

Understanding collaborative supply chain relationships through the application of the Williamson Organisational Failure Framework.

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Paper Summary / Structured Abstract

Purpose

Many researchers have studied supply chain relationships however, the preponderance of open markets situations and 'industry-style' surveys have reduced the empirical focus on the dynamics of long-term, collaborative dyadic relationships. Within the supply chain the need for much closer, long-term relationships is increasing due to supplier rationalisation and globalisation (Spekman et al, 1998) and more information about these interactions is required. The research specifically tested the well-accepted Williamson's (1975) Economic Organisations Failure Framework as a theoretical model through which long term collaborative relationships can be viewed.

Methodology/Approach

An exploratory research project was designed and carried out on a self-selected census of 54 monopolistic relationships representing £575.8m annual spend on equipment and associated services within the UK Defence Procurement organisation (a 10% sample). Its aims were to understand the relationship dynamics within long-term, sustained monopolies and to determine if generic success factors could be found to assist managers to break out of the essentially negative situation. A triangulated data capture approach was employed using both quantitative and qualitative methods from both the Industry and MoD sides of each relationship and the research instruments concentrated on the 5 dimensions of the theoretical model with questions grounded in the literature.

Findings

The study demonstrated that the theoretical model could provide powerful insights into the research subject and especially revealed the important part played by co-operation, co-ordination and collaboration (C³ Behaviour) in reducing the inherently negative effects of close proximity and limited choice relationships.

Limitations

It is acknowledged that a somewhat unusual approach to examining collaborative, long-term supply chain relationships and have integrated the variables in Williamson's (1975) Organisations Failure Framework in an innovative way. Using a combination of quantitative and qualitative data is inevitably a compromise between the extremes of imposing rationality on the data collection and interpretation and, allowing the data to emerge and speak for itself. The research has used a narrow view through a specific theoretical model lens to achieve a broad understanding of business relationships within a single, albeit large, organisation.

Theoretical Implications

Despite the adverse small numbers/restricted market influences encountered, strong counterbalancing, positive business drivers were likely to produce examples of relationship-building, specific investments, co-operative behaviour, open communications and a desire to reduce the burden of governance through more equitable, long-term arrangements.

Practical Implications

Managers can reduce sources of frustration that generate negative behaviours by taking joint actions. Central to achieving this is C³ Behaviour where setting synchronised objectives, pursuing joint approaches to service and product delivery, lowering costs and risks and

promoting measures to support the growth of trust appear to be the best ways of halting negative behaviour spirals.

Originality/Value of the paper

The prime contribution of this exploratory research is the exposure of relationship dynamics within a large sample of long-term, collaborative supply chain business dyads using an integrated application of Williamson's (1975) Organisations Failure Framework. We conclude that the methodology provides a powerful tool to allow objective data to be collected and rich perspectives to be taken from its exploration.

Keywords: Supply Chain Management, Integration, Collaboration, C³ Behaviour, Williamson's Organisations Failure Framework, UK Defence Procurement

Paper type: Research View Point.

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Abstract

Many researchers have studied supply chain relationships however, the preponderance of open markets situations and ‘industry-style’ surveys have reduced the empirical focus on the dynamics of long-term, collaborative, interdependent, dyadic relationships. Within the supply chain the need for much closer, long-term relationships is increasing due to supplier rationalisation and globalisation (Spekman et al, 1998) and more information about these interactions is required. This paper describes the results from a substantial, exploratory research project undertaken within the UK Defence sector. This sector was chosen in order to reduce the distraction caused by competitive influences on the relationships in view. The research specifically tested the well-accepted Williamson’s (1975) Economic Organisations Failure Framework as a theoretical model through which long term collaborative relationships can be viewed. The study demonstrated that the theoretical model could provide powerful insights into the research subject and especially revealed the important part played by co-operation, co-ordination and collaboration (C³ Behaviour) in reducing the inherently negative effects of close proximity and limited choice relationships. The implications for theory and practise are discussed.

Keywords: Supply Chain Management, Collaboration, C³ Behaviour, Williamson’s Organisations Failure Framework, UK Defence Procurement

Introduction

The Supply Chain literature, which includes supply chain management (SCM), logistics, transportation, strategic alliances, industrial marketing, purchasing, economics and organisational behaviour (Kern & Willcocks, 2002, Zheng et al, 2000), describes a wide variety of transactional to relational business relationships both in the public and private sectors. However, although suppliers have recognised the need for increased integration with their customers, the field contains limited empirical research on modelling and studying both end-to-end supply chain relationships and long-term dyadic interactions between major partners (Christopher, 2005, Cooper et al, 1997, Bectel & Jayaram, 1997). Moreover, although it is acknowledged that there are advantages in reducing the number of suppliers within highly collaborative situations and, the literature describes a wealth of operational and behavioural success factors, the disadvantages of reduced flexibility and competition options (Fawcett & Magnan, 2002), are only covered in restricted depth. Lastly, it is widely accepted that co-operative supply chain relationships achieve benefits for the participants (Christopher, 2005, Stevens, 1989) however, it is also apparent that full SCM implementation is not being achieved (Kemppainen & Vepsalainen, 2003). This is because partners are still taking a short-term view, often in the face of increasing market-place complexity and uncertainty and are limiting the extent to which they extend their collaborative focus (Fawcett & Magnan, 2002). This can often generate adversarial practices such as power abuse, lack of transparency, poor communications and reluctance to adopt attitudinal change (Anscombe & Kearney, 1994, Hines & Jones, 1996). Research into these failure situations is comparatively rare. We conclude that the concepts of SCM appear to be well known by academia and business but research is limited in the key area of long-term collaboration where close proximity of the partners may generate both positive and negative behaviours. The object of

our research project is to use Oliver Williamson's (1975) Economic Organisations Failure Framework, which describes market relationship breakdown dynamics, as a theoretical model to see if it is able to provide us with insights into intense supply chain relationships between collaborating partners.

This paper first outlines the development of relational approaches within supply chain management thinking and practice. It starts broadly but focuses on tightly coupled relationships, exploring briefly the boundaries of restrictive/monopolistic practices. We briefly describe our search for an appropriate theoretical framework and the rationale for selecting a Transaction Cost Economics approach. We then describe our case study within UK Defence supply chains which was chosen because its small numbers/limited market situation minimises competitive relationship pressures. Finally, we discuss the implications for theory and practise.

Supply Chain Management Relationships

SCM can be seen as an integrative, proactive approach (Matthyssens & Van den Bulte, 1994) to manage the total flow of a distribution channel to the ultimate customer – like '*a well-balanced and well-practiced relay team*' (Cooper & Ellram, 1993). Another definition that highlights its 'board level' importance is the strategic management of the network of organisations that are involved in the up-stream production and down-stream distribution processes and activities associated with the satisfaction of customers and maximisation of both current and long term profitability is (Christopher, 1992, 2005, Cox & Lamming, 1997, Harland, 1996a, Kemppainen & Vepsalainen, 2003). It is located between vertically integrated systems and those where the channel members operate completely independently and it aims to reduce inventory, to increase customer service reliability and build a competitive advantage for the channel (Boddy et al, 2000, Cavinato, 1992, Fawcett & Magnan, 2002, Hines & Jones, 1996).

A key feature of SCM is an early decision to reduce the number of suppliers in the chain (the elimination of multiple sourcing) (Ellram, 1991) because maintaining close, intense relationships can be very expensive in management effort (Cavinato, 1992, Langley & Holcomb, 1992). The intention is to have no more 'partners' than necessary and to work more closely, effectively, and over the longer term, (Peck et al, 2000, Scott & Westbrook, 1991) with those who have the most critical impact on the overall operation (Cooper et al, 1997). Japanese lean automotive producers have typically 300 suppliers compared to 1000-2500 in the west and operate a determined policy of supplier base reduction – moving from away from multi-sourced, adversarial trading - towards closer relationships with fewer, key partners (Harland, 1996a, Hines & Jones 1996). It is hoped that deeper, inter organisational alliances/partnerships can evolve and focus on the whole Supply Chain rather than diluting each company's efforts through conflicting goals (Anscombe & Kearney, 1994). In fact Bechtel & Jayaram (1997) and Perks & Easton (2000) extend this concept further to suggest that SCM provides a business environment in which firms closely co-operate rather than compete to achieve mutual goals and are incentivised to join in collaborative innovation (Harland, 1996a). With fewer, strategic partners it is possible to share confidential demand information and to reduce uncertainty and therefore safety stocks, which lower costs and order cycle time (Cooper & Ellram, 1993, Lamming, 1993, Bechtel & Jayaranth, 1997). To this end the use of e-commerce is a prime example of what Tompkins (2000) calls *quality communications*.

The integrated Supply Chain view uses a number of terms that indicate the need for closer relationships, including trust, commitment, co-operation, co-ordination and collaboration between Supply Chain members to ensure the success of these arrangements (Christopher, 2005, Hines & Jones, 1996, 1999, Spekman et al, 1998). Both Stevens (1989) and Hulme (1997) point out that integration of this nature is more than a change of scope; it is more significantly a change in attitude away from the adversarial attitude of conflict to one of mutual support and co-operation. Ellram (1991) proposes that SCM avoids some of the main drawbacks of vertical integration including limiting competition, increasing risk and diseconomies of scale. Empirical evidence suggests that close long-term relationships between customers and suppliers have a beneficial impact on performance (Giannakis & Croom, 2004). Customer and supplier commit to continuous improvement and shared benefits by exchanging information openly and resolve problems by working together (Sako et al, 1994). Lamming et al. (2001) propose that, by harnessing the unique capabilities of partnership, it is possible to create a shield from system-level forces. Partnership is a complex concept whose success depends upon duration to build trust (Sako et al., 1994). When mistrust is entrenched, a shift from adversarial to co-operative relationship styles is extremely difficult. Moreover, Macbeth & Fergusson (1994) and Kern & Willcocks (2002) propose that despite the availability of modern information systems, the practice of managing Supply Chain players is wasteful of resources and drags performance backwards rather than promoting continuous improvement. Furthermore, Cooper et al (1997) believe that achieving true Supply Chain integration is '*a lofty and difficult goal*' and research indicates that companies continue to struggle to operationalise SCM principles such that they support dynamically changing business influences (Braithwaite, 1998,). We conclude that since SCM appears to implicitly require a move towards a limitation of the number of market players involved – small numbers, effective supply chain relationship management presents a more complex set of challenges to achieve success.

The Challenge of Collaboration

Academics have used a number of approaches within SCM research to capture perspectives containing the key facets of inter-organisational, operational and inter-personal dynamics. Giannakis & Croom, (2004) propose an SCM paradigm conceptual framework, the '3S Model' containing the *synthesis* of business resources and networks, the *synergy* between network actors and, the *synchronization* of operational decisions. The International Marketing and Purchasing Group's dyadic interaction approach summarised by Kern & Willcocks (2002), supply chain integration reviewed by Fawcett & Magnan (2002) and, networks of relationships described by Harland et al (2001) and Kemppainen & Vepsalainen (2003) all suggest that exposing the relationship management aspects of supply chain relationships and their impact on performance (Giannakis & Croom, 2004) is highly problematical. The literature also contains examples of research describing relationship behaviours between one/many buyers, one/many sellers and dominant market 'players' in both public and private sector situations. Within the Marketing literature Michael Porter's (1980) five forces model of competitive advantage considers short-term, arms-length competition and the exercise of market power by limiting competition through the creation of barriers to entry (Rugman & D'Cruz, 2000). Andrew Cox et al (2000) alternatively see the combination of resource utility and scarcity creating a power regime in which the involved parties will employ adversarial/non-adversarial and arms-length/collaborative arrangements depending on their relative power positions. In the 1990s UK motor industry supply chains, employing economic power was a driving objective to achieve the 'vantage point' (Lamming,

1993). Examples of small numbers or monopoly (Fishwick, 1993), and strong market power relationships between dominant firms are also found within the retail sector where major supermarkets such as Walmart with their own brands, fought 'price wars' with global companies such as Coca Cola and Pepsi. Eventually the balance of power was restored to prevented intense, adversarial influences from destroying long term relationships (Christopher, 2005). In the public sector Harland et al, (2000) revealed that UK Health Authority procurement relationships contained distinctive features such as dedicated suppliers with reduced availability of alternatives and, where the government made the rules and could sanction anti-competitiveness. Parker and Hartley's (1997) recommended that the UK Ministry of Defence (MoD) should accept that its major procurements operated under monopoly or near-monopoly conditions rather than attempting to maintain a competitive semblance. They concluded that adversarial competition should be abandoned and collaboration based on long-term, trusting relationships should be established.

These examples suggest, regardless of power or sector consideration, collaboration is preferable to adversarial competition however, managing close proximity relationships seems to require new understanding of the dynamics involved (Brooks & Pawar, 2000, Cooper et al, 1997, Giannakis & Croom, 2004, Harland, 1996b). For instance, collaborative relationships are likely to be far more prone to positive feedback than an arms-length relationship. In these circumstances minor problems can, if not recognised and managed, become personalised and emotional which increases the likelihood that new substantive conflicts will emerge and accelerate (Hanbrick, et al, 2001). Conversely, it is also possible for collaborative enterprise to bring operational advantages in the longer term as the partners become more effective as they develop through prior experience and active management of the learning process. Co-operation induces further co-operation over time and the emergence of trust and loyalty generates increasing benefits (Lambert et al, 1996, Luo & Park, 2004).

In summary, supply chain research has concentrated mainly on competitive market operations and although there are some useful insights from the power confrontations between major industry players in small numbers situations, the research sheds only limited empirical light has been shed on prolonged, small numbers, supply chain relationships and their dynamics. We thus set out to discover if it was possible to find an appropriate model with which to explore the tightly coupled supply chain relationship dynamics found within a large group of UK MoD/industry dyads.

Testing the Williamson Framework

A lack of research on small numbers business relationships hampered the search for an appropriate model through which to view those found in long term collaborative relationships. Both Porter's (1980) Five Forces and Cox et al's (2000) Relation Power Analysis considered competition-limiting strategies but did not address the detailed internal management implications. In a review of the contracting and transaction cost economics literatures, we noted a concentration on the need to economise on the cost of transactions including negotiating and enforcing contracts and internal control and management overheads (Faulkner & De Rond, 2000, Palmer, 2001). Individuals were viewed as 'economic actors' and theories focused on adopting appropriate forms of governance to minimise the risks associated with opportunistic behaviour (Hill, 1980 2000, Macneil, 1980, Madhok, 2000, Nooteboom, 1999). Supply chain integration arrangements were acknowledged within 'hybrids' or partnerships (Williamson, 1996) and relationship-building included investments in specific assets (un-recoverables such as time and resources) which generated mutual

dependence and served as hostages against opportunism. Williamson (1996) believed that a farsighted, 'calculative' approach to commercial contracting was required that relied on cost-effective contractual safeguards rather than trust. TCE is not a dynamic theory (Besanko et al, 2000) and it ignores the relational aspects of co-operation such as trust which evolve over time and change the nature of the transactions themselves (Faulkner & De Rond, 2000, Nooteboom, 1999). Accordingly, academics have moved away in the last 10 years as part of a general trend away from transactional business dealings, TCE continues to provide valid theories on why firms make or buy (Pessali & Fernandez, 1999). Nevertheless, in Oliver Williamson's (1975) Economic Organisation Failures Framework he described a situation where the cost of managing the risk associated with human factors such as opportunism, information impactedness, uncertainty/complexity and bounded rationality became too high and forced the market could break down and a firm to internalise the business, in effect creating an internal monopoly (Faulkner & de Rond, 2000). From casual observation of UK Defence Supply Chain relationships where, despite the need to rely on maintaining close relationships over the supply of highly specialised goods, both sides are open to opportunistic behaviour and trust is minimised, it seems that the Organisations Failure Framework has face validity as an appropriate model. On these grounds if we were to use Williamson's framework as the theoretical model for our research project and to devise appropriate measures, we needed to examine the dimensions in more detail in order to determine the positive end of the spectrum of SCM relational dynamics that might fall under each.

- Bounded Rationality can be reversed by enabling mutual creativity through approaches such as open contracts (Cooper & Ellram, 1993), joint innovation, applying stretch targets, ensuring disputes are resolved quickly and fairly and finally by taking a long-term view of the relationship (Ganesan, 1994).
- Uncertainty/Complexity may be overcome by building relationship stability and creating a framework for successful business (Peck et al, 2000, Zheng et al, 2000). Working more closely with fewer partners (Ellram, 1991, Lewin & Johnston, 1997, Boddy et al, 2000), pursuing mutual objectives through value creation (Lamming et al, 2001), joint investment and harmonised processes (Cooper et al, 1997, Harland, 1996a, Madhok, 2000), actively managing the relationship interface through key account management and innovative procurement processes (Cox & Lamming, 1997) and, through C³ Behaviour, building interdependence (Moss Kanter, 1994, Spekman et al, 1998).
- Information Impactedness can be defeated by creating a communication environment optimised for success (Sheth & Sharma, 1997). This involves implementing multiple communication links at all level between firms (Mohr & Spekman, 1994, Morgan & Hunt, 1994) including KAM, IS (Harrison, 1990), sharing business and design data, objective performance measurement (Matthyssens, 1994), transparency in jointly managing risk (Cox & Lamming, 1997) and, responding quickly to the needs of your partner (McDonald et al, 1997).
- Opportunism is a dangerous effect that is quite difficult to reverse and requires measures to strengthen the relationship by creating a reliable business infrastructure. A focus on the quality of the relationship outputs (Christopher, 2005, Harrison, 1990) including operational efficiency (Harland, 1996a, Lamming, 1993), is key as is clarity over the boundaries of the relationship (Noordewier et al, 1990). A creative approach to conflict and problem solving (Hulme, 1997) helps to sustain impetus and finally the

building of goodwill, trust and commitment (Faulkner & De Rond, 2000) by incrementally building on achievements through credible commitments creates a virtuous circle (Goleman, 1998, Doz & Oguz, 2000).

- Small Numbers constraints can be overturned by incentivising a quality relationship where the gains are both shared and highly rewarding (Watson, 1999). Both sides feel empowered to strive dynamically for the mutual good (Cooper & Gardner, 1993) and above all true equity in the relationship overcomes any power imbalance (Lamming et al, 2001).

Utilising the concept of a self-reinforcing, positive feedback effect within collaborative relationships (Hanbrick, et al, 2001, Lambert et al, 1996, Luo & Park, 2004), we adapted Williamson's (1975) framework by placing his dimensions into the success and failure cycles shown in Figures 1 and 2.

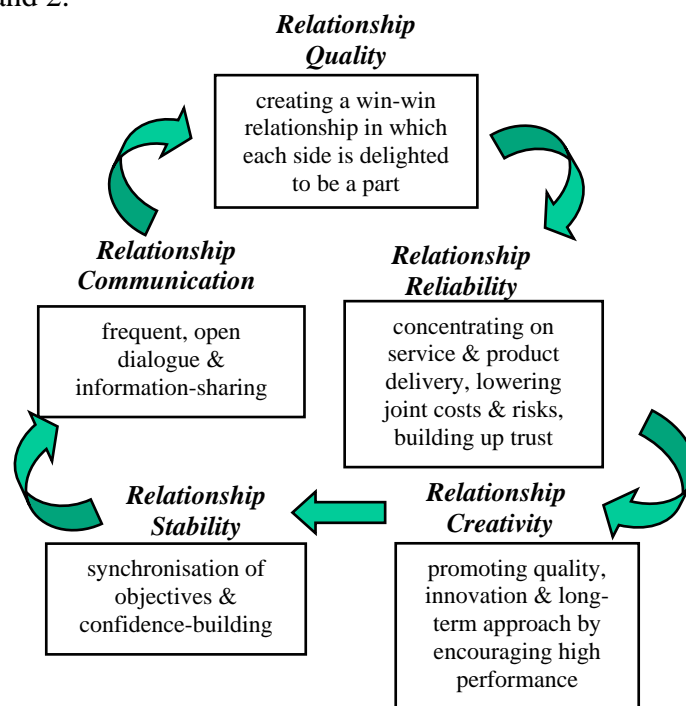
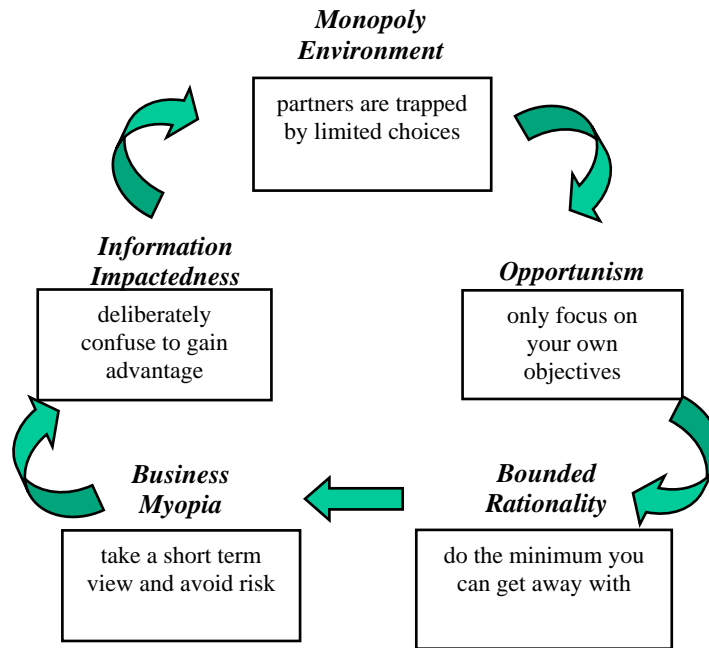


Figure 1. Supply Chain Relationship Success Cycle



Collaborative Relationship Failure Cycle

Figure 2. Supply Chain Relationship Failure Cycle.

These cycles represent the opposite ends of the spectrum of relationship dynamics that we might reasonably expect to encounter (Wilding & Humphries, 2002).

In the next section we describe a case study which tested the theoretical framework on a large sample of UK Defence supply chain relationships. This sector was selected because it offered an opportunity to carry out research within long-term, small numbers (monopoly/restricted market) businesses without the distraction of normal competitive influences.

The UK Defence Environment and the Williamson framework.

The procurement of high technology equipment, spare parts and repair services is a strategically important element of UK Government spending worth over £10 billion per year and as with other public sector areas, has been subject to a relentless drive to achieve greater value for money. An important element of this strategy has been to establish long-term supply chain partnerships with industrial suppliers as a means of overcoming traditional adversarial attitudes which have resulted in a succession of high-profile cost, time and project performance overruns. However, in the face of global spending cutbacks the continued concentration of the Defence Equipment Suppliers has resulted in an increasingly monopolistic situation where very large relationship-specific investments are made and each side wields considerable power but, lack of trust and the option to leave the relationship are reduced. This results in lowered efficiency, increase costs and offer little incentive to cooperate (Humphries & Wilding, 2001, Palmer, 2001, Parker & Hartley 1997).

In the previous section we asserted that Williamson's (1975) Economic Organisation Failures Framework demonstrated face validity as a means of representing highly collaborative

relationship dynamics. The following paragraph indicates that this can be extended in a stylised way to the UK Defence sector.

The lack of stability in the Defence market due to the variability of Government spending plans ensures inherent market *uncertainty and complexity* (Hartley, 1998). Moreover, economic pressures have forced the UK MoD to reduce costs by attempting to drive down industry's profit to a 'reasonable' level. This encourages secretive behaviour from contractors including selective and distorted information disclosures, especially over costs - information impactedness, which undermines the durability of contract arrangements (Liston-Heyes, 1995). As a result industry loses its incentive to perform better and, the UK MoD reduces the resources available to industry that might have been used to fund important Research and Development. This is *bounded rationality* where short term policies limit performance to the adequate rather than the optimum (Simon, 1957). The sum effect is an adversarial relationship without the freedom to look to the market for alternatives (Parker & Hartley, 1997) and the formation of *small numbers/monopoly* situation.

Oliver Williamson did not intend his framework to be a causal model; rather it portrayed an 'atmosphere' containing human and environmental factors. Although the authors can find no empirical research using Williamson's framework in similar circumstances, it appears to describe a small numbers 'atmosphere' that is appropriate for use in the intended research situation (Humphries & Wilding, 2003). We therefore decided to use its 5 non-causal dimensions as the theoretical model with which to investigate collaborative supply chain relationship dynamics within the UK Defence sector.

UK Defence Survey Approach

An exploratory research project was designed and carried out on a self-selected census of 54 monopolistic relationships representing £575.8m annual spend on equipment and associated services within the UK Defence Procurement organisation (a 10% sample). Its aims were to understand the relationship dynamics within long-term, sustained monopolies and to determine if generic success factors could be found to assist managers to break out of the essentially negative situation represented by Figure 1. A triangulated data capture approach was employed using both quantitative (questionnaire) and qualitative (semi-structured interview) methods from both the Industry and MoD sides of each relationship and the research instruments concentrated on the 5 dimensions of the theoretical model in Figure 2 with questions grounded in the literature. Given that the research area supply chains were likely to manifest a variety of success levels, the opposite of the negative definitions of Williamson's (1975) framework were used to label the dimensions and, questions with a positive orientation (quality, reliability, creativity, stability, communication) as shown in Figure 2. It was considered that this approach would counterbalance the possibility of respondents following the hypothesised negativity predicted by Williamson's framework. These were validated by focus groups of practitioners during the research pilot phase and both the dimensions and questions achieved a satisfactory 0.7977 level of Coefficient Alpha in the study (Bowman & Ambrosini, 1997). 629 Likert scale questionnaires of organisation-selected, knowledgeable staff were completed and the mean scores representing respondents perceptions of satisfaction were aggregated to provide per-dimension overall scores. Previous Supply Chain relationships research (Doney & Cannon, 1997, Mohr & Spekman, 1994, Noordewier et al, 1990, Spekman et al, 1998) has used Likert scales because of their appropriateness, their simplicity and business people's general familiarity with them (Schertzer & Kernan, 1985), the method was selected for this project. The use of scales

required familiarity with a number of considerations including whether or not the descriptors (the words used to describe the question choices) have similar psychological meanings to people and thus can be arranged to form equal-interval response scales (Schertzer & Kernan, 1985).

115 team leader, semi-structured, face to face interviews took place following the production of a quantitative data report for each dyad. The team leaders were asked to highlight the reasons for the situations revealed by the numerical information under each of the 5 dimension. Over 700 key-point phrases were categorised according to the theoretical model dimensions and recorded in a database to facilitate analysis. The data were also classified by emergent relationship variables such as trust, commitment and collaborative behaviour. Thus it was possible to determine not only the broad statistical trends but also some of the underlying reasoning. Special attention was devoted to providing feedback to the research participants by means of individual relationship reports as well as head office and web-based summaries of the research findings. An unforeseen consequence was the high value ascribed by many of the organisations to the production of independent, frank relationship information which gave us increased confidence in the validity of the data supplied by the respondents. We also learned that in many cases relationship maintenance arrangements received a much-needed boost as a result.

General Findings

We found that our theoretical model proved to be a particularly powerful tool that clearly revealed a pattern of recognisable relationship characteristics within the business environment studied. When populated with quantitative and qualitative research data, it was clearly noticeable that instead of an intrinsically negative hypothesis, a spectrum of dynamics, including many described in the literature from competitive markets, was found. Moreover, it was interesting to note how managers had developed specific measures and behaviours to cope with their reduced options. The quantitative data findings (aggregated mean success scores per dimension) shown in Figure 3 revealed that the essentially negative Organisations Failure Framework was not so in practice with an overall mean success rating of 57%.

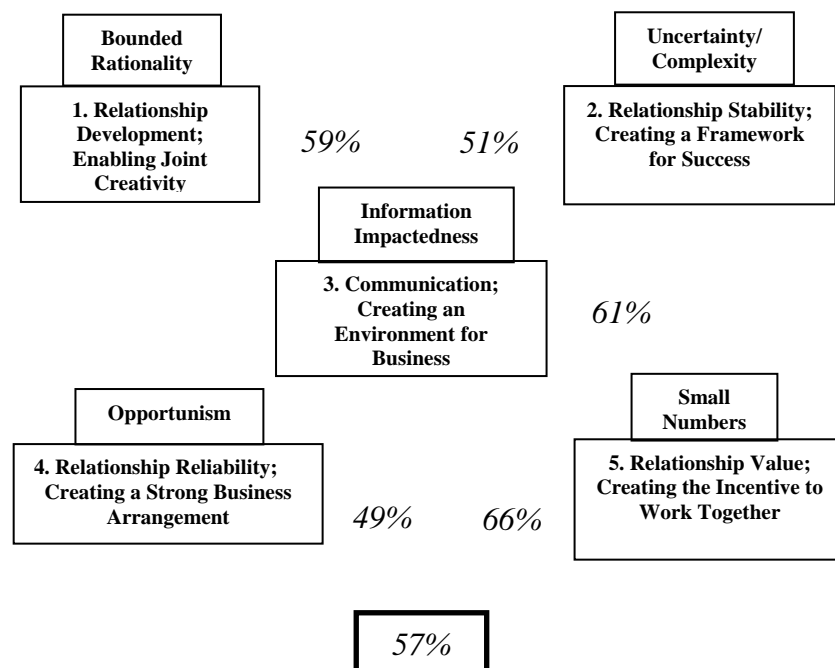


Figure 3. Theoretical Model Overall Mean Success Scores by Dimension

These results agreed with the 54 individual relationship success statistics where 42 (77.7%) scored 50% or better satisfaction ratings. Also, although MoD teams are less optimistic (59%) than Firms (67%), this difference is not statistically significant with a high correlation factor of 0.928. Our preliminary examination of a sub-set of the data shows that collaborative behaviours (we termed the effect of co-operation, co-ordination and collaboration within this research as C³ Behaviour - see next section “Implications for Theory” for further explanation of this effect) appear to have a strong bearing on the levels of success in the relationships surveyed ie. 64% compared to the overall research rating of 57% (correlation 0.983). This situation is illustrated in the table at Appendix 1 where the research dimension relationship satisfaction ratings by dimension are contrasted with those from the C³ data sub-set and illustrated with selected semi-structured interview key-points.

Implications for Theory

Contrary to expectations, a diversity of positive, business-driven behaviours was present within the UK Defence supply chain environment as well as more adverse small numbers/restricted market dynamics suggested by the theoretical framework. Difficulties in achieving effective Supply Chain Management (Christopher, 2005) implementation could be traced to the normal, commercial difficulties surrounding order book performance, joint objectives and service level systems framework (Boddy et al, 2000, Fawcett & Mangan, 2002, Humphries & Wilding, 2004b, Lamming, 1993, Tompkins, 2000). UK Defence ‘Environmental’ problems such as old products, obsolescence, staff and organisational upheavals, poor end-customer visibility and lack of investment in modern procedures and systems seemed to accentuate managers’ frustrations due to lack of freedom of action and we deduce, could promote the relationship negativity implied by the theoretical framework. As predicted by the model, lack of investment in specific assets such as work force stability and product/process development, the use of inadequate performance measures, opportunistically providing poor goods and services and, using proprietary information as a weapon, appeared to reduce the chances of achieving positively oriented, interdependence and perceptions of equitable outcomes.

On the other hand despite the adverse small numbers/restricted market influences encountered, strong counterbalancing, positive business drivers were likely to produce examples of relationship-building, specific investments, co-operative behaviour, open communications and a desire to reduce the burden of governance through more equitable, long-term arrangements. Humphries & Wilding, (2004a) and Spekman et al (1998) suggest that co-operative, co-ordinating and collaborative behaviours involve working together/jointly to bring resources into a required relationship to achieve effective operations in harmony with the strategies/objectives of the parties involved, thus resulting in mutual benefit. Spekman posed the view, as shown in Figure 4, that a shift in the level of intensity between partners was necessary. Co-operation, where firms exchanged essential information and engaged some suppliers/customers in longer-term contracts, was the ‘threshold’ level of interaction. The next was co-ordination where both workflow and information were exchanged to make many of the traditional linkages between and among trading parties seamless. Collaborative behaviour engaged partners in joint planning and processes beyond levels reached in less intense trading relationships.

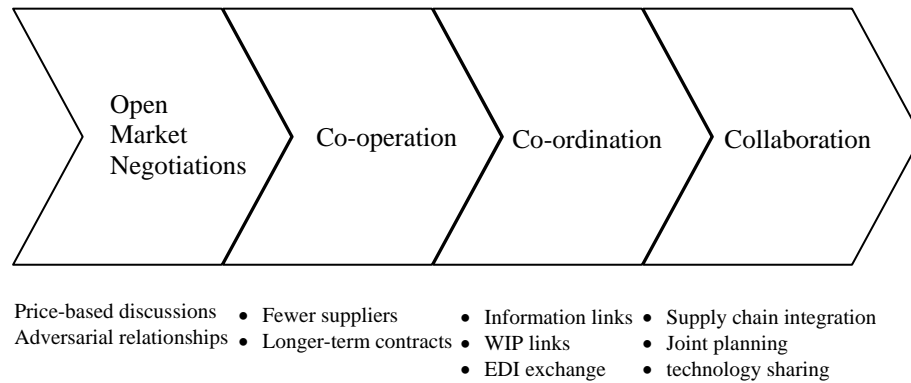


Figure 4. Supply Chain Transition from Adversarial to Collaborative Relationships (adapted from Spekman et al, 1998)

We felt that these factors came into play in many of the relationships we examined both individually and in combination because the sequence may occur in different aspects in different timescales. Hence we felt that it was justifiable to describe a form of partnership-enhancing behaviour (C^3) that combined all three.

McDonald et al (1997) and, Moorman et al (1992) view C^3 behaviour as similar or complementary, co-ordinated actions needed to achieve mutual outcomes with reciprocation over time and rather than pure exchange, are used to create real value as an organisational competence known as 'collaborative advantage'. Morgan & Hunt (1994) and Oliver (1990) describe the importance of pursuing mutually beneficial interests but additionally emphasise the fundamentally co-operative nature of business life characterised by balance and harmony. Moreover this powerful combination of behavioural variables can often lead to the discovery of even more successful ways to co-operate and new objects of co-operation (Doz & Baburoglu, 2000). C^3 Behaviour is therefore essential to maintaining a successful business partnership (Metcalf et al, 1992, Rugman & D'Cruz, 2000), especially when linked with commitment to the achievement of shared, realistic goals (Lewin & Johnston, 1997, Sheth & Sharma, 1997). As already mentioned, in the quantitative data analysis C^3 Behaviour appeared to make a strong contribution to relationship success. However; effectiveness could be reduced when the sincerity of the other party's intentions was doubted. The overwhelming majority of respondents placed strong emphasis on personal relationships ('hitting it off') (Gulati, 1995, Kemppainen & Vepsalainen, 2003) and culture-matching ('relating to the way the other side do things') (Moss Kanter, 1994). This counters the enlightened, self-interest approach (Faulkner, 2000) and underlines the central importance of commitment and trust to relationship stability and productiveness (Morgan and Hunt, 1994). Excellent, long-term commercial arrangements, frequent, interactive, open communications, and constructive conflict that supported repeated cycles of exchange, risk-taking and successful fulfilment of expectations were also described as important contributors (Doney & Cannon, 1997). These appeared to strengthen the willingness of parties to rely upon each other and to develop adaption and interdependence (Eisenhardt et al, 1997, Madhok, 2000). However, opportunistic behaviour such as adversarial bidding, inflexible and unduly bureaucratic commercial practices, unwillingness to share proprietary data and uncaring use of power were clearly evident and potentially capable of undermining relationship-building (Humphries & Wilding, 2003, Faulkner & de Rond, 2000, Palmer, 2001).

The literature says comparatively based on empirical research about the relationship dynamics within long-term, closely collaborative, dyadic relationships. We hypothesised that this proximity could generate both positive and negative feedback behaviours. Our research detected a spectrum of these phenomena and that managers in many cases clearly understood the limitations on their freedom and were employing C³ behaviours to improve the performance of their partnerships. The literature is generally aware of these dynamics but our contribution to theory is a research methodology that allows them to be exposed in an integrated manner and comes close to providing a balance of results using Giannakis & Croom's (2004) '3S' SCM paradigm conceptual framework.

Research Limitations - Theoretical

We acknowledge that we have taken a somewhat unusual approach to examining collaborative, long-term supply chain relationships and have integrated the variables in Williamson's (1975) Organisations Failure Framework in an innovative way. We also realise that using a combination of quantitative and qualitative data is inevitably a compromise between the extremes of imposing rationality on the data collection and interpretation and, allowing the data to emerge and speak for itself. The research has used a narrow view through a specific theoretical model lens to achieve a broad understanding of business relationships within a single, albeit large, organisation. However, the theoretical model proved to be a powerful research tool that allowed, in a fairly simple and straight-forward way, a comprehensive breadth of organisational dynamics to be revealed. It is thus essential to view the value of the research only through this restricted gap and to accept that further research in other settings and using alternative methods will be needed to triangulate its findings and assess its wider generalisability.

Implications for Practice

Our research has thus highlighted a number of important lessons for managers operating within the UK Defence Procurement organisations. There is a need to accept that the closely collaborative, long-term supply chain relationships inevitably put pressure on relationships because compromises that reduce freedom of action cannot be avoided. However, they can reduce sources of frustration that generate negative behaviours by taking joint actions to seek innovative ways of dealing with 'environmental' problems such as old products, obsolescence, staff and organisational upheavals, poor end-customer visibility and lack of investment in modern procedures and systems. Central to achieving this is C³ Behaviour where setting synchronised objectives, pursuing joint approaches to service and product delivery, lowering costs and risks and promoting measures to support the growth of trust appear to be the best ways of halting negative behaviour spirals.

Conclusion

We set out to explore a little known area of business relationships using simple but powerful analytical methods. The prime contribution of this exploratory research is the exposure of relationship dynamics within a large sample of long-term, collaborative supply chain business dyads using an integrated application of Williamson's (1975) Organisations Failure Framework. We conclude that the methodology provides a powerful tool to allow objective data to be collected and rich perspectives to be taken from its exploration. We found that by examining a group of relationships within UK Defence sector we were able to focus on those aspects that that occurred because of their very close proximity. These were clearly recognisable from the existing literature but, their combination in the research setting was

new. We were surprised to find that C³ (co-operative, co-ordinating, collaborative) played an important part in counteracting the potentially negative behaviour spiral influences within long-term, close collaborations. The lessons for UK Defence Supply Chain managers suggest a number of positive measures that can be applied to improve relationship performance in a strategically important public/private business domain. Exploration of the theoretical framework dimensions using other relational variables such as trust, commitment and long-term orientation could cross-tabulate and extend the original findings. The project necessarily took a high-level, snapshot of the phenomena in view. Longitudinal approaches, action and experimental research methods, use of alternative theoretical fields such as sociology and organisational dynamics, especially using international comparisons, could provide extremely interesting and useful, in-depth results. It would be particularly interesting to see if the findings were applicable to other market sector, long-term collaborative relationships. It should be emphasised that none of these opportunities for research should be viewed in isolation. Many of them overlap and converge to offer the chance to carry out integrated research programmes.

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Appendix 1 – C³ Behaviour Research Data

Dimension & Research Score	Negative Definition	C ³ Score	2 nd Level Construct	Exemplar Semi-Structured Interview Key Points
1 – Bounded Rationality (Relationship Creativity) – 59%	People have only so much capacity to rationalise what is going on around them and they therefore naturally limit their performance to the adequate rather than the optimum (Simon, 1957)	68%	The relationship encourages the achievement of high performance by both parties ie. reliable equipment, on-time delivery, good forecasts.	‘As a result of working through the problems together, customer satisfaction appears to be improving’
			When an unexpected problem arises, both parties would rather work out a solution than hold each other to the original contract terms.	‘When we were able to focus together on an emergency programme to replace defective, safety-critical items, the Company initially found it hard but after that it really worked well’
2 – Uncertainty/ Complexity (Relationship Stability) – 51%	People have difficulty of making sense of complex current and future events (Williamson, 1975)	50%	Both parties co-operate wholeheartedly.	‘We work closely and most successfully with a small team and have a healthy, open relationship’
			The relationship provides a dynamic business environment within which both parties can seek increasing rewards.	‘As the reputation of the team for success within the business has grown, this has helped to boost the confidence of the members and spurred them on to further achievements’
				‘We offered to remove components prior to a return to works programme which their engineers approved and believed would save us £2m. Their Commercial people offered us a rebate of £2.5k. The nerve of it!’
3 – Information Impactedness (Communication) – 61%	The imbalance caused by selective information disclosures, and distortions which are difficult or expensive to verify at the time and which undermine the durability of contract arrangements (Williamson, 1975)	70%	Exchange of information in this relationship takes place frequently and informally – not just according to specified agreement.	‘The Buyer never holds back on providing data on advance requirements when known. This helps us to plan better’
			We provide the other party with regular information including long-range forecasts to enable him to do his business better.	‘Frequent contacts, even as often as daily, build confidence, reduce risks of misunderstandings and keep the team focussed’

Dimension & Research Score	Negative Definition	C³ Score	2nd Level Construct	Exemplar Semi-Structured Interview Key Points
4 - Opportunism (Relationship Reliability) – 49%	Constitutes a lack of candour or honesty and includes self-interest seeking with guile. (Williamson, 1979)	52%	The responsibility for making sure the relationship works is shared jointly.	‘They have moved into a new line and we put them in-touch with other relevant Buyers. We both felt good from this bit of co-operation’
			The other party provides us with useful cost reduction and quality improvement ideas.	‘We agree round the table but nothing ever happens’
				‘Their contracts staff have a real power to reduce the effectiveness of the relationship as we have to respond to interminable price investigations’
5 – Small Numbers (Overall Relationship Quality) – 66%	The combination of problem behaviours requires sophisticated controls that are only found in or close to the firm and may result in failure of market conditions (Williamson, 1979)	79%	Both sides are working to improve this relationship.	‘The relationship contains a healthy measure of scepticism’ ‘Even though they know full-well we can’t go anywhere else, the relationship is still a good one’

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