AN EXPLORATORY APPROACH TO MANAGING A PORTFOLIO OF RELATIONSHIPS IN SUPPLY CHAINS IN AUSTRALIA

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ABSTRACT

Organisations need to look beyond their organisational boundaries to evaluate how resources can be utilised to create value and competitive advantages. Different inter-organisational relationships have emerged as important structures in supply chains. There is a need for firms in any supply chain to successfully manage a portfolio of different relationships from contractual arms-length relationships to fully integrated strategic alliances. Many researchers have investigated the nature and drivers of buyer-supplier relationships, stressing the importance of more cooperative and long-term relationships. Nevertheless, there is little empirical research conducted on the relationship between suppliers (i.e., single road freight supplier – integrated road freight supplier providing warehousing). The road transport sector is critical to every product supply chain. This pilot study uses survey data on twenty five road transport operators in Australia to examine how these operators manage the different relationships with their supply chain partners such as warehouse service providers; distribution centres; and other road freight operators. The preliminary findings show that although the literature supports the benefits of cooperation and collaboration throughout the supply chain, Australian road freight businesses are only slightly shifting from arm's length to closer relationships with the members of their supply chain. More unexpected results show that there is a severe power imbalance and lack of trust relative to the relationships between road freight operators and their supply chain partners

Keywords: inter-organisational relationships, supply chain, trucking industry, portfolio of relationships

INTRODUCTION

Freight is a vital activity for both the economy and business, as an efficient and effective transport system facilitates domestic and international trade, thereby increasing economic efficiency through gains of trade and specialisation [5]. In Australia, freight plays a significant role as products need to be moved across long distances because of the size of the country and the dispersion of its raw materials, production and consumption centres. Road freight transport has long dominated the Australian freight industry. The percentage of freight transported, by value, by road accounted for 80 % in 2002 followed by rail (13.5%) [55]. It is estimated that the

operations of road freight transport generates 2.8 % of Australian GDP which is as significant as agriculture, forestry and fishing (3.34 %), and mining (4.23 %) [3].

The Australian road freight transport industry is not homogenous; but, the industry approximates perfect competition because it has minimal entry barriers, a large number of firms [28], and its small independent truckers are mainly price takers [9]. Despite the rationalisation, the concentration of the industry is low: the sales of the top four firms account for only 15 % of market share [9]. Small firms with one or two trucks represent almost 65 % of the industry participants and account for nearly 12 % of the industry's operating income [41].

Asset utilisation is an issue, particularly for small firms, in the road freight industry as there has been an increase in trucks running empty since early 1990 [9]. The industry has been facing a fall in rates and an increase in costs that have led to a reduction in profits. In addition, owner/drivers have less understanding of the business model of their operation than larger trucking companies and logistics firms. The costs might not be effectively controlled by the owner/operators at the risk of their survival. This also means that the financial performance of medium sized and some larger firms is better than the small ones which gives the former stronger bargaining power in the supply chain.

In increasingly more complex and concentrated industries, such as freight transport, supply chain members realise that inter-firm relationships are strategically important [2] and that benefits can be obtained from long-term relationships. However, the decision about what type of inter-firm relationship benefits a specific supply chain scenario appears complex. This type of decision making process includes a good understanding of the effective management of a "portfolio of relationships" [23], which may become complex as the supply chain network grows and it also involves an understanding of the attributes that characterise each type of relationship. Existing prescriptive frameworks do not appear to explain the interrelatedness between the attributes companies experience when moving through the "portfolio of interorganisational relationships".

The Increasing Trend towards Supply Chain Integration

It is increasingly argued that, in today's dynamic market place, competitive advantage can be potentially gained through a continuously more complex and critical supply chain process [12]. Likewise, because companies can no longer possess all competencies themselves, strategic partnerships between members of the supply chain are becoming more and more essential. The management of the supply chain focuses on the integration of all business processes, across several organisations, which add value to the customer [19]. The idea of integrating the upstream and downstream parts of the chain seems to support the shift from contractual based short-term relationships to more long-term, closer relationships [18] [7], thereby creating efficiency and effectiveness throughout the supply chain.

As a company may belong to numerous supply chains, the management of many effective and efficient "portfolio of relationships", including cooperative and collaborative partnerships and alliances, will be required. Portfolios of relationships are the basic prerequisites for not only the integration process [32] but also to select the appropriate relationship to cope with a set of circumstances [4]. Supply chains have seen a growing emphasis on the justification for both short-term, non-cooperative relationships and long-term, cooperative relationships. Some authors

assert that these types of relationships are differentiated by the nature of the inputs they provide [44] [20] which leads to the strategic segmentation of supply chain partners. This means that organisations are increasingly considering a more contingent approach. The management of "portfolios of relationships" is often a process which needs to be established and managed but this is not yet well understood [27] as the drivers and levels for such arrangements are situational and vary from link to link [33]. Organisations such as small sized Australian road freight transport businesses, often lack strategic thinking [11] and the necessary relationship management capabilities; whereas large freight corporations are increasingly improving internal and external business relationship capabilities [22]. Additionally, they allocate their resources and time by selectively managing the full range of relationships across the supply chain.

Knowing which type of relationship best suits a freight business under certain conditions is a complex process but is only the starting point of active "portfolio of relationships" management. It is equally important to identify and allocate to each relationship type the attributes that characterise them and analyse to what extent they change from one type to another. This justifies the need for a framework that pulls together complementary theories, previous empirical research, and observations of business practice to better understand the attributes of the different inter-firm relationships and how they interrelate (see Table 1).

Inter-firm Relationships

There are different strategic reasons that force inter-organisational relationship formation, such as maximisation of a companies' ability to offer attractive services, efficiency increase, or costs rationalisation [30] [43]. For instance, distribution alliances between supermarkets, food chains and petrol retailers are becoming increasingly popular [57]. Fast-food vendors such as Hungry Jacks and McDonald depend on the opening of new locations to boost sales. Nevertheless, buying new sites and building new outlets is a long and costly process. As a consequence, a number of fast food chains now partner with petrol retailers to either set up small restaurants within established petrol stations or to construct new joint outlets [56]. These types of alliances enable the fast food chain to have access to new sites rapidly, and enable the petrol stations to offer a one-stop shopping experience. Firms pursue cooperative agreements in order to obtain fast access to new technologies or markets, to profit from scale economies in joint research and production, to access sources of knowledge outside the firm boundaries, to share risks, and to contract for complementary skills [43] [6] [24] [26].

RELATIONSHIP TYPES

Four types of inter-organisational relationships most commonly followed in practice and discussed in the literature are shown in Table 1. These types differ by the degree to which the participants: trust each other, power behaviour exists, risk and information is shared, long term relationships are pursued and conflicts are resolved [27]. The forms of relationship types included in Table 1 are not exhaustive. For example, consortia, joint ventures, and network structures, which are important, commonly used forms of inter-organisational relationships, are not included.

Arms-length Relationships

Arms-length relationships refer to inter-organisational linkages characterised by independence, focusing on strong price competition and contractual details, a short-term horizon, minimal commitment in terms of dedicated resources, lack of trust among the parties as well as little risk-sharing [48] [47]. Trust in arm's length relationships relies on the parties' adherence to clauses of a signed contract. This has been defined as contractual trust [48] [13].

Arms-length relationships involve limited information flows and an expectation of temporary links between the trading parties [25]. Studies have found that arms-length relationships between buyers and suppliers led to low responses to demand changes and, because parties see each other as rivals, this prevents them sharing information [39]. The literature suggests that arms-length relationships involve complex and elaborate legal contracts which are difficult to arrange, negotiate and implement, leading to higher transaction costs [48]. Complex contracts, due to the increase of asset specificity, tend to be more expensive than classical contracts because of the involvement of contingency clauses [36].

Table 1: Attributes of a Portfolio of Relationships

Type of Relationships	Trust	Longevity	Risk sharing	Interdependence	Information sharing	Power
Alliances	High	Long term	Greater sharing of resources, risk	High	Strategic	Low
Collaboration	High/Good Will trust	Long term	Sharing info, resources, vision	Stronger dependence	Strategic information	Moderated to Low
Cooperation	Moderated / Competence trust	Continued after the end of the contract	Moderated	Moderated	Operational – Tactical information	Moderated to High
Arms-Length / Contractual	Low/ Contractual trust	Duration of the contract	Little sharing of risk an info	Low	Minimum operational exchange	High

Cooperative Relationships

Many organisations are urged to seek cooperative arrangements with other organisations as a result of the pressures of fast changing technology, the competitive environment, widening of sourcing capability and company strategies [46]. The rationale behind these cooperative efforts is focused on arrangements to share resources, as well as the pursuit of other business goals through the redesign of processes and products [13]. Although information about a firm's processes may be shared in a cooperative effort, as a result of the non-exclusionary nature of the agreement [42], each firm works separately.

Cooperative efforts differ from arms-length relationships in that they rely on attributes such as a

higher level of trust, commitment, support from senior management and vision [37]. Cooperative efforts possess attributes such as joint problem-solving, exchange of information between organisations, credible commitment between the organisations, and joint adjustment to market place conditions [34]. The objective of cooperative effort is to shift from contractual arrangements to more trusting relationships [31]. This shift encourages the parties to rely upon each other and develop trust by taking a long term view of the relationships and dealing constructively with the possible conflicts that arise. Trust is essential for the good performance of any cooperative effort [1], it encourages organisations to openly exchange ideas, seek different courses of action, overcome problems and make commitment.

Collaborative Relationships

Collaboration appears to be close to the end of a continuum. [53] [23]. This type of relationship involves partners' interdependence, their eagerness to share goals and a vision and to combine activities and exchange resources such as technology and information [54] Information sharing between customers and suppliers is considered as the foundation of collaboration between supply chain partners and it alleviates many of the negative effects of arms length relationships. Information sharing allows not only the supply chain members next to customers to respond quickly to customer demands or problems but also enables better responsiveness from those suppliers who are not close to customers [45]. Information sharing, in collaborative structures, enhances the robustness between partners by enabling the partners to work in unison towards a shared vision [39].

Collaborative structures demand joint processes supported by a high degree of trust and commitment. Trust is indispensable in collaborative processes and can result in lower transaction costs, easier conflict resolution, or a lower need for formal contracting [16]. Collaborative linkages involve some risks, such as loss of information to a partner and becoming dependant on a partner [50]. Risk is also greater because each participant commits its resources but power can be unequal. Gain and risk sharing capabilities come from a willingness to set rewards and penalties across the firms involved.

Alliances

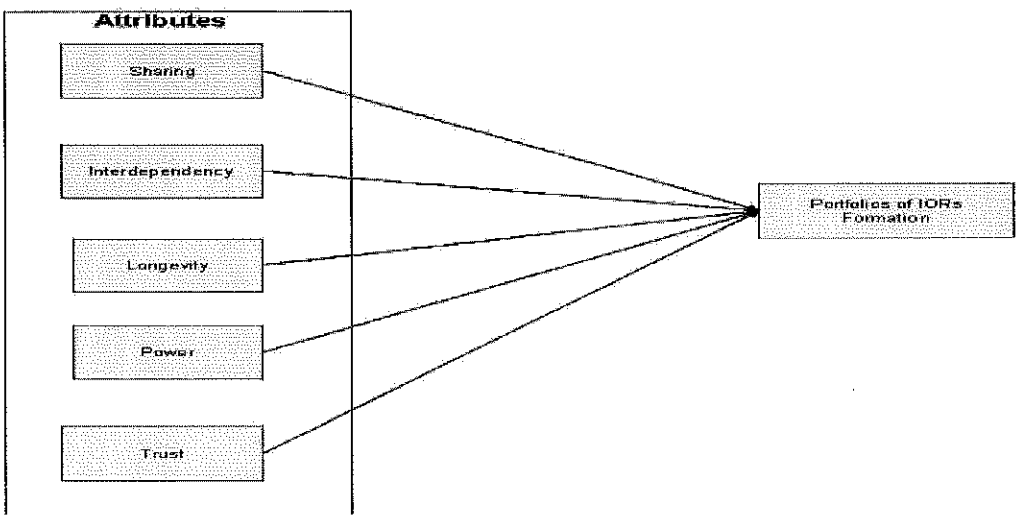
Alliances are broadly viewed as a particular mode of inter-firm relationship that establishes an exchange relationship but has no joint ownership involved or creation of a new entity [17]. Alliances are intended to be long-term, in which two or more partners share resources, knowledge and capabilities with the objective of enhancing the competitive position of each partner [52]. Such relationships can be effective ways to disseminate new technologies, to penetrate new markets, avoid government controls, or to quickly gain knowledge from an industry's leaders [35].

Alliances are differentiated from other inter-firm arrangements by several attributes. Commitment is seen as an attribute that several studies have found to be important in successful strategic alliances [15] [38]. This commitment is demonstrated through the eagerness to allocate resources to the strategic alliance's transactions as well as priority and support from the senior management. Another attribute that appears in successful strategic alliances is trust [51] [37]

which involves the willingness to commit to an exchange with a partner in whom confidence is shown and of whom reciprocity is unknown [10]. Trust can be considered as a pre-requisite for their initial creation, as a partner may be a competitor or be involved in alliances with an organisation's counterpart [29].

A model consisting of five constructs: Trust, Longevity, Power, Sharing, and Interdependency (see Figure 1) is proposed to explore the extent to which these variables interrelate and create a context that enables the formation of portfolios of relationships. The model was developed from the analysis of existing theory. It is not comprehensive but helps to identify some of the drivers for deciding on one or more inter-organisational relationship type. The framework of this study depicts that the formation of inter-organisational relationships is influenced by the five constructs. For example, trust is a variable that may specify each participant's involvement in terms of initial resources and capabilities commitment [14]. While important variables, such as trust may impact on the formation of portfolios of relationships, power is also expected to influence the participation in interorganisational partnerships. The literature on power has been applied to the marketing channel field and it has been found that power impacts the inter-organisational relationships in different ways. Depending on the sources of power: for instance coercive; legitimate; expert; referent [21] [49], commitment will decrease or increase [8]. Similarly, it has been found that there seems to be a positive relationship between trust and interdependence such that the higher the level of interdependence, the greater the chances of building trust and commitment [40]. This research project also attempts to specify whether the formation of inter-firm relationships is also impacted by sharing of risk, resources, costs and information. The convergent interviews with participants in the road freight transport industry prompted this study to identify four types of sharing in the industry: sharing information (three levels were differentiated; operational, tactical and strategic), sharing resources, sharing risk, and sharing cost.

Figure 1: Attributes of the Formation of Portfolios of Inter-Organisational Relationships



METHODOLOGY

Road freight transport industry was chosen as the research setting to examine interorganisational relationships. Australian road freight transport industry is a complex industry with owner drivers/small freight operators accounting for nearly two thirds of the total number of operating businesses, who are facing a critical financial situation due to intense competition and increasing concentration and an integration trend [9]. There were a number of stages to the research reported in this paper. The first pilot stage involved convergent interviews with nine freight organisations on which a questionnaire was based. The next stage of this ongoing research involves a mail survey targeting different freight business sizes involved in different types of relationships with the members of their supply chain. The data from the interviews and relevant information derived from the literature review informed the development of a questionnaire that focused on different attributes of inter-organisational relationships. A questionnaire was sent to 1000 road transport companies in Australia involved in different types of inter-firm relationships for which contact information could be found. The purpose of the questionnaire was primarily to gather data on issues relating to the nature of inter-firm relationships between Australian road freight businesses and their supply chain partners.

At the time of this report writing, the analysis was based on the 25 questionnaires returned. In most of the cases the responses came from heavy goods and chemical carriers, and the respondents were the Operations manager (18.3%) or higher CEO (25.8%), MD (33.5%). The findings were analysed using SPSS, and descriptive statistics used to report on the nature of road freight inter-firm relationships. This central research question for this paper is: What do Australian road freight businesses do when engaging in relationships with members of their supply chain? The results from this analysis are explained in the next part of the paper. The survey was administered to the road freight transport businesses.

The major limitation of this study is the sample size of 25 firms, which serves as an initial exploratory pilot study from which information can be drawn to conduct future research. The information gathered is still valuable because these initial results give an indication of what future research is likely to confirm.

RESULTS

The descriptive statistics shown in Table 2 indicate that Australian road freight businesses are to some extent in agreement on the role that trust plays in their inter-organisational relationships. Nevertheless, although these road freight organisations are wiling to discuss and solve small issues by making informal rules, written agreements dictate actions to be taken and consultation prevails on important business matters, thus not supporting the theory that trust as key ingredient for building long-term relationships [20] [4] [44]. Power, to a significant extent, seems to play a role in the inter-organisational relationships in the Australian road freight industry (see Table 2). Freight businesses regarded it as important to consult and follow the instructions of the supply chain partners if their projects are going to succeed. Additionally, because of their expert and reference power, supply chain partners of road freight organisations can dictate the way both strategic and operational decisions are made. This is suggesting that Australian road operators tend to participate in what some authors define as traditional supply chain relationships in which

there is continue price review, and no long-term commitment [20] [44]. It appears that road freight transport industries are acknowledging the importance of long-term agreements even though their supply chain partners do not recognise these business contributions and that short-term hurdle seem unlikely to be cleared (see Table 3).

Table 2: Trust and Power in Australian Road Transport Businesses Relationships

Trust in inter-organisational relationships	**Agree**	**Power in inter-organisational relationships**	**Important**
Our business dealings are subject to a set of rules and procedures stating how interfirm transactions should to be done	68.0%	If our business does not consult supply chain partners, they can penalize us.	56.0%
When rules and procedures exist, they are usually written agreements.	68.0%	Our business supply chain partners cannot harm our business if we do not do as they suggest	56.0%
If a rule and procedure does not cover some situations, our business and its supply chain partners make up informal rules	76.0%	Supply chain partners are a good source of information on which to base both strategic and operational decisions	64.0%
Our business consults its supply chain partners before it does almost anything in its business	56.0%	Our business supply chain partners can withhold services or information from us if we do not do as they ask.	48.0%
In our business, small matters do not have to be discussed with our supply chain partners for a final answer	68.0%	**Power in interorganisational relationships**	**Frequently**
		Supply chain partners are a good source of information on which to base both strategic and operational decisions	56.0%
		Our supply chain partners sometimes exaggerate their needs in order to get what they really need from us	52.0%

There are also some indications that the Australian road freight businesses do not have a significant degree of agreement in the aspects of switching costs and availability of alternatives which are measuring "interdependency" in this research (Table 3). The statistics show that while the survey respondents stated that team efforts and independent acts exist in the industry, there is concern about the high dependency on supply chain partners and the related switching cost. Although these findings are supporting what some authors defines as the criticality of interdependence of individual participants of the supply chain [20] [44], more data is needed to measure this variable consistently or to rule out some of the measures.

Table 3: Longevity and Interdependency in Australian Road Transport Businesses Relationships

Longevity of inter-organisational relationships	Agree / Disagree	Interdependency in inter-organisational relatioships	Agree
Our business expects its relationships with its supply chain partners to last a long time	84% (agree)	In the relationships with its supply chain partners, our business acts like a member of a team	72.0%
It is expected that renewal of agreements in our business's relationships will occur	80% (agree)	Our supply chain partners would find it difficult to recoup their investments in us if our relationship were to end	48.0%
Our business and its supply chain partners make plans not only for the terms of current agreements, but also for the continuance of the relationship	76% (agree)	In the relationships with its supply chain partners, our business acts strictly as an independent firm	60.0%
Although short term business concerns often get in the way, our business tries to maintain a long-term perspective of what it needs from its supply chain partners	84% (agree)	Our business is highly dependant on its supply chain partners	68.0%
Our business relationships with its supply chain partners is very unlikely to continue even if we were always contributing with lowest cost	52% (disagree)		
At the present time, agreements between our business and its supply chain partners are unlikely to be renewed	68% (disagree)		

The data collected for the road freight businesses (see Table 4) also shows that sharing information exists at the operational level and is considered significantly important. The sharing of information at the strategic level is regarded as important and increasingly used, whereas tactical information and lower levels of information are not considered important nor shared. This finding supports the theory that the acknowledgement of sharing information bridge firms limits [4] [20]. Moreover, road freight transport participants admit the necessity and importance of sharing resources. These organisations seem to be dedicating some resources and assets to support their supply chain partners. However, there is not yet a clear indication that the level of resource sharing is the same and that managerial practices are shared.

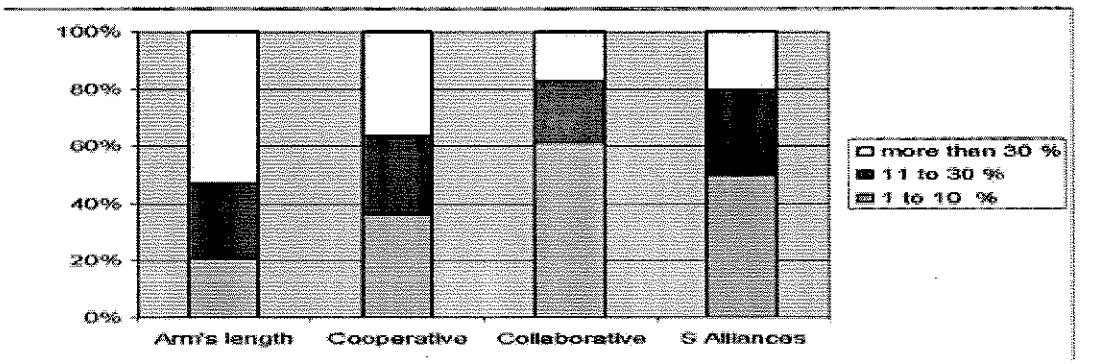
Table 4: Sharing in Australian Road Transport Businesses Relationships

Sharing in inter-organisational relationships					
Information	**Important / Unimport**	**Frequently / Never**	**Resources**	**Important/ Unimport**	**Frequently /Never**
We share valuable strategic information with our supply chain partners	44% (important)	52% (frequently)	Our business has the technical capability to help other businesses we work with to improve their processes and services	52% (important)	40% (frequently)
Our business receives newsletters, annual reports or other information from its supply chain partners	52 % (unimportant)	68% (never)	Our business does not get involved in how other businesses we work with manage their operations	44% (unimportant)	56% (never)
We share tactical information such as sales data with our supply chain partners	44% (unimportant)	60% (never)	Our business dedicates assets that help supply chain partners to improve their service	52% (important)	60% (frequently)
We share operational information such as scheduling, cargo arrival and billing with our supply chain partners	68% (important)	68% (frequently)	Our business expects its supply chain partners to commit resources to help us to improve service delivery	52% (important)	32% (frequently)
Our supply chain partners keep us informed of new developments	60% (important)	36% (never)	Our business shares, or provides resources such as personnel or equipment, to its supply chain partners	44% (unimportant)	56% (frequently)
Our supply chain partners hesitate to give us information	52% (important)	44% (never)	Our business and its supply chain partners do not give the same level of resources to the relationship	56% (important)	36% (frequently)

These results are consistent with what the participants stated in regards to interdependence as sharing resources being one of the implications of the interdependence. In addition, the preliminary findings suggest that the participants in the Australian road freight transport industry do not regard capacity sharing as important which is reflected in the lack of sharing of their fleet, and some other logistics facilities.

Finally, Australian road freight transport businesses are most likely to work with their suppliers under contractual agreements and at arm's length (Figure 2). Nevertheless, the businesses in the freight industry are increasingly engaging in cooperative relationships and strategic alliances. In addition, it can be seen form the chart that road freight transport businesses have not been cooperating, collaborating or entering into alliances for more that 10 years. This indicates that there is a slight shift to more long-term agreements.

Figure 2: Percentage of Road Freight Business Relationships that belongs to each Relationship Type



DISCUSSION AND CONCLUSION

This exploratory study demonstrates some of the issues involved in Australian road freight transport relationships and highlights what is not known about their relationship attributes. Some conclusions can be drawn from this study. It is apparent from these findings that although the literature supports the benefits of cooperation and collaboration throughout the supply chain [52] [35] [46] [20] [39], the results suggest that Australian road freight businesses are only slightly shifting from arm's length to closer relationships with the members of their supply chain. Furthermore, our literature review suggests that the management of relationships encompasses the development and maintenance portfolios of relationships with different attributes [12] [4] [33]. However, it appears that road freight businesses tend to be adversarial players and are still sceptical about the benefits of closer relationships. This could be an indication that the road freight transport businesses and their supply chain partners consider less constructively the benefits gained and are more likely to highlight the risks associated with: sensitive dependence on each other; not following written contracts; sharing strategic information.

Based on the literature review of inter-organisational relationships, the success of long-term relationships efforts such as cooperation and collaboration involves that supply chain partners views the other as essential to the extent that it implies dependency between the parties [53]. Nevertheless, one can infer also that participants in the Australian road freight transport industry consider the gains resulted from long-term relationships and are more easily influenced by more traditional contractual relationships which would ensure their acting as independent firms. Trucking companies consistently view their supply chain partners as the party standing in a stronger negotiating position that would dictate the rules of the freight transport game. Furthermore, the road freight firms seem to understand the importance of sharing information in the supply chain and the need to share resources to maximise asset utilisation. It is noticeable that trucking businesses are not viewed by their supply chain partners as substitutable. However, the trucking businesses do not yet appreciate the strategic importance of leveraging the skills and capabilities of their supply chain partners.

Aggravating this lack of strategic thinking on the part of road freight business is the finding that there is no trust in the road freight transport industry. Although some differences are expected, the lack of trust and power behaviour relative to the relationships between road freight organisations and their supply chain partners is quite severe. This suggests that it is not surprising that more long-term relationships such as cooperation and collaboration are not easy to implement as balancing their benefits is a challenging task [44]. Thus, the challenge becomes one of creating a common view in which both sides can manage risk such that greater trust and lesser power will be needed to ensure goals are attained.

These initial findings suggest that shifting from arm's length to cooperative and to collaborative partnerships is a long process and should not be made by every road freight business until they are critically needed and their attributes are understood. Also alliances, collaborative, cooperative and arm's length relationships are not similar; require different levels of trust, power, sharing and dependency; and, often lead to different outcomes. In summary, this research project indicates that Australian road transport businesses and their supply chain members do not trust each other and power behaviour exists. If this is true, opportunities have been lost and many challenges remain. A number of road freight organisations are sacrificing cost containment, revenue improvement, maximisation of asset utilisation, and customer satisfaction because they are unable to work effectively across the firms that comprise their supply chains.

As this is a pilot study, further research is necessary before any confirmed findings can offer managerial implications. The exploratory nature of this pilot study has indicated some very interesting trends and preliminary results. From this study on the Australian road freight transport industry, it appears that very few Australian companies collaborate with their supply chain partners based on more trustable, less power imbalanced and less dependent relationships. These interesting results suggest future scope of investigating why this is the case. Further research could also be conducted into how attributes such as trust, power, longevity, sharing, and interdependency influence the formation of portfolios of relationships.

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