The Development of Supply Chain Relationships:

A Multi-Lens Approach

Professor Peter Hines and Donna Samuel, Lean Enterprise Research Centre (LERC), Cardiff Business School, Cardiff University, Aberconway Building, Colum Drive, Cardiff, CF10 3EU (Hines PA@cardiff.ac.uk)

Corresponding author: Peter Hines (Tel: 029 20876005 or email HinesPA@cardiff.ac.uk)

Manuscript: 397
Revision: #1
First Submission: December 2004

Acknowledgements: The authors would like to express their gratitude to all the individuals and firms involved, in particular Bernie Kelly of the Canner and Andrew Stewart of Intalog. Thanks also go to the David Gregory and the Australian National Food Industry Strategy whose funding made this work possible
The Development of Supply Chain Relationships: 

A Multi-Lens Approach

Abstract

The last few decades have witnessed the rise of research into Supply Chain Management and relationships within it. However, in many cases previous research has taken a single-lens approach to understanding and explaining what is happening as well as in subsequently developing solutions. The research reported here seeks to take a multi-lens approach to relationships in the supply chain using a complete farm to retail food supply chain as an instrumental case. The field research was carried out using a Clinical Methodology in order to yield a deep understand of relationships in this supply chain and the variables that have led to this situation. A set of theoretical and managerial aspects are explored to show how others may learn from this research.

Key words: Relationships; Integration; Supply Chain; collaboration

1. Introduction

Several authors have recently argued that although Supply Chain Management (SCM) has received a good deal of attention in the literature since the early 1980s, the concept is still not particularly well understood (Croom et al., 2000; Dubois et al., 2004; Cigolini et. al., 2004). A case in point is integration through buyer-supplier or supply chain relationships (for instance: van Donk and van der Vaart, 2004). Specifically, the majority of current approaches tend to address the subject from a single perspective or lens.

A number of different perspectives have been taken in the literature, including power (for example, Cox 2001a; Christiansen and Maltz, 2002), trust (for example, Sako, 1992; Simons et al, 2004) and risk (for example, Rousseau et al (1998); Zsidisin (2003)). However, it would appear to the current authors that although each of these variables has merit, they are, on an individual basis, rarely the only variable that is at
play. Holding similar views, a few authors have attempted to link two of these three variables together, for example power and trust (Ramsay, 1996) or risk and trust (Das and Teng, 2001).

Building on this perspective, we propose a more pluralist multi-lens research view where a single instrumental case is viewed from a range of explanatory perspectives (Stake, 1998). In addition, it is our belief that, in some cases, there may be other variables at play that have not yet been sufficiently explored in the Supply Chain literature. The paper will seek to explore this area through the following set of research questions.

Our first research question is therefore to understand how these different variables impinge and explain the actions of actors within a supply chain case. Linked to this first question, our second question is to explore which of these might be more important in shaping the actions of each actor. Our third question seeks to understand whether there are any other important variables in addition to power, trust and risk. If indeed there is a more complex set of explanatory variables at play, our fourth research question will address how such a level of understanding might be used to help the actors to improve their supply chain through better relationships and effective improvement activities.

The vehicle for exploring these questions is a single longitudinal case involving a food processing firm and seven single or groups of firms within the Australian food industry supply chain. Each of these seven firms acts as a different entity within the supply chain but all have a dyadic relationship with the food processor who has instigated a supply chain improvement activity and invited the other firms to take part. As such, although the research frame is a full supply chain, the focus of relationship development will largely be that between the food processor and the other firms involved.

2. A Review of the Existing Literature
The idea of forming cooperative rather than adversarial relationship with suppliers made an appearance in the literature several decades ago (Farmer and Macmillan, 1978). Since then the idea has been re-emerged under a variety of names including: co-makership (Merli, 1991); reverse marketing (Leenders and Blenkhorn, 1988); supplier alliances (Burdett, 1992) and partnership sourcing (DTI/CBI/PS, 1998). Variations have also appeared within the marketing domain under the title of relational or relationship marketing (Evans and Laskin, 1994) as well as the strategic management field as strategic alliances. At the same time, the idea of cooperative relationships has been extended from immediate suppliers to encompass the wider supply chain (MacBeth et al., 1989) and coupled with ideas borrowed from Japanese automotive and lean production literature (Womack and Jones, 1990, 1996; Hines, 1994, Laming, 1993).

Ramsay (1996) argues that the majority of the academic literature emerged from an outright attack on the traditional, adversarial approach to supplier relationships with the assumption that collaboration and partnerships are the *sine qua non* of successful supplier relationship management. This latter view of relationship management has been supported by influential intermediary bodies in the UK such as the Confederation of British Industry (CBI) and the Department of Trade and Industry who provided the initial support funding for Partnership Sourcing Ltd. (PSL). However, evidence from many practitioners is that the term partnership has been somewhat overused, often inappropriately where little real change has occurred (McIvor et al, 1998).

The traditional purchasing-based view of SCM was to leverage the supply chain to achieve the lowest initial purchase prices whilst assuring supply and was characterised by: multiple suppliers; supplier selection based primarily on purchase price; arms-length negotiations; formal short-term contracts and centralised purchasing. A more contemporary view of SCM, heralded by some as the ‘new paradigm’ (Speckman et al., 1998), redefines SCM as a process for designing, developing, optimising and managing the internal and external components of the supply system, including material supply, transforming materials and distributing finished products or services to customers that is consistent with overall objectives and strategies. The essence of SCM is as a strategic weapon to develop a sustainable
competitive advantage by reducing investment without sacrificing customer satisfaction (Lee and Billington, 1992). While managers have long acknowledged the importance of getting closer to their key customers, the logic has now been extended to the upstream supply chain so that close ties with key suppliers are also seen as important (Helper, 1991). Speckman et al. (1998) conceptualise the transition from traditional open-market negotiations to collaboration as a continuum (Figure 1), noting that the cooperation and coordination stages are necessary but not sufficient to reap the benefits of effective collaboration.

(see figure 1)

Collaboration, then, is seen by many as an integral facet of a wider SCM strategy (Anderson and Narus, 1990; Bhote, 1987; Ellram, 1990; Kapoor, 1988; Speckman and Sawhney, 1995). This popular view is not without its critics and it is from a balanced approach to the work of collaboration (both advocates and critics) that a picture begins to form of what constitutes the determinants of successful SCM.

Most advocates regard collaboration as an integral part of SCM noting that, in Speckman et al.’s (1998) terms, the road from open-market to collaboration is a long one and should not by travelled by each and every buyer-seller relationship. Many authors have advocated a portfolio approach to supplier relationships management (Kraljic, 1983; Cox, 1996; Olsen and Ellram, 1997; Bensaou, 1999). Whilst today the arm’s length approach is now subject to criticism because of its focus on short-term cost reduction, it is often proposed under certain conditions: in commodity markets, with multiple suppliers, low asset specificity and little market uncertainty where the market serves as a control mechanism to ensure competitive prices (Schary and Skjott-Larsen, 2001).

However, much industrial purchasing would not meet these market characteristics and here collaboration is usually presented as the obvious alternative. SCM demands a business transformation in which managers attempt to mitigate uncertainty and exploit opportunity through the creative use of both suppliers and customers by evaluating who best supplies value and then leveraging that expertise/capability through the entire supply chain. Speckman et al. (1998) note that cognitively, such an effort
requires sharing what once might have been considered proprietary information, relinquishing control to others in the supply chain and trusting that your supply chain partners will act in your best interest. Trust clearly emerges throughout the literature as a key issue determining the success or otherwise of supply chain collaboration efforts.

However, trust is an ambiguous and complex phenomenon. Depending on their discipline and the problems they have been studying, many researchers have concentrated on the diverse aspects of trust and the process of trust development. In a recent effort to bring together the elements most frequently cited in works from various theoretical perspectives, Rousseau et al. (1998) formulated the following definition, noting that the identification of common meaning does not imply that all manifestations of trust reflect the same thing:

“Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another”.
(Rousseau et al., 1998, pp. 393-405)

Therefore trust is a psychological state, not a behaviour. Economists have also recognised the nebulous nature of trust:

“Trust and similar values, loyalty or truth telling are examples of what an economist would call ‘externalities’. They are goods; they are commodities; they have real practical value; they increase the efficiency of the system, enable you to produce more goods or more of whatever values you hold in high esteem. But they are not commodities for which trade on the open market is technically possible or even meaningful”.
(Arrow 1974 cited in Smeltzer 1997, pp.41)

In recent years a number of authors have suggested various classifications of trust (see Mollering, 1998 for an overview of currently available classifications), however, Bachmann (2001) comments that it is doubtful whether these classification schemes lead very far in coming to grips with the phenomenon. Sako (1992), for example, distinguishes between arms-length contractual relations (dominant in the west) and
obligational contractual relations (dominant in the east) and conceptualises three forms of trust: contractual trust (the mutual expectation that promises of a written or verbal nature will be kept), competence trust (the confidence that a trading partner is competent to carry out a specific task) and goodwill trust (commitments from both parties that they will do more than is formally required). Sako (1992) observes that goodwill trust is far more prevalent in Japanese buyer-supplier relationships and that it cannot be achieved without the presence of the other two types first. Simons et al (2004) identify the absence of trust as a key inhibitor to supply chain collaboration initiatives in the food industry. Stjernstrom & Bengtsson (2004) and Johnston et al (2004), for example, suggest that relationships benefit from increasing trust. Hines (1996) argues that trust is an outcome (rather than a cause) of successful supply chain collaboration in Japan and that it is a set of other variables that lead to high-trust supplier relations. Similarly, Rousseau et al. (1998) state that both risk and interdependence are necessary conditions for trust.

Many authors have identified that the primary role of trust in inter-organisational relationships is to mitigate risk. Das and Teng (2001) contend that trust and control are two principal antecedents of risk. Ring and Van de Ven (1992) argue that varying levels of risk and reliance on trust will explain the governance structures of transactions. Zsidisin (2003) highlights the lack of grounded definitions of risk within the context of supply. Kraljik (1983) discusses risk in terms of supply market complexity and incorporates supply scarcity, the pace of technology and/or materials substitution, entry barriers, logistics cost or complexity and monopoly or oligopoly conditions. Harland et al. (2003) define supply risk as one of eleven risk types and adopt Meulbrook’s (2000) definition of supply risk as being something that, “adversely affects inward flow of any type of resource to enable operations to take place” (pg 308).

Zsidisin (2003), in accordance with other studies investigating risk definitions (Pablo, 1999) find that supply risk is a multi-faceted concept that differs according to industry (aerospace firms, for example, are more likely to understand risk in terms of threats to customer life and safety) but that the most widely held definition of supply risk focuses on understanding how risk affects a purchasing firm’s ability to meet its customer requirements. Critical of previous efforts to address risk management in the
absence of a grounded definition of risk (in particular Harland et al., 2003), Zsidisin (2003) offers the following empirically grounded definition of supply risk.

“Supply risk is defined as the probability of an incident associated with inbound supply from individual supplier failures of the supply market occurring, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety”  
(Zsidisin, 2003, pp. 222)

Other authors argue that trust within buyer-supplier relations can be explained via another underlying factor, specifically, power. Ramsay (1996) identifies that partnership formation involves a process of give and take. The supplier may expect to get increased order security, improved forward order cover and reduced uncertainty whilst the buyer hopes to achieve improved supply continuity, a better match between the supplier’s sale specification and the his own specification as well as reduced long-term costs.

“In a genuine partnership, each party makes a commitment to the other and modifies its behaviour to more closely match the other’s requirements. Each also becomes more dependent on the other – and thus both loses and gains power”.
(Ramsay, 1996, pp. 17)

Ramsay (1996) states that for the majority of smaller companies, that make up the bulk of activity in any economy, the effort to form partnerships will frequently be met by supplier indifference or resistance, and the strategy itself is high risk, high cost, and necessarily involves purchasers in an undesirable net loss of power.

Cox (2001a) also argues that there will be only some power circumstances that will be conducive to collaboration and that they will be in situations of buyer dominance or where power was equally distributed between buyer and seller to create interdependence.

(see figure 2)
Cox (2001b; 2001c) suggests that practitioners map the dominant power regimes in which they are located in order to formulate an understanding of which strategy, either proactive supplier selection (or traditional arms-length approaches) or proactive supplier development (more contemporary collaborative approaches) is most suitable. However, any attempt to do so will reveal that power is itself a multi-faceted concept and therefore subject to various interpretations. Further, if we view power in terms of size and subsequent market leverage, others (Christiansen and Maltz, 2002) have shown that even small purchasers, who have little size or power to force suppliers to share leading edge technology, reserve production capacity or guarantee component availability, can find ways to access supplier capabilities needed for the improvements that customers demand. Power, most commonly viewed as market leverage, forms another determinant factor to effective supply chain collaboration. However, it would appear to be only one of a number of factors, rather than the ‘be all and end all’ as argued by authors such as Cox.

3. Methodology

The choice of research methodology is dependent upon the set of research questions under consideration and the state of knowledge development (Pettigrew, 1990). Following Ahlstrom and Karlsson (2000) in deciding the most appropriate approach, consideration was made of:

- The focus, which was the process of improving a given supply chain and the relationships within in it, particularly between the focal firm (the food processor) and the other seven single or group entities. The study of processes is best served using longitudinal research (Kimberly, 1976).
- The fact that the study concerned change and adoption of new relationship sets, it was best to study this as it happened in their natural field settings (Van de Ven and Poole, 1995) as it is hard to establish cause and effect from retrospective research (Leonard-Barton, 1990).
- The fact that longitudinal cases of change are rare and as such the research was of an exploratory character.
In order to gain a deep understanding of what was happening it was necessary to take a significant amount of time in field research. This was necessary in order to provide the depth of understanding necessary for subsequent theory building (Sofer, 1961). As such it was only possible to study a single supply chain case where it was felt that the change process would be likely to be transparently observable (Eisenhardt, 1989). This choice, however, does limit the ability to generalise from this research. In order to gain an appropriate level of research access, the choice was made of the Clinical Methodology where researchers take an active role in and study the change (Stymne, 1970).

Following Ahlstrom and Karlsson (2000), the study began with the focal company’s commitment to a lean supply chain initiative along the lines suggested by the current authors. Under this approach the focal firm (and subsequently the other supply chain actors) agreed to provide us as researchers with the opportunity to study the change process as it unfolded in exchange for support with the implementation process. The single deep pilot case study of a complete food industry supply chain was therefore undertaken from August 2003 (before the start of the initiative) until May 2005 (when the initiative developed past its original scope into a full Supplier Association (Hines, 1994)).

The role of one of the researchers included advising on the particular approach to take, providing ‘expert’ input and background knowledge of other comparable food industry cases, collating the results of the initiative and interviewing the participants as to the effectiveness of the approach and their feelings about whether they or their firms were gaining from the work. Data was gathered using: participant observation, semi structured interviews (face-to-face with each firm with follow up telephone conversations where further explanation was necessary) and documentation of the various meetings that took place.

The other research played a more impartial role and did not provide advice, which, *inter alia*, helped to gauge the role that the first researcher had in affecting the studied organisations (Schon, 1983). This was also facilitated by the in-depth access and familiarity with the firms involved together with the detailed documentation of the process, which was subsequently used in the analysis.
4. Instrumental Case: The Perfect Pineapple Supply Chain Programme

4.1 Background

The Perfect Pineapple Supply Chain Programme was initiated in late 2003 and involved an Australian canned pineapple supply chain stretching from a group of 171 growers, through transport links and a processing plant to a major retailer (Figure 3). The supply chain also involved three key suppliers of cans, cartons and pallets.

(see figure 3)

The programme revolved around the central company that processes approximately 110,000 tonnes of fresh pineapple every year through a single facility. The majority of processed fruit is canned either in slices (or rings), pieces, cut (small pieces), crush or pulp for juice. The main processing period mirrors the two pineapple harvesting seasons in Australia - a main harvest in the autumn (February-May) and a smaller secondary harvest in spring (September-October).

The company was set up as a cooperative in 1946 when 900 local growers were brought together to find a market for their surplus pineapple crop. The canning factory was completed in 1947 and later became an unlisted public company in 1964. The company is owned by about 700 fruit and vegetable growers. The majority of shares are held by the 171 pineapple growing entities, who dominate the company’s board. The company is Australia’s largest grower-owned fruit and vegetable processor, handling about 15 varieties of fruit and 6 types of vegetables. Although pineapple products once dominated production, today they represent approximately 20% of total turnover.

The market for these products is largely domestic and is dominated by Australia’s two major supermarket retailers who control about 80% of the total market. One of these two retailers took part in this programme. The recent history of Australian supermarkets has been one of consolidation and emulation of overseas best practice particularly Wal-Mart of the United States and Tesco & Asda (now a Wal-Mart
subsidiary) in the UK. In common with other markets, power in the Australian food industry is seen to reside at the retailer with relationships in the supply chain generally exhibiting low levels of trust (Sadler & Hines, 2002; Simons et al, 2004).

The retailer involved in the work was in the process of establishing a new Supply Chain strategy involving *inter alia*:

- The development of a primary freight system which is an Australian version of Factory Gate Pricing involving retailer-controlled collection, cross docking and revised distribution centre configuration (for more information on Factory Gate Pricing see Potter et al., 2003; IGD, 2003).
- Store friendly One Touch Replenishment involving a streamlined material and information flow in the supply chain with the ideal of touching product only once between point of manufacture and checkout (for more information on One Touch Replenishment see & Jones and Simons, 2000).
- Vendor to store shelf end-to-end process efficiency and integration.
- The development of supplier relationships.
- Delivery of cultural change and breakdown of functional silos.

At the start of the programme, there was only very limited evidence that the Retailer had succeeded in actually implementing this new strategy, although its intent was clear.

4.2 The Programme

In late 2002 the processor started a programme of manufacturing change under the auspices of the newly appointed General Manager, Supply Chain and Operations, Bernie Kelly. The first year (Step 1, of Figure 4) involved a series of improvement initiatives at the main manufacturing site where pineapples are processed. This improvement activity involved two outside consulting organisations and included the
application of 5S housekeeping, Value Stream Mapping and a series of smaller improvement programmes concerning the internal and external information flow.

During this period it became apparent to Bernie Kelly and his team that many of the issues and problems faced by the company were the result either of actions taken by other organisations, or were the result of a lack of complete supply chain coordination. In addition, the company was suffering rapidly declining profits which resulted in it reporting its first ever loss for the 2003 financial year. At the same time, its major customers were increasing shelf space devoted to imported product including canned pineapple from the Philippines. As a result it was decided to widen the scope of the internal operations to encompass the wider supply chain. As pineapple canning was still a mainstay of the firm and involved the company’s key shareholders, the pineapple growers, it was decided to instigate a canned pineapple supply chain project. The programme was later christened the Perfect Pineapple Supply Chain Programme and involved the companies described above (Figure 3).

(see figure 4)

The next step (Step 2) was to bring together senior executives from the different firms involved. This was done in November 2003 in a two-day meeting. The purpose of this session was to establish what it was necessary to achieve, what the supply chain looked like, what the programme could achieve and to gain a commitment from the companies to take part in the programme. Each of the firms sent at least one senior staff member and all expressed their willingness to take part.

During this workshop the major issues facing the supply chain became clear. The Managing Director of the processor commented in his introduction to the event on the high level of pressure exerted by retailers on the company, particularly in terms of costs. This was particularly relevant as the company was losing market share in canned pineapple to overseas competitors who had product retailing at 30% lower prices. The MD also commented that it would be difficult for the company to absorb these extra costs, causing concern among the three growers present, all of whom were directors of the processor. The issue they faced was that they had not received an increase in price for their pineapples for nearly 10 years. The MD’s introduction
concluded with the view that the only way forward was to work together as a team for everyone’s mutual benefit. This sentiment was mirrored by Bernie Kelly who expressed the view that it was necessary to take a total supply chain perspective. This view was generally accepted within the group. However, there was a concern generally voiced that some, primarily the Retailer, would gain more than others or even at the expense of the other participants.

The remainder of the two days was spent trying to build a coherent team through a series of group exercises, brainstorming sessions of what was required as well as a group exercise mapping the whole supply chain. This latter exercise was very informative in that it showed that no one delegate had a good picture of the complete supply chain and indeed very few could describe the operations within their own business in great detail. A further workshop was employed to develop an ideal future state, as well as the barriers to getting there. A wide range of barriers were discussed and included: capital shortages; the problems in changing culture; issues surrounding appropriate skilled resources to make the change; the generally older age of the growers (average 58); the lack of integrated IT and the processor’s lack of an explicit strategy.

The next step (Step 3) was to bring together the supply chain’s process owners, or operational staff. This was done shortly after step 2 in a two day workshop which followed a similar path to the executive group, except that less time was spent discussing what was required and more on how it might be done. A group exercise was carried out to map the supply chain. A far more detailed map was developed and with it the real problems began to emerge. The general feeling of both meetings was very positive and constructive with all supply chain members actively taking part. Agreement was made to undertake a more detailed analysis of the supply chain in five loops involving cross-company groups. The loops were a downstream loop (post manufacture), a canning loop, an upstream fruit loop (up to delivery of pineapples) and two loops for the cans and cartons respectively. This fourth step of further data capture was undertaken during the summer of 2003-4 (November to February) by the different process owner groups and was facilitated by an external consultant. The result of this step was an agreed outline plan for each loop (Step 5).
These plans were presented back by the process owners to the full executive group in February 2004 in a meeting with 35 process-level and executive-level delegates. This group was, however, without the Managing Director of the processor as he had recently retired. An interim Chief Executive had been appointed and took part in the workshop.

The event revolved around the feedback from the five loop groups on what they had found and what projects they were recommending should take place, together with a discussion of how this should be developed into a workable plan. The Retailer was represented by three people at the workshop with one from the transport and logistics area and two senior buying staff. The view from the retailer was that they were keen to develop a new, closer relationship with suppliers but would do so only in a step-by-step approach and only with like-minded firms. They saw the differentiator in whom they would work closely with as being the people and resultant relationship, together with the suppliers’ degree of enthusiasm and initiative. Bernie Kelly, on asking how many other firms were undertaking such initiatives as the Perfect Pineapple Supply Chain Programme, was told that they knew of none.

The discussions about the current position and what should be done were in general very open and honest and short term gains of A$3-4m (£1.2-1.6m) were quickly identified, although further financial analysis showed that the true financial benefits could be in the order of A$20m (£8m). The different feedbacks were well received and given in the spirit, either explicitly or implicitly, of a win-win result. However, two areas of concern emerged at the end of the first of the two days. These concerns were brought to the fore by the consultant who enquired how people were feeling at this point. The first concern that emerged was that it was difficult to plan a supply chain transition as a new strategic plan for the processor was being finalised. The interim Chief Executive advised this would be completed before the next planned meeting of the group in three months time. This largely reassured the group who felt able to proceed with the existing outline direction set by the programme, as well as a set of balanced measures that were developed for the work.

The second concern revolved around the fact that although all the firms were actively taking part, not all seemed to be fully committed. In particular, concerns were raised
about the can and carton makers who were only able to identify savings of less than A$100K (£40K) each. This appeared very small to the group. There was, however, an interesting response when other members of the group asked the packaging suppliers to rethink their stance before the following morning. The next day they advised that a strategic review could be undertaken involving an analysis of the type of packaging used and how this might be changed, for example, from cardboard boxes to plastic bins. The benefits from this could be considerable.

As a result of these discussions, various uncomfortable issues were brought to the surface, and hidden and unspoken concerns were shared. The result was that the atmosphere changed from being unsure to very positive. This positive feeling was reinforced by what was believed to be a strong plan involving all the respective firms in its delivery. The top level of the plan is shown in Figure 5. The implementation of the plan (Step 5) started in late February 2004.

(see figure 5)

Since this point the group has continued along the implementation plan and has started to gain significant benefit which according to Bernie Kellie, already run into several A$m. As a result of this, the food processor has decided to extend the scope of the work to include a further loop, namely a beetroot loop involving four of their eight beetroot farmers. This category represents a further 15% of the processor's turnover. This step is a prelude to the development of further loops (for example for baby food raw material ingredients and fruit or fruit concentrate for fruit juice). It has also been decided that once these further loops are in place (probably in late 2005) then the complete extended group of companies (i.e. members of the Perfect Pineapple group and members of the new loops) would come together periodically and hence take on the shape and dynamics of a true Supplier Association (Hines, 1994).

5. Explanation and Discussion
5.1 Explanation

In order to explain what was happening within this case a simple two phase development model will be presented, primarily in terms of changes at a macro level to the risk and trust that the food processor had developed both with (but also to some degree, between) members of the Perfect Pineapple Supply Chain Programme.

5.1.1 Phase 1 Explanation

During the early stages of the work the processor was attempting to gain commitment by increase knowledge transparency, starting to increase competence levels and attempting to set up a common destiny relationship set. In the process they were seeking to move away from historical contractual relationships (or what Sako (1992) terms a Contractual Trust relationship) that carried a varied but generally low level of trust and resulted in a high level of risk for all involved (see phase 1 in Figure 6).

(see figure 6)

Specifically, they were attempting to reduce bounded rationality by creating an open forum for exchange of views and information. The initial two 2-day workshops attempted to do this at both strategic and operational levels. This process involved identifying common (or not common) issues, concerns and visions for the supply chain as well as the mapping of the complete chain by the cross-company group in both meetings. Thus, bounded rationality was further reduced in the detailed mapping of the chain in Step 4 (see Figure 4).

This mapping activity not only sought to reduce bounded rationality but also to increase the individual and collective competence of the group both in their own, and the remainder of the supply chain. As a result, the various individuals could see the bigger picture and gain commitment themselves by seeing that others were likely to be involved in the many suggested improvement projects. In addition, this increase in individual and collective competence was likely to increase switching costs for new
supply chain entrants, increasing barriers to entry and reducing risk for the present incumbent firms.

In this phase, as we have observed above, senior staff from the processor went out of their way to try to develop a sense of common destiny both in their introductory addresses, by working to develop common measures across the supply chain, and by creating an environment where mutually beneficial bottom-up plans could be developed by teams from across the supply chain. All this helped to reduce risk and create a common theme of “us” in the supply chain. In addition, further commitment was sought through being involved in an innovative initiative, with the full involvement of the retailer. However, at this point it was not yet possible to achieve the full commitment of all, in particular the packaging firms, as trust had not yet been developed.

5.1.2 Phase 2 Explanation

During the second phase of activity (steps 6 and 7: see Figure 4) the processor was attempting to increase trust, having gone a significant way to reducing risk for all those involved. This second phase involved the development of learning curve effects, the withholding of power, the removal of opportunistic behaviour and ultimately was leading to at least the promise of increased asset specificity. In terms of the explanatory model, the processor was seeking to move beyond competence trust to achieve goodwill trust, or any and all firms doing more than their explicitly stated commitments (see phase 2 in Figure 6).

As can be seen in Figure 5, staff at the processor worked hard to ensure that a place in the improvement work could be found for all of the firms. In addition, they developed an approach that was sustainable, as it was not just focused on some illusory quick wins but rather a longer term approach of at least three years duration. Indeed, even at the early stages of the work they held informal discussions about developing the programme into a type of ongoing Supplier Association programme, rather than a one-year duration project (Hines, 1994). This stage was being developed at the time of writing in the middle of 2005. This longer term approach is designed to ensure that
the benefits of learning curve effects are locked in for the benefit of the total group of firms and to lock in continued and repeated Hawthorne effects (Hines et al., 1998).

The second phase also involves the development of withheld power with a common set of metrics and attention played to the fact that all the firms involved need to see some benefit from the work. An example of the withheld power was the ‘quiet word’ from Bernie Kelly to the packaging firms when they appeared not to be giving their full commitment. This discussion reassured them that their involvement would only benefit their firms and lead to a longer term relationship with greater profit potential to all involved. Thus Bernie was seeking and getting a higher level of commitment not through threats and power games, but through encouragement. Such an approach also reinforces the common destiny of the group and should further reduce opportunistic switching behaviour. Such behaviour is also less likely due to the high profile of the work and the very public sponsorship by the National Food Industry Strategy.

Proof that the relationship and trust was starting to develop was the change in attitude of the packaging firm in both committing dedicated resources to a strategic rethink of their customer’s packaging needs, as well as a promise to move with them (i.e. increase asset specificity) if it became necessary for the processor to relocate as a result of the improvement activities.

Thus as can be seen in Figure 6, this second phase of activity has moved the relationship set on from a competence based trust to the start of a goodwill trust where individual actors are starting to do things for the common good of the group rather than their individual benefit. The development of the full Supplier Association, that is at the time of writing underway, will further cement this development. This type of two phase development has proved to be highly beneficial to the firms involved. However, as discussed above, arguably this approach may not be suitable in all other environments. The reasons why it was appropriate here is that this environment involved:

- regular repeated transactions (with daily or weekly orders)
• the willingness to hold back from explicit power relationships and the use of ‘withheld power’
• an agreed common benefit in working together
• a specific non-commodity product
• appropriate outside facilitation to make concerns explicit.

5.2.1 Discussion: Adding Two More Variables

One observation about this case is that all the firms to a greater or lesser degree took an active and positive role in the improvement activity. In addition, the relationship between the focal food processor and all the other firms improved, as did many of the relationships between the firms involved. Coupled to this there are clear explanations for some of the activities and relationships if we view the case through the three different lenses of trust, risk and power.

However, we also concluded that although each of these lenses is important, even together they are insufficient to explain the behaviour set. As a result of our observations within this case, we would tentatively like to suggest two further interlinked factors that determined the success of collaboration effort in this case and may well have an importance in other instances. These are: the type of ownership and corporate governance (and resultant governance structure); as well as the individual employee commitment or engagement.

Corporate governance is concerned with the decision made by senior executives of a firm and the impact of their decision on various stakeholder groups and therefore refers to the relationship between the board and the firm. Bradley (2004) comments that the search for the link between returns and governance is the Holy Grail for many practitioners and academics in the field of corporate governance and that an ever-growing amount of evidence now exists to suggest that these links do not exist. Nonetheless we would argue that the corporate governance does influence management’s approach to control versus commitment in the workplace.
Walton (1985) identifies these two opposing approaches to a company’s human capital and points out the key challenges in moving from one to another. We would suggest that the firm’s progress in this regard is likely to impact the individual’s predisposition to supply chain collaboration’s success or otherwise. Lucy et al. (2004) coin the term ‘employee engagement’, highlighting its importance to the success of any change initiative. Indeed, their research suggests that people’s degree of engagement is likely to be influenced by a range of personal and corporate objectives that may not be at all obvious at first sight to the casual observer. As such these are often missed within supply chain research. Supply collaboration invariably involves the reshaping of supply chain partner’s patterns of behaviour and therefore demands a high commitment, a function of corporate governance, initially from the leading partner and subsequently from all parties involved.

5.2.2 Applying Five Lenses to the Case

In order to understand the dynamics and relationships within the case study, it will be useful to review the five determinant factors discussed in Section 2 (power, risk and trust) and above (ownership and governance structures, and commitment) and see how these have impacted on each of the participating firms. Before doing this, it will be useful to explore how a single lens perspective may give a misleading or incomplete impression of reality. In order to illustrate the point, we will take the example of a single power lens as advocated by Cox (see Cox, 2001a, 2001b, 2001c).

Using a development of Cox’s power regime approach we can develop a Power Map (Figure 7). In this figure the physical movement of product has been mapped with the width of the arrows proportional to the transactional cash value flows and the figures in circles representing the total business turnover of each firm. Following Cox (2001b), the symbols used represent:

- < buyer having power over supplier
- > supplier power over buyer
- = interdependence
- 0 independence
The resulting set of relationships are shown in Figure 7, with the retailer holding power over the processor, primarily due to their size and ability to switch to cheaper imported product. The processor can be seen to hold power over the can and carton maker as well as their inbound transporter. A relatively interdependent relationship exists between the processor and the outbound transporter and due to their low reliance on each other, a relatively independent relationship with the pallet supplier. An interesting case in point is that at the operational level, the processor holds power over the growers. However, at a less superficial level, the governance structures between the two mean that the processor is owned largely (97%) by the pineapple growers. Indeed, the board of the processor is dominated by pineapple grower directors.

Following the Cox power regime analysis approach (Cox, 2001b) it should then be possible to interpret where successful supply chain relationships and development are possible and where existing power regimes would preclude their effectiveness. According to Cox such a supply chain approach will only work where there is buyer dominance or buyer-supplier interdependence.

Bearing in mind the supply chain is centred on the processor, it can be predicted that the processor will be able to encourage the two transport firms and two packaging suppliers actively to take part, but find it very hard to engage the other firms. However, careful observation of our case, in particular during the first part of Step 6 (see Figure 4), showed a different picture. In gaining agreement to the programme of change and commitment to these improvement activities and tangible benefits, various difficulties emerged, which it would appear, could not completely or even largely, be explained by existing power regimes. Indeed, careful observation of the participants, prompted by the consultant, showed that the following picture was emerging (Figure 9).
As the programme of activities aligned closely with the retailer’s strategic objective, the retailer was enthusiastic about the programme. In addition, the growers were enthusiastic because it was ultimately to their benefit for the processor to produce a better financial result. The other company that showed the greatest enthusiasm for the work was the outbound transporter. However, this owed little to the interdependence it enjoyed with its customer, the processor, and more to the perceived threat and risk that it felt in potentially losing business once the retailer implemented its Primary Freight initiative.

In addition, the inbound freight firm was not brought fully into the initiative in the early stages, but this appeared to be more to do with commitment levels of the individuals involved. This was more however to do with the fact that the early discussions were at too high a level for the individuals involved to be able to easily grasp, than their willingness to get involved per se. Indeed, once the discussions started to become more operational (Step 4 in Figure 4) there was a much higher level of personal engagement. The pallet firm similarly appeared not to be taking a very active part. Here, the reason appeared to be more around the fact that with improvements to the supply chain, they were likely to lose business as the number of pallets required would be reduced.

The last case involved the two packaging suppliers who were only appearing to pay lip service to the work and were offering only marginal benefits. Their lack of involvement can be best explained in two ways: first, that the individuals involved saw little in the work in terms of career development; second, and more importantly, they were not trusting of the processor due to a history of adversarial price reduction demands.

In each of these examples the reactions and involvement of the different companies was sensible and indeed logical from their perspective. However, their responses cannot adequately be explained simply through a power lens as we saw above. However, by viewing each company through each of the five lenses discussed above (power and dependency; risk; trust; ownership and governance structures; commitment) their behaviour can be both understood and explained (Table 1).
In reality, each of the five variables had some influence on individual firms’ behaviours and how engaged they were (highly engaged firms are shown with a ✓) but in each case one variable was pre- eminent in shaping the behaviour. The pre- eminent variable for each firm is shown by a black box against the relevant variable in Table 1. In this particular case study, as this data capture was carried on in a real time manner using a Clinical approach, it was possible to:

- Seek to address how each less engaged firm could be brought on side more readily and quickly
- Understand what was motivating the highly engaged firms and to try to ensure that this factor was built upon in order to sustain the firm’s positive role

In addition to this it should be possible to repeat the multi-lens assessment periodically with the firms involved as inevitably some of the variables will change in importance and weighting. This might be achieved in the forthcoming period perhaps on a six-monthly basis at future full-group Supplier Association meeting.

6. Conclusion

6.1 Returning to the Research Questions

In this paper the authors have attempted to address four research questions. The first research question sought to understand how three well-established variables (power and dependency, trust and risk) impinge and explain the actions of actors within a supply chain. The Clinical Methodology adopted in this research has helped the researchers to develop a deep understanding of how each of these variables has affected the different actors within the case. It has been shown that in every case each of these lenses has proved helpful in understanding the motivation of behaviour.
However, we have demonstrated that none of these three factors on their own can be used adequately to explain the behaviour of any one of the actors.

Linked to this first research question, the second question set was to explore which of above three variables might be more important in shaping the actions of each actor. The analysis presented in Table 1 showed that with at least one case each, each of these variables was the single most important factor in explaining behaviour (or lack of behaviour). Power and dependency was most important for the pallet supplier, risk was most important for the outbound transporter and the canner and trust (or lack of it) was most important for both can and carton suppliers.

Our third question sought to understand whether there are any other important variables in addition to power, trust and risk. It was clearly established in the research that even considering each of the three variables above, it was still not possible, in this particular case, to explain the behaviour of the firms involved. Indeed, here we found two additional factors which were pre-eminent in their explanatory nature for at least one of the firms involved. These were the ownership and governance structures (most important for the growers) and personal commitment (most important for the retailer).

The last research question was contingent on their being a complex set of explanatory variables at play, which there did indeed prove to be. Should this be the case we had decided to show how gaining a more detailed understanding of the different variables at play might be used to help improve the supply chain through better relationships and more effective improvement activities. This was achieved in two ways. First, an explanatory model was developed (Figure 6) to supplement our description of what was happening within the case and second a table (Table 1) was constructed that summarises the impact of the different variables on each of the actors together with which was most important in influencing positive or more neutral behaviour. What was found was that only a deep understanding of the actors would yield a full picture of all the different causes and effects.

6.2 Managerial Aspects and Learnings
The research presented here has perhaps three important managerial aspects and learnings. The first is that taking a simple ‘everything can be explained by one variable’ approach was not appropriate in this study. This was highlighted by showing how using a single lens (here that of power) led to a poor understanding of what might be occurring. Indeed, although this may be appropriate in very rare examples, we believe that such a single-lens approach is very limited, if not indeed quite dangerous as inappropriate solutions may be generated.

The second managerial learning is that we have shown that a multi-lens approach helps ensure that a better understanding is developed, which can lead to further stages of analysis and solution development. In this case the most appropriate five lenses were power and dependency; risk; trust; ownership and governance structures; and commitment. As a result an explanatory model could be presented, which may proved a useful framework for establishing closer long term relations within a supply chain setting, particularly where:

- there are regularly repeated transactions
- there are (or could be) common goals
- the stronger actors are willing to withhold power for the good of the whole supply chain
- the products or services provided are in some way bespoke or unique (unlike for instance pure commodity products)
- there is appropriate outside facilitation to make concerns explicit.

However, a caveat to this is that the five variables used here may not be the most important variables in all other cases, although they may provide a useful starting place for a discussion of the most helpful lenses to apply.

The final managerial learning of note is that, either on a one-off occasion, or better still on a periodic basis, using a framework such as Table 1 to help understand and explain the behaviour of actors is likely to the first step in develop a better and more sustainable set of relationships which will result in a more effective supply chain.
References


Department of Trade and Industry (DTI)/Confederation of British Industry (CBI)/Partnership Sourcing (PS), 1998. Partnering for Profit. Profile Pursuit Ltd.


McIvor R., Humphreys P. and McAleer W., 1998, European Car Makers and their Suppliers: Changes at the Interface


Stjernstrom S. and Bengtsson L, 2004. Supplier Perspectives on Business


Womack J. and Jones D., 1996. Lean Thinking, Simon Schuster


Figure 1: The Key Transition from Open-Market Negotiations to Collaboration

(Source, Speckman, Kamauff and Myhr, 1998, pp.57)
Figure 2: The Power Matrix

(Source Cox, 2001a, pp. 13)
Figure 3: The Perfect Pineapple Supply Chain Membership

Growers → Inbound Transporter → Canner → Outbound Transporter → Retailer → Store

Cannery

Carton Supplier

Supplier

Can Supplier

Pallet Supplier

Retailer

Store
Figure 4: The Seven Step Perfection Pineapple Supply Chain Programme

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>Internal Improvement Activity at Canner</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td></td>
</tr>
<tr>
<td>STEP 2</td>
<td>Supply Chain Workshop for Executive Staff</td>
</tr>
<tr>
<td>PLAN</td>
<td></td>
</tr>
<tr>
<td>STEP 3</td>
<td>Supply Chain Workshop for Process Owners</td>
</tr>
<tr>
<td>PLAN</td>
<td></td>
</tr>
<tr>
<td>STEP 4</td>
<td>Value Stream Mapping in Supply Chain Loops</td>
</tr>
<tr>
<td>DO</td>
<td></td>
</tr>
<tr>
<td>STEP 5</td>
<td>Supply Chain Process Owner Improvement Plan</td>
</tr>
<tr>
<td>DO</td>
<td></td>
</tr>
<tr>
<td>STEP 6</td>
<td>Agreed Supply Chain Improvement Plan</td>
</tr>
<tr>
<td>CHECK</td>
<td></td>
</tr>
<tr>
<td>STEP 7</td>
<td>Improvement Programme &amp; Ongoing Reviews</td>
</tr>
<tr>
<td>ACT</td>
<td></td>
</tr>
</tbody>
</table>
### Figure 5: The Perfect Pineapple Supply Chain Plan

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Retailer</th>
<th>JDI</th>
<th>JDI</th>
<th>JDI</th>
<th>JDI</th>
<th>JDI</th>
<th>JDI</th>
<th>JDI</th>
<th>JDI</th>
<th>JDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forecast Accuracy</td>
<td>ST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Enabling EDI - Receipting</td>
<td>MT/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tin Coating</td>
<td>ST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Can guage project (all products)</td>
<td>MT/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reducing premium paid for casual labour</td>
<td>ST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Remove night shift requirement / asset utilisation</td>
<td>ST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reducing variance in price base</td>
<td>ST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Increase sugar levels through quality based payment</td>
<td>ST</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>removed premature use of casual labour</td>
<td>LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce excessive use of seasonal staff</td>
<td>LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Algo consumer demand project 10 to 8 days SOH @ Retailers DCs</td>
<td>JDI</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Internal Integration</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Add shift work with supply modification / analysis</td>
<td>JDI</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce overhead costs from concentrate</td>
<td>JDI</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Internal Integration</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Review grower rationalisation</td>
<td>JDI</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Review grower rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce grower rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Grower Integration</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Change grower data management system (DBFS)</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Review grower rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Packaging Integration</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Five day carton inventory project</td>
<td>LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Electronic Receipting</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Integrate packing &amp; palletisation during canning project (all products)</td>
<td>LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Can guage project (all products)</td>
<td>MT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tin Coating</td>
<td>MT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>PLT - Product, Leadership &amp; Innovation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>EDI - Receipting</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Forecast Accuracy</td>
<td>LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Enablers</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Remove night shift requirement / asset utilisation</td>
<td>LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce overhead costs from concentrate</td>
<td>LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Remove SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduce SKU rationalisation</td>
<td>JDI/ LT</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Legend:**
- JDI = Up to 3 months
- ST = Up to 6 months
- MT = Up to 18 months
- LT = Up to 5 years
Figure 6: An Explanatory Model of the Perfect Pineapple Supply Chain Programme

<table>
<thead>
<tr>
<th>Trust</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

1. Goodwill Trust
   - Reduce Bounded Rationality
   - Increase Competence & Develop Common Identity

2. Competence Trust
   - Develop Learning Curve Effect
   - Withhold Power
   - Remove Opportunism
   - Develop Asset Specificity

3. Contractual Trust
   - Develop Learning Curve Effect
   - Withhold Power
   - Remove Opportunism
   - Develop Asset Specificity

---

Low

High

Low

High

Risk
Figure 7: Power Regimes within the Perfect Pineapple Supply Chain

All figures in Australian Dollars
A$1 = approx UK£0.4
Figure 8: Predicted Effectiveness of Integrated Supply Chain Management

Figure 9: Actual Effectiveness of Integrated Supply Chain Management
### Table 1: Involvement & Influences in the Perfect Pineapple Supply Chain Programme

<table>
<thead>
<tr>
<th></th>
<th>Power &amp; Dependency</th>
<th>Risk</th>
<th>Trust</th>
<th>Ownership &amp; Governance Structures</th>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retailer</strong></td>
<td>Power over Canner &amp; Outbound Transporter</td>
<td>Initially low</td>
<td>Initially low</td>
<td>Initially low</td>
<td>Initially low</td>
</tr>
<tr>
<td><strong>Outbound Transporter</strong></td>
<td>Interdependence with Canner</td>
<td>Initially low</td>
<td>Initially low</td>
<td>Initially low</td>
<td>Initially low</td>
</tr>
<tr>
<td><strong>Canner</strong></td>
<td>Power over packaging suppliers &amp; Inbound Transport</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High at each level</td>
</tr>
<tr>
<td><strong>Growers</strong></td>
<td>Strategically over Canner</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
</tr>
<tr>
<td><strong>Pallet Supplier</strong></td>
<td>Independence from Canner</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
</tr>
<tr>
<td><strong>Can Supplier</strong></td>
<td>Dependent on Canner</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
</tr>
<tr>
<td><strong>Carton Supplier</strong></td>
<td>Dependent on Canner</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
<td>Low at first as strategic discussion at too high a level to engage</td>
</tr>
</tbody>
</table>