when I actually invited the Shift Manager over. If you're dealing with a total stranger it's difficult sometimes to know how to take people on what they're asking, what they want (WTC-Eng-2) a much more not personal but work level of communication which is much faster (WTC-Eng-5) So it's not as good a working relationship as you would have with people meeting face to face. I think the way to go forward is to get people interacting more. All of these things can be solved by communication generally. (WTC-Eng-7) We went from conflict or a reasonable amount of conflict to a lot better working together as people began to understand what the other person's problems were. He came over and sat through the problem and I think he took something back with him to CH, a better understanding and our operator said look I've shown them how bad it is when the plants upset so it was a big help.</p> <p>Disconfirming: In the long run I think it would help but if they get somebody over who they think this guy isn't trustworthy then I think it will go the other way. (WTC-Eng-6)</p>	<p>do and their ability that we're not messing them about, they're confident that we're not messing them about. (CH-Op-3)</p> <p>I think the 2 sets of operators need to talk to each other, even just 2 or 3 from each company just getting together now and again then whoever went to these meetings we could give them a list of questions from the operators to ask, and they could feed it back to us. (WTC-OP-1) I thought it was helpful because the one like Charlie came over and he was on the phone to me today, he's on the process, so at least I could put a face to the voice and you know who you're speaking to after a fashion. (WTC-Op-2)</p> <p>It would be good if operators from WTC were able to go into CH to see why they're having problems, to get a better idea of what they have to do. It would probably give us a better idea of the process they do so that when we phone them we know the questions to ask. (WTC-Op-1) It was good that they came over physically to look because I'm sure that that's always been the perception across the fence that if we have problems we're actually lying to them about what's happened and the other way around. (WTC-Op-2)</p>
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		<p>I think the relationship got better between ourselves at TCS and the operators at CH once we'd all met. (WTC-Eng-2) It builds in a barrier not to have this physical daily face to face. It's not essential for the operation but in terms of building the relationship it would make a difference. (WTC-Eng-6) If we had more physical contact, if we actually met more casually, more regularly, then perhaps, things would be better. (WTC-Eng-8)</p>	<p>we may spend a day there, they spend a day here to appreciate how important a trip is to them, how important it is to us, what the knock on effects are from these trips (CH-Op-1) I think we should bring back on line these get together, a few hours, maybe even a swap of jobs for a week. You get an appreciation for what they have to do and everything that they've got on their plate and they also can come and see what we've got to do (CH-Op-2) it's nice to know what they're talking about sometimes if only to know that they're not making it up. (CH-Op-3) see why they're having problems, to get a better idea of what they have to do. It would probably give us a better idea of the process they do so that when we phone them we know the questions to ask, we may be able to say, oh see that pipeline that goes onto the hopper, maybe it's that (WTC-OP-1)</p>
Effect on Technical		<p>I think where we've probably fallen down is looking at the interaction between the 2 and there are things that have come out where it's been quite obvious that there are ways they could operate their plant which can help ours and vice versa, so I think that's one of the benefits in terms of the plant. (WTC-Eng-6)</p>	<p>Whether that just means bringing them over here for a few hours, maybe even a swap of jobs for a week. You get an appreciation for what they have to do and everything that they've got on their plate. (CH-Op-2) TCS operators spending a whole week at CH learning how the two plants affect</p>
Exchanges	<p>We have talked in the past but not much happened about having exchanges of employees between CH and WTC. Especially around here. That people go through each other's.. at the operating level and may be outside the operating level. (CH-Corp)</p>	<p>No. Not to any great extent. I don't think it'll answer our technical problems. What I think it'll do, it'll help. (CH-Mngt-1) It has an impact on results, but it is not the sole impact. Recognise that doing this alone isn't going to fix it, this is not the only answer. It's just one.. (CH-Mngt-3) It's much easier to talk to somebody especially if you're giving them bad news, it's much easier to talk to somebody that you know than it is to somebody that you don't know and you're much more likely to believe them. (WTC-Mngt-1)</p>	<p>It's one of those relationships where you almost need CH quality people or these focus people to be sitting here in WTC on a daily basis, understanding what the problem is and likewise the supply chain people. (WTC-Eng-1)</p>
		<p>Here's the best guy from CH and base them either at WTC or at CH's offices to make a joint investigation for 6 months to sort this problem out. (CH-Mngt-1) We talked about it we could send one operator for one week. We've done that for one shift. (WTC-Mngt-1)</p>	

				each other (WTC-Op:-survey)
Barriers				The more time you can spend over there the better, but that's more easier said than done. Obviously we've got our own jobs over here so it's not always easy to arrange those sorts of things (CH-Op-4)

Table A4.19 Socialisation at Wheatco-Chemco

Table A4.20: Detailed data on Communication (Researcher's comments in italics; disconfirming statements highlighted)				
Theme	Corporate	Management	Engineers	
Communication of strategic vision	<p>I don't think we have consciously communicated how we need to work with each other. I don't think we have really formalised what I call how we would work together. Some kind of broad vision statement that somebody could pull out and say this is the way we are working together. One is actually write up a vision within CB or within CB and DC. SF and I would spend the time. I would make it a document where SF and I would share the same document within CB and DC.(CH-Corp)</p> <p>We could do a better job of educating the people at the local site in terms of what the vision is and what it is we want to achieve. Or genuinely just making sure just every body is talking from the same page and not giving conflicting information. I wouldn't want to put things in concrete and say this is absolutely the way that has to be done. I'd want to let it evolve, some kind of working document. Genuinely just making sure just every body is talking from the same page and not giving conflicting information. (WTC-Corp)</p>	<p>We probably haven't articulated from the management perspective, what the higher vision or the mission statement is between the two sites (CH-Mngt-1) Anything that is a document or a mission statement or something that says this is the WTC/CH relationship, this is what it means to us, these are the behaviours we bring together. I don't think we have that.(CH-Mngt-3)</p> <p>we don't feel that we get fed down from corporate what the global plan is, what's going on, what their strategic plans are very well (CH-Mngt-2) rather than people in our organisations just sense from our behaviors or what we might say what it is that they should do, is make it very clear (..)At least with something like that you could communicate with everybody (CH-Mngt-3)</p>	<p>I don't know what the Steering Committee set themselves as goals for example.(CH-Eng-1) There are probably things which get discussed away from site which don't always get perfectly communicated back to site.(CH-Eng-8)</p>	
Internal hierarchy	<p>The regional manufacturing person says: "I don't want to do it- why should I do it?" and I say "well this is the context of the relationship, this is the best thing for this "one company": (CH-Corp)</p>	<p>my primary reporting line is to the regional manufacturing director. That individual does not have any conception about relationships with WTC, none whatsoever. In fact one of my major objectives and tasks is to educate him about this business so he didn't treat us like some of the other businesses and that's worked.(CH-Mngt-3) So you can imagine here we come under enormous pressure from our corporate management who want to know why our plant isn't running. e have a corporate team coming from Boston and preparing some slides .. and one thing I want to make clear to them is just how intimate our relationship with WTC is .. (CH-Mngt-3)</p>		

Table A4.20 Communication at Wheatco-Chemco

DETAILED DATA TABLES: TYRENCO

Table A5.1: Detailed data on Goal dimension (Researcher's comments in italics; disconfirming statements highlighted)			
<i>Goals not discussed at operator level</i>			
Theme	Corporate	Management	Engineers and operators
Joint customer service goals	<i>At corporate level, separate rather than joint goals were discussed</i>	Our goal is to have no product shortage on the market place so this is clearly a common goal (..) we do have a joint KPI, it's T-Drug CS we only contribute partially to this KPI since we are rather upstream (PAR-Mngt-1) When you talk in terms of CS, it brings everyone together (PAR-Mngt-4) The common goal is CS. Provide patients with a quality product in enough quantity (PAR-Mngt-6) what we're here to do is to utilise PAR, LDN and OC. when they come on, to ensure a supply of T-Drug to absolutely cover market requirements at lowest cost (LDN-Mngt-2) we share the general pressure just getting product to market (LDN-Mngt-6)	the ultimate goal is to produce the product so everyone is working to that goal really (LDN-Eng-1) PAR is I would say a priority because without our contacts in PAR we would not get T-Drug from PAR (LDN-Eng-4)
Strategic goals joint	<i>At corporate level, separate rather than joint goals were discussed</i>	we all know this is a strategic product, which is very much under scrutiny and we know if anything goes wrong it will rapidly go up to (CEO) (PAR-Mngt-1) I think because of the application dealing with cancer, and we do have good sales with this product. It may be utopian, but I see shared goals (PAR-Mngt-4) See that product becoming a \$1 billion product and a \$2 billion product (LDN-Mngt-8)	The joint goal is the Tyrenco mission which is to be the best pharmaceutical company in the world (LDN-Eng-4) any company would want to manufacture and sell T-Drug because it's such a money maker, it's a good product (LDN-Op-1).
Separate organisation structure	There is a formal structure where they are managed and they meet and their goals are set and their measures are measured by regions (LDN-Corp-3)	The API is separate from the drug products organisation. They have different targets (LDN-Mngt-1) Because of the structure of the Tyrenco organisation, PAR is not in the same regional area as LDN so corporately there is a European structure but then within those there are goals that jointly would be owned by each site but I never see the goals for PAR in terms of their objectives and what they are looking at, what programmes they are running (LDN-Mngt-7) The difficulty is from an overall management view point, LDN falls into a group of sites which is under management of north and south Europe and PAR falls under the management of French sites. It's all part of industrial	

Separate goals	At the moment it still seems quite distant. There's no common dialogue, there's no common set of goals (.) because there's no common ground and they are different businesses with different KPIs. Quite often conflicting KPIs (LDN-Corp-2) they focus very heavily on local performance, local KPIs, local improvements, local budgets and local outputs (LDN-Corp-3)	operations, but it's separately budgeted group (LDN-Mngt-2)	I think it still seems to be a bit of LDN and PAR it's not a team meeting as such. I think we don't know the goal that we're both aiming for (LDN-Eng-3) Each site has its own goal which is different from the corporate goal (LDN-Eng-5)
Conflicting goals	Due to our "stupid" organisation, a product that leaves PAR today at a cost of 100 arrives in LDN at a cost of 800 or 1000, simply due to internally defined inter-company margins. Therefore, most people loose track of inventory management and focus only on interco margins and thus disturb the physical product flow. So we end up managing interco margins rather than inventories. This also generates conflict, especially since we look at end of the year stock levels rather than average stocks (PAR-Corp)	We're not sharing the same goals; otherwise we would not have had this out of stock situation (PAR-Mngt-2) <i>Disconfirming:</i> Currently goals are clearly joint in as much as ever since SPAN we've had a joint project, which requires LDN to manage both PAR and LDN (PAR-Mngt-5) for instance the active ingredient, there is often a lot of positioning or politics around whether or not we hold the stock or whether PAR hold the stock (LDN-Mngt-7) They are individual; there are not joint goals at the moment (LDN-Mngt-8)	It's an expensive material and especially coming to the end of the year LDN don't want to be holding a lot of this stock because we've got inventory targets to meet but the same can be said of PAR; they've also got inventory targets to be met so at the moment there's some conflict over some of that material that we can't use at LDN but we want to send back to PAR
Joint product line objectives	We should introduce joint product line objectives, so that people are, in a sense, condemned to work together. Today this does not exist (PAR-Corp) we're intending to align everything around those products. And ultimately we'd like all of the pieces of that product chain to be more focused on the product than on their individual site for drivers, because the drivers are dramatically different when you look at a global product rather than the individual sites (LDN-Corp-1) Clear goal setting, so the product leader for oncology has the room to set coherent end to end mutually supportive goals for down the supply chain (LDN-Corp-2)	Objectives need to be defined based on an end-to-end SC view, which includes both API and DP view.(PAR-Mngt-4)	

Table A5.1 Goals at Tyrengo

Table A5.2: Detailed data on PM issues related to goals (Researcher's comments in italics; disconfirming statements highlighted)

Reward systems not discussed at Corporate level

Theme	Corporate	Management	Engineers and Operators
Rewards as a source of tension Conflicting goals	We may want to question our bonus process. This is motivating, but currently it is too much egoistic, too much centred on individual and local objectives.(PAR-Corp-1) Personally you do the right thing, that's what motivates me, but a lot of them they first ask what's my bonus. Also this is a very, at least in IO, this is I would say the cornerstone (LDN-Corp)	if our goal is solely to meet the budget then we're going to fight against things that prevent us from doing that. That's where you drive behaviours in the wrong direction (LDN-Mngt-2) (rewards) would be driven by the site as it stands at the moment because company performance is company performance so half the bonus is affected by that. In rewards and recognition terms, how are the people-related processes aligning towards those goals (LDN-Mngt-6). Where there is a lot of negotiation around when should we take stock and should we send material back if we do not want to use it, I do not think that really helps the relationship between the two; what drives that is financial performance (LDN-Mngt-7) as we've gone into discussions about allocations of product between the 2 sites is very quickly where divisions come forward. When the subject of individual site budgets and budgeting control comes up, then that's a big issue and that's where there is a kind of war zone area the way those monies are controlled across the sites is in direct conflicts. we had to pay them a lot more money and we also under-recovered in terms of how much product we were able to produce (LDN-Mngt-8)	I think a lot of that is driven by finance though isn't it because unless you have a common budget goal each site is going to be driven by their own profitability (LDN-Eng-5)

Table A5.2 PM issues related to Goals at Tyrenco

Table A5.3: Detailed data on Information sharing dimension (Researcher's comments in italics; disconfirming statements highlighted)

Information sharing at Corporate level discussed in the body of the report

Theme	Corporate	Management	Engineers and Operators
Information not shared	So (this lack of information flow with API) was amplified by the fact that the person who was due to manage this whole SC was not located in a neutral area but in LDN (PAR-Corp-1)	Today, there is no transversal view of T-Drug: information doesn't flow, lack of long term forecasts, which are being established but not communicated (PAR-Mngt-1) we had no visibility on the PAR production schedule, not even for the following week!. We never used to receive the final batch data results. What I need from LDN production is a feedback on my production. I never know what goes on with my batches (PAR-Mngt-2) Currently we get demand orders for the active ingredient and we need to have forecast updates for the active ingredient on a yearly basis. For the rest (T-Drug) we need to have regular schedule updates. Today (09-01) we have a (forecast) file, which dates back February (PAR-Mngt-4) In Regulatory there are already good links but some things were not done, such as sharing of information around changes made at sites	It's fairly well understood that you will not hear anything unless there is a particular issue (LDN-Eng-1)

Reasons for lack of transparency		(PAR-Mngt-6) I don't think there's any secrecy, that's the word really between LDN and PAR, not deliberate anyway. I think, because it takes so long to get... the information, is 1) it's hard to get, 2) when you get it you're not necessarily convinced by it, so you're less likely to share it (LDN-Mngt-3) Nobody deliberately holds onto the information and not let PAR see it. I think when asked the information is given. I suppose people assume there may not be a need to share that information (LDN-Mngt-7)	I think information is normally requested rather than given but when it is it flows quite easily to and from we do not have a heavy involvement with them unless there is an issue really. If we were to have a question here it is unlikely that we would immediately go to PAR and see whether they had a similar issue, not necessarily because we do not believe that they would not give us any feedback but probably because it is just not considered. (LDN-Eng-1) It's good if you ask for information but I don't think there's a natural.... I don't think unless they ask for information LDN won't send it, probably because we're all very busy and we all perceive ourselves as the LDN site and not as a PAR-LDN relationship (LDN-Eng-3)
Need for more information sharing	They have the major piece of the supply chain and there needs to be good communication back and forth so that they're both making the right decisions and agreeing on their strategies for inventory and supply and so forth (LDN-Corp-1) .it's a dialogue that they've never been exposed to, never been involved with and initially never believe they need to talk, because we need to have a coordinated, linked well communicated end to end process (LDN-Corp-2)	We should have a mechanism where they don't have to ask us, the data is available on-line etc. (mother plant, technical) I want to have an intranet data centre that we can all access (LDN-Mngt-2) We're going to need to do something to collect all that history and share it so that everybody knows where in fact we collectively are today (LDN-Mngt-4) , I think there is more information and more data that we should be aware of and vice versa. so we need to have that dialogue between the two sites especially at LDN being the mother plant, then for me it would have been an ideal opportunity as a mother plant to get people from PAR and compare the systems, so on and so forth, I do not think that was done (LDN-Mngt-7)	I think to open them up would be useful. (LDN-Eng-1)
Learning		In the learning opportunity that's there, that's the opportunity to involve people at the process end, whether that's from an engineering point of view or operator point of view, there's a learning opportunity there. (LDN-Mngt-2) the synergy that we get from having similar operations and being able to share resources and share learning, you would think there would be a business driver to say if we're doing something in LDN then maybe PAR doesn't have to do it, or if PAR's doing something then we wouldn't have to do it (LDN-Mngt-4) they have a lot of knowledge around the product, a lot of knowledge around the testing, lot of knowledge around what changes can or	From a wider view I think that there maybe areas that we could focus in on that they perform and see we are doing the same task here differently, different equipment but the same task and I think we could learn from what they are doing and then I think they could learn from what we are doing, I do not see an awful lot of that. (LDN-Eng-1) As far as I am aware there is no real sharing of problems or benefits. (LDN-Eng-5)

		cannot be made. There is a lot of learning to get from them(LDN-Mndt-7)	
Quality issue has forced more interaction	They've been talking more Unfortunately because we've had a major technical issue come up (LDN-Corp-1) And the one benefit that's coming out of these arguments is the planning and management teams are coming much closer together (LDN(Corp-2) I think that T-Drug has been in crisis for 12 months and I think if they didn't talk to each other we would have been highly irresponsible both in terms of patients safety and in terms of their own careers so it's almost a crisis that's forced them to have to talk to each other.(LDN-corp-3)	This has recently been improved because of the T-drug issue; it is an obligation to communicate. LDN was forced to be transparent (PAR-Mngt-2) Dealing with technical topics involves getting closer de facto.(PAR-Mngt-4) because of the T-drug issue issues we reverted to more collaboration (PAR-Mngt-5) The focus on that as a crisis management or a problem management has forced LDN and PAR to work collaboratively. (LDN-Mngt-2) Up until recently until the quality crisis T-drug issue, the need for dialogue with PAR has not been that significant (LDN-Mngt-5) we are collaborative over issues where we are drawn together such as T-drug crisis team such as SPAN, people will collaborate (LDN-Mngt-8)	There has been collaboration in order to resolve this (T-drug issue) problem (PAR-Op-1)

Table A5.3 Information sharing at Tyrenco

Table A5.4: Detailed data on PM issues related to information sharing (Researcher's comments in italics; disconfirming statements highlighted)			
Theme	Corporate	Management	Engineers and operators
<i>See details on language in body of report</i>			
PM Issue with information sharing		when we're not informed we sometimes worry a lot when it's not necessary. So the lack of information really damages the relationship. (PAR-Mngt-2)	I think the face-to-face questioning and talking about details is a lot more useful than over the 'phone or via e-mail. I have sometimes found via e-mail that I don't know whether because of translation things seem to get missed or misunderstood. (LDN-Eng-3)

Table A5.4 PM issues related to information sharing at Tyrenco

Table A5.5: Detailed data on Relationship structure dimension (Researcher's comments in italics; disconfirming statements highlighted)			
Theme	Corporate	Management	Engineers and Operators
Lack of functional interaction	So if you look at PAR and LDN so I would desperately hope that the 2 people who are responsible for manufacturing have a strong active healthy relationship (LDN-Corp-2).	I sit on all meetings, but I never have my counterpart from LDN (PAR-Mngt-2) there should be some exchanges taking place between production managers regarding similarity of process and there may be technical studies or in terms of people accreditation (PAR-Mngt-4)) it's like a remote sort of relationship that we have with them that we don't meet them and we don't speak to them, but saying that we as production team, very rarely have problems with PAR. (LDN-Eng-2) Some of the issues that are brought up are production issues where in the end, you can't answer them directly in a face-to-face meeting. You need to take the action

Table A5.5: Detailed data on Relationship structure dimension (Researcher's comments in italics; disconfirming statements highlighted)

	<p>What we haven't done effectively or consistently is get involved jointly the people who actually run the process. if there was a bit more interaction at lower levels in the organisation down to operator level, that would help us with some of the issues and perhaps help us spot some of the solutions quicker (LDN-Mngt-2) until, the advent of SPAN, I had never even met or heard of the supply chain contact at PAR (LDN-Mngt-3) I think that the links are not clear between say (her) and our manufacturing people here, as yet there does not seem to be a clear one to one interface between (her) and person X within our oncology area to pass and exchange technical information (LDN-Mngt-8)</p>	<p>away so if someone from production was there the issue could probably get resolved there and then. they don't come back and ask specific questions because they know I can't answer them. (LDN-Eng-3)</p>
<p>"Routine" interaction</p>	<p>We also have something that LDN had never formed as the mother plant but they did when we hit this problem and this was called a tech council. unfortunately it's a little bit of an issue with our culture. We tend to do the right things when there's a crisis but then routine we're not too proactive (LDN-Corp-1) My objective, particularly in the first half of the year, is the people with a natural interaction, the people who deal routinely with at the moment a bit of a customer supply relationship, there's people in production and people in supply chain, people in purchasing. We need to get them dealing more routinely. There is no planned routine mechanism to talk to them (LDN-Corp-2)</p>	<p>Not discussed</p>

Table A5.5 Relationship structure at Tyreco

Table A5.6: Detailed data on PM issues related to Relationship structure (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and Operators
Issue of high people turnover and associated lack of	<p><i>Not discussed at corporate</i></p>	<p>There are as well barriers in terms of people turnover. We have invested a lot into some people who have gone. (PAR-Mngt-1) whenever we start working well with one individual then he leaves and we have to start from scratch. You always think it's going to</p>	<p>My contacts in D change all the time (PAR-Eng) we have a new shift management team I do not think, there</p>

competence	<i>level</i>	get better but it never really gets better (PAR-Mngt-2) We've had excellent interfaces at LDN but they didn't last long. We are trying to set up our T-Drug network, but this hasn't been made easy by the high people turnover. (PAR-Mngt-3) Establishing a relationship with people who change very often is a major difficulty. This de-personalises the relationship, so that it is only an administrative one. You tend to have a contact only in case of issues and also it makes it more difficult to use the phone to call your interface in order to understand what's going on. (PAR-Mngt-6) One issue with LDN is people turnover. This is the reverse here. I've been here since the start (PAR-Mngt-5)	are very few of them who have actually met (her) very few have spoken to (them) on the phone and so they have not got that communication, they have never had it because it has not been there (LDN-Eng-5)
		It is not as close now but (she) had a very close relationship with (her) and they worked very closely on the schedule between the two firms, given our instability this was a constant dialog. It has not been so strong, with the changes that have happened since then. (LDN-Mngt-1)	

Table A5.6 PM issues related to Relationship structure at Tyrengo

Table A5.7: Detailed data on Coordination mechanism dimension (Researcher's comments in italics; disconfirming statements highlighted)			
Coordination mechanisms at Corporate level discussed in the body of the report			
Theme	Corporate	Management	Engineers and Operators
Contract		In 2002, 80% of the relationship will no longer be with LDN but with OC (...) So we feel that we could possibly find ourselves in a more stable situation (PAR-Mngt-1) Things are going to be much more clear as we will work with OC and no longer with LDN, so things will be much easier. . . Subcontracting will be managed through the contract and therefore, this will force LDN to be more communicative (PAR-Mngt-2) It will complicate the situation from a SC perspective, but it could be a good outcome as it drives a clarification, whereby LDN would be self-sufficient and PAR could supply OC (PAR-Mngt-4) PAR will not longer supply LDN, they will supply another sub contractor, and then we will get the product so we will still see the PAR part of the documentation but it will be a more separate sub contract chain which we have to manage, so it is going to be quite interesting how that relationship develops. (LDN-Mngt-7).	If I had been in charge, I'd have separated in two. Now this is what will happen as we'll have PAR and OC on one side and LDN on the other (PAR-Eng-) So there will be a lesser relationship with LDN as a manufacturing site and PAR as a manufacturing site, obviously there will still be interaction between the sites because the mother plant concept for T-Drug means that we will own that process. we need to know more about their process because they are supplying OC. It will affect in probably there will be a more global communication between D, V and OC as well (LDN-Eng-1) Maybe once we get up and running with OC I think the whole thing will become easier (LDN-Eng-3)
Reciprocal Interdependence		We do not start a production if we do not have a written order stating we need 2 or 3 lots next week. It's not verbal it's all e-mail. We cannot launch a production if LDN doesn't agree. For T-Drug production, we need the empty sterile storage containers, to dispense the product. (PAR-Mngt-5) We work so that the product has the right transit conditions so that it arrives in D	They need to ship the stuff to us within a time line and then we need to proceed from that, if there are any issues at any point along that process then it affects both sides, so it is a partnership simply to maintain that for the business really. The product is released from the PAR site to us and then we do a full set of testing (LDN-Eng-1) When we're fixing the schedule, when it does

Table A5.7: Detailed data on Coordination mechanism dimension (Researcher's comments in italics; disconfirming statements highlighted)

	<p>undamaged. It should have the right temperature, with the right interface, with the right quality.(PAR-Mngt-6)</p> <p>There is a lot more communication than that, there's discussion and delivery and co-ordination because of the value of materials but effectively for the active material we just place our orders and the material arrives. (LDN-Mngt-1)</p>	<p>change, we're communicating back to them quicker and PAR understands the problems that LDN has from a manufacturing point of view (LDN-Eng-3)</p> <p>LDN needs us for the active ingredient, and we need LDN for filling and delivery to the whole world.(LDN-Eng-4)</p>
<p>Co-operation as obligation</p>	<p>If we do not have a good collaboration, we cannot have long-term results. I think that's it. If people are working together, and they do not collaborate well, even if all procedures are followed, one day or another there will be a mistake or a problem with quality or a dysfunction and we cannot afford this from a strategic view point (PAR-Mngt-1)</p> <p>the idea is this is going to be a partnership. that's the only way it's going to work (LDN-Mngt-3) For one main quality reason is the fact that we're both going to be putting product down on the market that we need to be sure is exactly what it is supposed to be. So if you don't have the right amount of collaboration you can end up ultimately with diverging processes and potentially diverging product quality, and on this product because they're both filled in most of the applications, you'll want to make sure that does not happen. So that's just a purely technical reason to make sure you stay together, you know from a product quality compliance perspective (LDN-Mngt-4)</p>	<p>Definitely a partnership because neither of us could survive without the other, LDN-Eng-4)</p>
<p>Collaboration on technical matters</p>	<p>As long as we deal with technical topics, even though we're aware of politics in the background, we're able to make propositions that are logical. This kind of approach involves getting closer de facto (PAR-Mngt-4) if we had a technical issue that we need to argue, Christina or Michel or I will openly argue but it's a positive argument. It's an argument towards a conclusion and there's no hidden agendas and people saying .. and it interacts in the way it should interact. If there's a discussion around external customer service, generally speaking because I think everybody particularly with this product chain, everybody feels a great attachment to the product and the patient and what we're actually doing and they have pride in the product therefore you can pretty soon get people to agree to what needs to be done. (LDN-Mngt-8)</p>	
<p>Interdependence as source of frustration</p>	<p>There were quality issues especially complaints with vessels (dirty, wheels). When LDN was cancelling production batches they never told us why. Such as: "well we're cancelling tomorrow's batch", why?"(PAR-Mngt-2) .</p> <p>All of the production here has to be scheduled in line with PAR ability to produce and the restrictions that were there. And vice versa they had to try and link with what we could do in the UK which causes all sorts of interesting</p>	<p>The perception of an adversarial mode was due to the fact that we didn't get any answer to our requests, or there were schedule changes so this was a nightmare (PAR-Eng)</p> <p>We can cancel the manufacture at PAR should we need to, obviously the plan is not to do that but that does happen fairly frequently; especially if a line goes down then we just end up with PAR batches backing up which is no good to</p>

Table A5.7: Detailed data on Coordination mechanism dimension (Researcher's comments in italics; disconfirming statements highlighted)	
	<p>things. (LDN-Mngt-1) It seems to me sometimes that they seem to be picking holes in silly little things like a bit of auto glaze tape isn't on the back of one of the filter labels, and things like that, but if that's what's in the SOP, then what's got to be done at the end of the day, so ..</p>
	<p>us. PAR would probably get more frustrated with us for not supplying them the equipment that they need, so vessels on time or being asked to cancel a batch and it was really too late to be cancelled so those sort of things. We are working within quite stringent hold times. There was a batch the other day was very late (held up at customs) that was a mutual frustration really (LDN-Eng-1) If we send an empty vessel or 2 empty vessels to PAR and they send them back to us but say there's something wrong with them, now immediately the operator will say oh, they must have done something with them or .. instead of (LDN-Eng-2) there would be criticisms between PAR and LDN, LDN could not do this or we would make a mistake somewhere along the line and PAR would think 'oh you know'! Over the years I have received complaints from PAR where we have let them down about silly things (LDN-Eng-4)</p>

Table A5.7 Coordination mechanisms at Tyrenco

Table A4.8: Detailed data on PM issues related to coordination mechanisms (Researcher's comments in italics; disconfirming statements highlighted)	
<i>Not discussed at Corporate level</i>	
Theme	Engineers and Operators
<i>Understanding table presented in the body of the report</i>	

Table A5.8 PM issues related to Coordination mechanisms at Tyrenco

Table A5.9: Detailed data on Locus of decision making dimension (Researcher's comments in italics; disconfirming statements highlighted)		
Theme	Corporate	Engineers and operators
Rationale	<p>Management</p> <p>It's rather clear, it's LDN who decides what PAR will formulate. With regards to D-Synth, we're still making the decisions since I'm making the proposal, to be validated with MA. they own the decision as to who manufactures (PAR-Mngt-5)</p> <p>I think SPAN is right in one way at the end of the day you need to have a mechanism for decisions. There will be cases where both sites see particular issues slightly differently, you need to have someone who actually takes the call and says OK I've looked at it all and we'll do this at LDN and we'll do this at PAR. Understanding that the decision making process has to be that way because that's the way Tyrenco is now setting up corporately its ways of working. (LDN-Mngt-2) I suppose the decisions will flow naturally</p>	<p>Engineers and operators</p> <p>Yes, as for who calls the shots or who manages who I really do not think that anybody has a clear view of that because we need solution from PAR, PAR needs us to give them the vessels and so I think it is a good working relationship (LDN-Eng-5)</p>

Table A5.9: Detailed data on Locus of decision making dimension (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and operators
Dominance, asymmetry	<p>Now that will be difficult because it will involve a formal transfer of power, for want of a better word, into LDN quality. Well into oncology quality but within the mother plant concept the truth is that is therefore LDN. (Does the mother plant concept mean a dominant plant?) It's meant to. (Is it?) Yes (LDN-Corp-2)</p>	<p>This is where the "mother plant" concept is changed into a "dominant" plant, which is not very positive (PAR-Mngt-1) This is a "mother-daughter plant" relationship, not a "lord and a slave" the basic issue is for us the hierarchy between PAR and LDN What is difficult with this relationship is that there is one party, which is the order giver and one party, which is the order taker. So therefore there is one party, which has more control over the relationship than the other one. feel we have not managed to take the weight we wanted PAR to have within decision-making. They are the headquarter and we're the subsidiary (PAR-Mngt-2) I'm afraid that the weight is too much on the DP sites. my concern is that there may be an unjustified hegemony from DP, which will create tensions. . If (mother plant) means that API plants are totally dependent on DP plants, then it's going to be a failure.(PAR-Mngt-6)</p>	<p>LDN see that they have got the right to manufacture and supply whatever they want and then just call on PAR when they need additional solution. I would say yes, a power struggle sometimes, tug of war. I think they are both trying to assert their dominance. (meaning) that they are going to have their own say and they are going to decide what they are going to do. (LDN-Eng-5)</p>
Joint, balanced participative	<p>Suddenly the word lead site gets changed to coordinating site because it is much less controversial, but because there is a difference between leading and coordinating it is a fundamental difference in terminology (LDN-Corp-1)</p>	<p>People accepting the concept of some external control or external influence (LDN-Mngt-1) Now they're not the mother plant, we are (LDN-Mngt-6) I am not sure how PAR view it, I am not sure who has told them we are the mother plant, whether they accept it (LDN-Mngt-7)</p>	<p>and in all honesty PAR have shown themselves to be more consistent and more reliable than LDN so from their point of view why should they do whatever LDN dictate (LDN-Eng-5)</p>
		<p>Coordinating a joint meeting to enable decision-making. (PAR-Mngt-1) Planning should be a joint exercise. SPAN can only work if you have a very good collaboration between the different sites. you need transparency from both sides as well as a willingness to work together from both sides. So that you don't have one who is underneath the other.(PAR-Mngt-2) I can't imagine that it will not be accepted bi-laterally, there should be some kind of negotiation (PAR-Mngt-4) I would think that it will be handled through joint meetings. I think SPAN will involve a dialogue (PAR-Mngt-5)</p>	
		<p>There needs to be good communication back and forth so that they're both making the right decisions and agreeing on their strategies for inventory and supply and so forth. In the case of V and D there are two large sites, with similar</p>	

Table A5.9: Detailed data on Locus of decision making dimension (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and operators
Clear rules		<p>complementary resources. The relationship should not be that D dictates on PAR. It should be a more open, mature relationship.. a workshop environment to discuss and start to agree the ways of working for how we're going to do the various things that we have to do technically, to meet the mother plant requirement. It needs to be a process where both sites are involved to put forward what the impact of a particular decision. (LDN-Mngt-2) In the case of LDN and PAR there is equal experience among the 2 sites so we're starting from a different starting point. So for LDN and PAR the mother plant needs to be more of a collaborative versus an expert giving support to, you know mother and parent child sort of thing (LDN-Mngt-4) In the mother site concept we at LDN are ultimately responsible for the product and any decisions that are made at PAR, LDN need to be aware of them and need to understand them and need to be able to defend them so we need to have that dialogue between the two sites (LDN-Mngt-7).</p>	
		<p>Within DV, there is a need to establish who produces how much in terms of solution volumes and activity levels, and there should be no deviation from the agreement. , the rules of the game should be set and respected (PAR-LMngt-2) . If on the other hand we manage from the start to clearly identify the respective prerogatives it should work well. (LDN-Mngt-4) I'd like to know who decides upon the split between LDN and PAR and based on which criteria (PAR-Mngt-2) If the rule of the game is clearly stated and accepted by everyone, then yes, it can work.</p> <p>Understanding that the decision making process has to be that way because that's the way Tyrenco is now setting up corporately its ways of working. it may not be the way they want it that LDN has the obligation to take certain technical or SC decisions but I'm looking to have them recognise that LDN is doing it because it's the corporation saying that is LDN's role (LDN-Mngt-2) In order to get that adult-to-adult relationship there needs to be at least an understanding of who makes the decision on key elements of a supply chain or technical call (LDN-Mngt-6).</p>	<p>I know how it should be. It should be that in the end LDN are the customer and that PAR as the supplier so it should be that we put our requirements onto PAR and then they say whether or not they can do it (LDN-Eng-3)</p>

Table A5.9: Detailed data on Locus of decision making dimension (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and operators
Overcapacity	<p>it's a sensitive issue because ultimately no matter what, if we're trying to optimise our capacity utilisation and we do more with less that means today we have more than we need. If Max actually comes through and I'm hearing Max times more than 2, that would be a good thing because then we wouldn't have to make some hard choices, and depending on how true Max comes, we'll hopefully .. hopefully I'll be looking for capacity, I won't be looking to rationalise it (LDN-Corp-2)</p>	<p>we could end up not producing anything if they were able to produce the whole demand They could say we handle it all. The reason is that they own the decision as to who manufactures (APR-Mngt-5)</p> <p>OC have an expectation to be doing, 1M next year and 2M the year after or whatever, it leaves a big hole in the LDN plant (LDN-Mngt-3). If you have more capacity than you can use the question comes in well, who gets to make what we need to make, there was a lot of less than clear communications going back and forth (LDN-Mngt-4)</p>	
Arbitration	<p>In case of competition, there may be an arbitration, possibly by corporate functions. So in case the two plants cannot agree, the idea is that the strategic SC leader does the arbitration (PAR-Corp-1)</p> <p>Where there is a disagreement between those 2 you have to seek higher resolution we can either get the 2 site managers to evaluate this and agree reasonably, and if they don't, which is the case, there's no decision making process between those people and IO. The product leader will fill this decision making void because you're going to have someone in a suitable level in the organisation reporting directly into an IO member who will be charged with not just .. I analyse and make recommendations, we'll have somebody who will make decisions (LDN-Corp-2)</p>	<p>How do you want to discuss the fundamental issues? If you want to do that, then you call upon someone from above, who arbiters (PAR-Mngt-2)</p> <p>There will be cases where both sites see particular issues slightly differently, you need to have someone who actually takes the call and says OK I've looked at it all and we'll do this at LDN and we'll do this at PAR (LDN-Mngt-2) the only point where we can get that sort of level of, where we can get an impartial view of that strategy, is almost at IO level. They don't have a common boss, so there needs to be an escalation, you know, perhaps a process if they don't manage to agree. (LDN-Mngt-3) I am not sure that either one site could bring those issues out effectively it needs a degree of facilitation to make that happen or it needs some kind of approach above. (LDN-Mngt-8)</p>	<p>what would be nice is that a high level person comes to arbitrate and decide a 60/40 split (PAR-Eng)</p> <p>those kind of decisions where both plants are affected are going to be made at a global level rather than by LDN or by PAR in discussion (LDN-Eng-3) if we reached the situation where we could make enough then somebody would have to make a decision as to who was going to stop (LDN-Eng-5)</p>

Table A5.9 Locus of decision making at Tyreco

Table A5.10: PM issues related to Locus of decision making (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Eng/Operators
Neutrality	<p>PAR sees itself as a "second area slave", obeying LDN's orders. So this was amplified by the fact that the person who was due to manage this whole SC was not located in a neutral area but in LDN. Someone like (him) is considered more or less like a LDN resource, with a DP profile. He is more concerned with issues between DP and commercial people than with the upstream SC. the person who</p>	<p>he'll have to work with PAR on that so they believe and LDN believes that the solutions that he comes up with for the SC, who makes what and what volumes are the best for the business, taking into account the needs of both sites (LDN-Mngt-2) Make sure that we end up with the best answer for everybody, not just for LDN or for PAR (LDN-Mngt-4) The role that he's</p>	

Table A5.10: PM issues related to Locus of decision making (Researcher's comments in italics; disconfirming statements highlighted)

Table A4.9: Detailed data on Locus of decision making dimension (Researcher's comments in italics; disconfirming statements highlighted)		Eng/Operators
Theme	Corporate	Management
	<p>was due to manage this whole SC was not located in a neutral area but in LDN (PAR-Corp-1)</p> <p>it is difficult to be located within a site and represent the other sites. I hear more of the LDN story than the PAR story because obviously I'm based in LDN. It's difficult because the company have chosen to put 2 global people in and both global people are English and based in LDN. I can't stop being English, but I can stop being physically located in the D team. balancing the percentage of time I spend in LDN and PAR (LDN-Corp-2)</p>	<p>going to have to do is also going to have to be and appear to be neutral to both sites and not seem to be favouring (LDN-Mngt-5)</p> <p><u>Disconfirming:</u> I'm not putting a LDN hat on, I'm not putting a PAR hat on</p>
Hierarchical level	<p>these people do not have a high calibre, their grading are not high enough . These people don't really have the power. Product leaders will have with them the whole team managing the product. Product Leaders will have a very high calibre (ie site director or country directors) at VP level. They will have a recognised background as well as an industrial experience and a very high grading. So they should have much less problems imposing their views (PAR-Corp) We've had to beef up these jobs and put bigger people lets say influence wise and also their job points, their titles, are going to make it clear that at the region head level and the site guys are below them in stature, for the most part (LDN-Corp-1) The product leader will fill this decision making void because you're going to have someone in a suitable level in the organisation. I analyse and make recommendations, we'll have somebody who will make decisions. they're not going to have the weight and credibility to making decisions, like telling LDN/PAR (LDN-Corp-2)</p>	

Table A5.10 PM issues related to locus of decision making at Tyrenco

Table A5.11: Detailed data on Top Management Commitment dimension (Researcher's comments in italics; disconfirming statements highlighted)		
Theme	Corporate	Management
Top management commitment (TMC)		<p>I think that in PAR, every one is very much involved and committed and passionate about the T-Drug adventure. (PAR-Mngt-1)</p> <p>I've never seen our Director just take a narrow LDN view. I think he does try himself to understand what's the impact of this on PAR if there is an impact (LDN-Mngt-2) I have not seen commitment, I have not seen any visible commitment, but that is not saying it is not there (LDN-Mngt-7) I think, I know our Director is committed to it (he said he couldn't afford not to). (LDN-Mngt-3)</p>
		<p>Engineers and Operators</p> <p>Our director is committed, but not the English people. (PAR-Eng)</p> <p>it is not something I am terribly aware of. I think there will always be some competition at the top level like that (LDN-Eng-1) I don't see a lot of it. I don't know whether it's because I don't mix with those kinds of people. (LDN-Eng-3) I think they are committed because they are the ones who agree on the association between the pair of us and what is going to happen. (LDN-Eng-4) I would say there is commitment here (in LDN), but I am not really sure of any</p>

Table A5.11: Detailed data on Top Management Commitment dimension (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and Operators
Issues prompt more management involvement		<p>My involvement with LDN is contingent upon the number of issues. (PAR-Mngt-1) There has been a change with the T-drug issue crisis. Before that there was little involvement from PAR management (APR-Mngt-2)</p> <p>Perhaps as a result of the impact that some of the technical staff is having, but (he) has become more involved and it may be because he wants to have a closer understanding of what's going on and the impact overall on the PAR site. (LDN-Mngt-2) He very rarely gets involved in the sort of issues we get, only if he thinks he is going to lose some money (LDN-Mngt-7)</p>	<p>corporate commitment. I think the main thing is there is no block on arranging meetings, having conversations with PAR or travel to and from PAR, and I think that says a lot. (LDN-Eng-5)</p> <p>Hierarchically you tend to step up the ladder in between two companies when things are not very good (LDN-Eng-5)</p>
Not enough contacts at top level	<p>Once we get a common message being sung by the leadership or the key interactions, we can then look for some interesting whims ... (LDN-Corp-2)</p>	<p>I think it would be a more powerful message if there was a clear joint leadership on some of the issues. . Because I think that would send a signal to the teams below that that's what's been looked for if jointly working together to get company solutions, not working in groups to get LDN or PAR solutions. We've never had a process where for example the two site directors sit down and do some joint goal setting in terms of what are we looking to do with T-Drug this year. If people within the teams see (them) working closely together and speaking the same language in terms of how they see it working and what's important for the two sites and the company, then I think people will take some of the lead of that and follow that example (LDN-Mngt-2)</p> <p>I think there is probably a need for the senior Q people to sit down and agree a process by which we have ways of working (LDN-Mngt-7)</p> <p>So I am trying not to interfere while steering the process and trying to enable the right environment between the two plants trying to facilitate ways of working by not getting too heavily involved . Establishing the right conditions and environment,. Trying to facilitate and create the environment for enabling SPAN and the relationships to happen (LDN-Mngt-8)</p>	<p>two site directors, who are able to work together for their own site and also for the company (PAR-Eng)</p>

Table A5.11 Top management commitment at Tyreco

Table A5.12: Detailed data on PM issues related to Top Management Commitment (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and operators
Communication at shop floor level		The weariness felt by the PAR production management may have led us to communicate too much with the teams about the issues at D. First we would need to change the image on the shop floor of the PAR operators who feel that they are the only ones who make efforts. (PAR-Mngt-1) We ourselves have problems getting information so you can imagine it's difficult to communicate broadly. . If the management team feels this respect, and team spirit, we will be able to pass it on to our teams. Therefore one month ago, we decided to stop talking about LDN with our operators in order to avoid a tension. people said, if it is only the hazards of LDN that allow us to live, then we are not really monitoring much. (PAR-Mngt-2)	Certainly on the shop floor that there is a little uncertainty about quite what is happening there and quite how we are linked into them and the importance of them to us and the importance of OC; certainly an operator finding out that there is another manufacturing and filling site can throw some nervousness. there is a heightened awareness of the project but that could probably be described in a bit more detail to people, what is going on (LDN-Eng) because it wasn't communicated properly and people just heard whispers, instead of it became .. initially we've got this contractor who's going to take a certain percentage of our capacity, it became Tyrenco are building a new factory in France that are going to take on and they're going to close LDN down. (LDN-Eng-2) I've heard through the grapevine that PAR are actually, well not PAR itself but OC would be filling the product as well, which you can imagine is a little bit worrying for operators on the site. it's only through hearsay that we actually know what PAR are actually doing. it wasn't until I think it was Mike who gave us a briefing explaining the reasons why, that they are actually, they're got such a great demand for T-Drug that the LDN site just can't fill it so other people have got to help us out. (LDN-Op)

Table A5.12 PM issues related to Top management commitment at Tyrenco

Table A5.13: Detailed data on PM issues related to Top Management Commitment (Researcher's comments in italics; disconfirming statements highlighted)			
Theme	Corporate	Management	Engineers and operators
Levels of empowerment		<p><i>Comments from PAR were related to the fact that they had a participative management style where their operators were trained and were empowered whereas this was not the case at LDN.</i></p> <p>I've seen them both have broad responsibility within their areas; they have autonomy in action so for me they're peers within the organisation (LDN-Mngt-2) No, I suppose without knowing where she fits in the organisation, I have always assumed whenever I have been asked to make contact with PAR with respect to T-Drug manufacture then (she) is the key point at PAR (LDN-Mngt-7) You could argue yes, by the very factor that it's (she) and I who are dealing together and not people who work for us! I think we both feel reasonably well empowered but maybe sometimes some of the things that we're discussing and working on could actually be more effectively handled by links lower down in the organisation. (LDN-Mngt-2)</p>	Empowerment of Vitry because of the way that the French have to operate in that there is a pharmacist there all the time, which is a good thing, that person makes the decisions and has to be there at the time so I am not sure that the people that are then working are making that decision because they do not have to and then here there is quite a lot of empowerment I think (LDN-Eng-1) With Vitry my impression is that (she) runs the whole show there and in the end she tells the operators what to do and they do it. That's just my perception, but it might be wrong. At Dagenham we try to empower them a lot more but probably not successfully (LDN-Eng-3) It appears to be higher at Vitry but I am not sure it might just be the structure that is in place, (she) appears to have more power than the shift managers, or the production managers. She appears to have more power but whether there are less bureaucratic lines or less lines of command at Vitry I am not sure but she appears to have more. (LDN-Eng-5)

Table A5.13 PM issues related to Compatibility at Tyrenco

Table A5.14: Detailed data on Staffing (Researcher's comments in italics; disconfirming statements highlighted)

Table A5.14: Detailed data on Staffing (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and operators
People turnover	<i>Discussed as a PM issue related to Relationship structure</i>		
Transfer		<p>go over to LDN, not just for a couple of days but for 2-3 weeks in order to live with them on a daily basis and become immersed in LDN (PAR-Mngt-1) From both sides, we have the feeling that we do not understand each other's problems, that's why we'd need to have people exchanges to better understand what's going on in LDN Because it's clear that they have problems and there are times when they cannot do what we ask and conversely. "Exchange jobs, may be in SC or production. Not just make return trips, that's not useful: say hello, attend the meeting and leave... We should not just have English people in LDN or just French people in PAR"(PAR-Mngt-2) If we allow people to go across... to go "from one world to the other", no doubt that it would help have a more mature and adult relationship, with a better understanding" (Barriers: Language, culture, remuneration, separate know-how). This is clearly something we should facilitate. But it's not simple to implement. (barriers are: Language, culture, remuneration. It's rather important. And then there's issues with know-how).(PAR-Mngt-6) I don't know if it would be possible to get people to actually come over and work here. Obviously the problem is that you shouldn't transfer people for too long. But that's something I have been proposing for a long time (PAR-Mngt-5)</p> <p>It would be nice if there were someone who had worked for PAR but then would come to work at LDN as a transfer and vice versa. I think it would just help in terms of communication. It's taken quite a little while to break down some barriers and build a bit of trust. And if there was someone on either side who has an in depth understanding of the other, that could only improve it, so also I would guess there are going to be areas where they could share best practices (LDN-Mngt-3)</p>	<p>(How did the visit change your perception of LDN?) We saw that they were operators like ourselves. They try to do their best (PAR-Operator)</p>
Selection Criteria		<p>The first selection criterion was the English language, but also a certain personality to be able to discuss and be recognised (PAR-Mngt-2)</p> <p>I'm not sure if I would rather they chose .. they didn't choose the best person for the job at LDN in favour of someone that spoke French (LDN-Mngt-3). And we are trying to identify people (for the PSCM job) of the calibre that can influence people at PAR. (LDN-Mngt-4) It's a double-edged sword so my preferences and list of criteria I would prefer somebody who could speak French but the criteria on which I select who does it, other things come into play (LDN-Mngt-6)</p>	

Table A5.14 Staffing at Tyrenco

Table A5.15: Detailed data on Job design (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers	Operators
New transversal roles	<p>The transversal aspect of strategic PSC leaders also involved information sharing transparency and overall system coordination in order to remove the organisational barriers (PAR-Corp)</p> <p>I'm going there as the person, I'm not LDN or PAR, I'm</p>	<p>Horizontal role of taking into account customer demands, checking with DP and with outsourcing and PAR and API and vegetable component. So far there was no one having this overall view (PAR-Mngt-4)</p> <p>The idea of Steve in his new role is that he is going to overlook the relationship from a total SC point of view. The real strength of SPAN and its ability to succeed will actually be based</p>		

	<p>the whole thing. supply chain, the job title tells me supply chain is end to end What I'm more interested in is the optimum management of the constraints and capacities we have. (LDN-Mngt-2)</p>	<p>on effectiveness of people like (PSCM mger) in getting together people from LDN and PAR (LDN-Mngt-2) One of the things that comes with SPAN is a new role (Product Supply Chain Mger). it doesn't only operate on this site which is part of the complexity. This role has to operate across all, although it's going to be based at this site, they've appointed it on the lead site, that role needs to be out and about, , and the key role in the team is actually making sure that all of those other sites feel part of the team. this role here is looking across the supply chain. I think if a product supply chain manager is cutting across two or three different cultures, I think the challenge is greater than it is if it is all American, or all English (LDN-Mngt-5) For my SPAN role, I don't work for LDN anymore, yeah, I work for Oncology. I'm not putting a LDN hat on, I'm not putting a PAR hat on (LDN-Mngt-3) This new role across traditional geographical, legal and site boundaries, requires skills and power to ensure the proper collaboration and consensus building through a tight schedule (SPAN documentation)</p>
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Table A5.15 Job design at Tyrenco

Table A5.16: Detailed data on Appraisal (Researcher's comments in italics; disconfirming statements highlighted)

Theme	Corporate	Management	Engineers and Operators
Objectives	<p>We should introduce joint product line objectives, so that people are, in a sense, condemned to work together. Today this does not exist</p>	<p>It's quite true that it's easy to be self-centred: "I'm API and I achieve my own objectives", and this is easy, we have everything we need to set them up. In the site planner objectives, there are API customer service as well as stock levels. Today we do not have shared objectives, and this is why SPAN is interesting because it will drive them (PAR-Mngt-4).</p> <p>It would be helpful to have shared objectives. It would make people work together.(LDN-Mngt-7) So if (his) objective should be to provide such and such information on a monthly basis to feed into this meeting. That would help. I think that would help him manage his priorities when someone tries to turn him back into daily activities (LDN-Mngt-3) Looking around there is not 360° feedback on a regular basis between the key interfaces in the supply chain so people sitting down and openly talking with each other around customer service relationships, the internal supply level agreements but also the way we are doing things (LDN-Mngt-8)</p> <p><i>Disconfirming:</i> You can't say that shared objectives and say shared rewards would be a bad thing. I am struggling to find out, to think of positive reasons why. But it can't be bad</p>	<p>At the moment I know it's something that we should develop but it probably comes lower down the priorities for me at the moment. Lower down than the internal stuff. But it's silly because in the end I know that if I improve that relationship it would make my job a lot easier, but it would also improve the supply chain, the oncology supply chain because quick decisions could be made. Personally, if I had objectives to develop the relationship then I would pay more attention to it (LDN-Eng-3)</p>
Use of existing Performance system		<p>If at that level in the organisation, they defined the goals for their site and those goals also are reflected in the goals of the people that work for them, then ... we have a reasonably well defined PMS, then the specific goals that are joint, would drive performance and would drive it towards</p>	

	<p>the goals, if they have the same goals that have been agreed by (them) and those goals are ones which require collaboration on both sides, that is that the goal couldn't be achieved without both sides being successful, then you can do it through the normal PMS. I don't think you necessarily need to say we're going to have a joint performance system for the two sides. You can use the existing system but you can use common goals on it. (LDN-Mngt-2) you could have individual working type groups with people who are actioned to do something about that on a more frequent basis. hen the people responsible for doing that would come up with actions in order to make that happen and then we'd communicate those actions as we go, as part of our ongoing performance management. (LDN-Mngt-4)</p>	
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Table A5.16 Appraisal at Tyrenco

Table A5.17: Detailed data on Rewards (Researcher's comments in italics; disconfirming statements highlighted)		
Theme	Management	Engineers
Disruptive effects	<i>Discussed as a PM issue related to Goals</i>	
Separate practice	<p><i>New bonus system :</i></p> <p>They will have first of all co-ordinated goals and some of the key people at each site will be on a supply chain that will be on a product team and 50% of their bonus, personal bonus, will be based on the results of the whole product team goals, and not their site goals.(LDN-Corp-1)</p>	<p><i>joint recognition?</i>) I don't think that it is possible to do something that makes sense.. There is an intra-site coherence that needs to be looked at when doing something. But we could possibly discuss this topic. : I think that financially it would be separate (PAR-Mngt-1) We're very very far from that, very far from the feeling that we belong to a common plant. Within Tyrenco, there is no global policy for that (PAR-Mngt-2) We could envisage having a stated, similar practice, ie the same amount for both teams. This has never been done before, as far as I know. Of course it could help. The problem we could have is the "domino effect". If you do this for one part of the site, and not the whole, then other people will say "why not us?"(PAR-Mngt-7)</p> <p>you can do it through the normal performance management system. I don't think you necessarily need to say we're going to have a joint performance system for the two sides (LDN-Mngt-2) They would be driven by the site as it stands at the moment because company performance is company performance so half the bonus is affected</p>

	by that. (LDN-Mngt-6)
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Table A5.17 Rewards at Tyrengo

Table A5.18: Detailed data on Training (Researcher's comments in italics; disconfirming statements highlighted)	
Theme	Management
Workshops	<p>Inform and train the persons involved by SPAN implementation (Supplychain, production...) (SPAN documentation)</p> <p>Look at a workshop environment to discuss and start to agree the ways of working for how we're going to do the various things that we have to do technically, to meet the mother plant requirements. and then to do joint training sessions in what are the processes that we've agreed, how is it going to work etc. those training sessions will need to go to the people who are actually working, doing whatever it is whether it is regulatory stuff or quality or whatever (LDN-Mngt-2) what are the people processes of bringing these people together, both in terms of launch and in terms of on-going relationship. So we'd actually see a team based activity which will pull these people together to clarify the goals, the processes and in terms of role clarity. (LDN6Mngt-6) I would call it, not necessarily training and development but just say these are the processes we have does everybody understand what the rules are. Now from there I think I would suggest that those key people get together, first of all they have to accept the situation accept that designation of responsibilities then I think some of those issues that you mentioned would come out of that, such as training, communication, working, networking those sort of things.(LDN-Mngt-7)</p>
Exchange as a form of training	<p>Exchange is the best training.(PAR-Mngt-2)</p> <p>I'd say training as well as exchanges to improve the understanding of the teams. That would help a lot.(LDN-Mngt-6)</p>
	<p>Engineers and operators</p> <p><i>Workshops originally mainly aimed at management level</i></p>
	<p>For me personally, it would be nice to deal with the person who's planning over in PAR to see what impact the figures or forecasts or whatever I'm sending to PAR that has. Probably not training, but just to see how my input affects PAR. (LDN-Eng-3) When they came over I am sure that that was useful and it is always worth being shown what is actually happening; to see how things are done and pick up any differences that we do have,(LDN-Eng-4)</p>

Table A5.18 Training at Tyrengo

Table A5.19: Detailed data on socialisation (Researcher's comments in italics; disconfirming statements highlighted)	
Theme	Management
Site visits	<p>T-Drug/D-Synth do not impact a lot of people So we have put more emphasis on attempting to know each other, through visits (PAR-Mngt-1)</p> <p>From a people management perspective there needs to be a</p>
	<p>Engineers</p> <p>there is not an awful lot of interaction between the sites, I do not feel, I have not actually been to the PAR site and seen it. it is always worth being shown what is actually happening. would probably be better to arrange visits to the sites to see what is</p>
	Operators

Table A5.19: Detailed data on socialisation (Researcher's comments in italics; disconfirming statements highlighted)

		<p>certain amount of face to face, so obviously there's going to be some commitment to giving people the time and the travel budget to travel back and forth. it won't be 500 people flying back and forth every month but it will be a dedicated set of formal communication that we're going to allow to happen (LDN-Mngt-4)</p>	<p>happening just to see what is happening and to keep people updated, probably a lot has changed since they were last here and certainly a lot has changed since anyone from D was last over there. we must go, especially with a new QP now we must get over there and have a look. (LDN-Eng-1) it would be good to see just how they work and their operation and also get a sort of feeling for the problems that they get as well. We're not aware of their problems. (<i>how would it help?</i>) Well usually, this goes for everything on this site. If you receive something, and there's something wrong with it, people immediately jump to conclusions as to why there's a problem with it. ... everyone likes to blame someone for something so perhaps if they could see the operation so they could be aware of the problems at PAR have as well. (LDN-Eng-2) I think the face-to-face questioning and talking about details is a lot more useful than over the 'phone or via e-mail. I have sometimes found via e-mail that I don't know whether because of translation things seem to get missed or misunderstood (LDN-Eng-3) we are quite lucky, we have been to PAR we know what the site is like. The production shift managers who have day to day contact with PAR probably have not been there, they probably do not know what the manufacturing facility is like, they do not know the constraints that the people are working under to get the vessels in and out of their manufacturing area, they probably do not know (LDN-Eng-5)</p>
Operator visits	<p>I don't know if the operators at each site need to be talking to each other necessarily, unless there's some technical issues (LDN-Corp-1)</p>	<p>If this is the right way to do it and the best way to transfer that knowledge is to send an operator or a group of operators over we would probably do that (LDN-Mngt-4) .</p> <p>If I could know how and why they run the process the way, compared to the way we do it over here, it would be really interesting. all I know is that we send a vessel over to PAR and it comes back full and we fill it or filter it, so it's the in between bit that we don't know. So any information, whether it be a visit or a talk over here or anything would be helpful.</p>	<p>Allowing people to meet is really something that would help. allow us to operate on their site, and them to come over here and do their production on our equipment (PAR-Op)</p> <p>If I could know how and why they run the process the way, compared to the way we do it over here, it would be really interesting (LDN-Op-1) So any information, whether it be a visit or a talk over here or anything would be helpful. (LDN-Op-2) think it would be nice if the manufacturing operators all visited so they could see and they could pick up helpful things that they could use (LDN-Eng-2)</p>
Exchanges	<p>) how do come up with an Tyreco global style and culture, or at least an oncology</p>	<p>With regards to (her), who is a newcomer, we could seize the opportunity of having her go over to D, not just for a couple of days but for 2-3 weeks in order to live with them on a daily</p>	<p>These things need to involve the management, at least at (T-drug and D-Synth) level. People underneath, are not really a problem. we could possibly have exchanges between France and UK in</p>

Table A5.19: Detailed data on socialisation (Researcher's comments in italics; disconfirming statements highlighted)

	<p>global style and culture and to me it's about lots and lots of interaction (LDN-Corp-2)</p>	<p>basis and become immersed in LDN. There was a request to get someone from PAR over to LDN. So the proposal has been made to do this type of exchange. So (his) perception was that it would be good to exchange people. (PAR-Mngt-1) A French person in LDN would understand what's going on and would be able to buffer with regards to the French people and have a better understanding of the situation and this would really help. (PAR-Mngt-2) If we allow people to go across.. to go "from one world to the other", no doubt that it would help have a more mature and adult relationship, with a better understanding. This is clearly something we should facilitate. But it's not simple to implement. Language, culture, remuneration. + knowhow (PAR-Mngt-6)</p> <p>it would be nice if there were someone who had worked for V but then would come to work at D as a transfer and vice versa. Almost on a.. but not on a constant basis, if that makes sense (LDN-Mngt-3) Exposure to Different Roles and Knowledge of Different Cultures are Strongly Encouraged (Tyreco values)</p>	<p>order to share knowledge and learn (PAR-Eng) They would need to come over here and understand how we operate and we should go there to understand how they operate. We could have worked with them so that they learn the method. It would be good if the people from over there could come in order to exchange and discuss.. That would remove the issue with language and we could understand their problems and they could understand ours (PAR-Op)</p>
<p>Face to face</p>		<p>It would be good if the LDN site director could come to PAR in order to set up this kind of contact, to discuss, understand and know each other better. I have also invited him to come over and stay in PAR for one day. (PAR-Mngt-1)</p> <p>Disconfirming, In fact relationships are always very good and friendly when we meet them face to face but afterwards, there's a communication break. Not just make return trips, that's not useful: say hello, attend the meeting and leave. (PAR-Mngt-2) The community aspect of SPAN is key. It means that we meet, we know each other, we build a network. since December we have had to meet very often and work face to face. This develops interpersonal links (PAR-Mngt-4)</p> <p>Face to face workshops on understanding the goals, getting the awareness, the acceptance and the action plans. (LDN-Mngt-2) Increasing the processes between the two sites through regular meetings, teleconferences, initially setting up SPAN and the new mother plant through joint workshops together looking at the issues and the ways of working (LDN-Mngt-6) a certain amount of face to face, so obviously there's going to be some commitment to giving people the time and the travel budget to travel back and forth. I'm a proponent of the face to face, because when you're talking to people face to face and</p>	<p>we do meet face to face there as well so that has helped one of the things seeing (her) face to face before a meeting and being able to talk, she was asking whether batches from PAR had crystallised so I spoke to our chemistry guy and they got some feedback to and from them about which batch is ok and so on (LDN-Eng-1) it's like a remote sort of relationship that we have with them that we don't meet them and we don't speak to them, but saying that we as production team, very rarely have problems with PAR. (LDN-Eng-2) I think the face-to-face questioning and talking about details is a lot more useful than over the 'phone or via e-mail. At least there is regular face to face contact with the relevant people. (LDN-Mngt-3)</p>

Table A5.19: Detailed data on socialisation (Researcher's comments in italics; disconfirming statements highlighted)

		<p>you can see if they're actually understanding, or you can see how they're responding to what you're saying (LDN-Mngt-4)</p>		
<p>In-depth understanding at operator level</p>	<p>she really aggressively challenges and went through, why didn't you do this, why did you do this, and it was like oh, OK, lets go through.(LDN-Corp*-2)</p>	<p>If we're looking at the performance we say well this will be .. this is the right way to do it and the best way to transfer that knowledge is to send an operator or a group of operators over we would probably do that (LDN-Mngt-4)</p> <p>you know to get an in-depth understanding I (would like) to sit next to the actual person planning each work center just for a day to find out .. to get an understanding of what they do, how they do it and what their challenges are. : the only thing we can do is get the 2 planners to work alongside each other. So that's what they did. Probably about a week later Marie then came over to LDN and I arranged for her and Mike to work together for a couple of hours to see what they could come up with (LDN-Mngt-3)</p>	<p>areas that we could focus in on that they perform and see we are doing the same task here differently, different equipment but the same task and I think we could learn from what they are doing and then I think they could learn from what we are doing. I do not see an awful lot of that. it would be useful to see their systems and presumably we could bring that back and we could do the same and you are going to see things you like and do not like and can change so yes it could be useful (PAR-Op)</p> <p>. being part of the OC project and being able to talk to her separately around things that has been very useful for me, it gives you a better understanding and also we need to know more about their process because they are supplying OC to see what impact the figures or forecasts or whatever I'm sending to PAR that has. Probably not training, but just to see how my input affects PAR (LDN-Eng)</p> <p>We can compare and say like, as we've been having problems with the T-drug issue we only need one person's idea comparing their process with our process, I know all the managers and research people have been looking into it, but it might be something that we say might help the problem, or solve the problem.(LDN-Op)If I could know how and why they run the process the way, compared to the way we do it over here, it would be really interesting (LDN-Op) Achieve mutual understanding of PAR-LDN process and equipment through exchange visits (Meeting minute T-drug issue)</p>	
<p>Barriers</p>		<p>Deeper exchanges are a problem, because of the language barrier. The new T-drug leader, who speaks very good English (this was a criteria for hiring her) . they may have thought oh the French people are going on a trip whereas for us there was a much deeper background with everyone's very heavy schedules , we do not have any PAR-LDN meetings (PAR-Mngt-1) Whenever you have exchanges, this means people are not operational for a while, so the barrier would be in terms of human resources, in a context where we are very lean and have not a lot of slack. This is an important barrier. You'd require a strategic decision (PAR-HR)</p>	<p>They liked it especially "after the visit" (LDN-eng)</p> <p>.I think in 1999 the PAR people came over, we went for a meal but we didn't really get a chance to .. we sat down for a meal with them but we didn't really get a chance to talk a lot about issues and that. Ø most of the people that I was talking to on the table were more from a research, development background.LDN Ø there is no block on arranging meetings, having conversations with PAR or travel to and from PAR, and I think that says a lotØ A lot of people say that it's just an excuse to go over to France for a drink</p>	

Table A5.19: Detailed data on socialisation (Researcher's comments in italics; disconfirming statements highlighted)

	<p>Those people are needed to be doing the job that they get paid for and to take them out of that on exchange, for short term, can potentially have an impact on manufacturing plans. (LDN-Mngt-2) The equipment's different, the language is different, the paperwork is different, and personally it's only my opinion, because I am not near enough to what they do. I don't think there's enough, you wouldn't get anything out of it actually I don't think (LDN-Mngt-3) can you send over a couple of people to help me do this and she says no. I don't have time, they're doing something else that is more important to the site (LDN-Mngt-4) Instead of looking for the things that are good to take away they are looking for the things that are wrong; we need to avoid the show boating that can on occasion take place (LDN-Mngt-8)</p>	
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Table A5.19 Socialisation at Tyrenco

ORGANISATION CHARTS

WHEATCO-CHEMCO
WHEATCO BASICS
WHEATCO RUBBER

TYRENCO
TYRENCO LONDON
TYRENCO SA.

PERFORMANCE MANAGEMENT SYSTEMS

Procedures are displayed from the three organisations studied