Component Integration as a Mediating Variable
In a Model of the Logistics Partnering Process:
A Mexican Study

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Abstract

The objective of this study is to develop and test a model of the logistics partnering process that hypothesises a mediating effect for component integration, between partner behavioural constructs and partnership quality. The findings are based on a sample of 43 international logistics partnerships operating in Mexico.

Introduction

In the management and marketing channels literature research relating to business partnerships is extensive (Das and Teng 1998; Parkhe 1993; Saxton 1997; Anderson and Narus 1990; Smith and Barclay 1997; Hamel 1991; Kanter 1994). Much of this work has focused on the extent to which behavioural characteristics of partnering businesses (including levels of trust and commitment) and external environmental factors (including economic and political factors) influence critical partnership outcomes.

Examination of the supply chain management literature reveals a different but related body of interest in the characteristics of business partnerships, namely the extent to which intra and inter company integration of logistics and related business processes (called logistics partnership component integration) influences partnership outcomes (Lambert, Emmelhainz and Gardner 1996; Cooper and Gardner 1993; Tate 1996; Gattorna 1991; Bowersox 1997; Hewitt 1994; Hakansson and Snehota 1995).

The aim of this study was to combine these two streams of research, and in doing so construct an integrated model of the logistics partnering process that expressed the interrelationships between behavioural characteristics and component integration dimensions and their impact on the quality of the partnerships.

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The general hypothesis is that component integration mediates the relationship between behavioural constructs and partnership quality.

The research aims to contribute to our understanding of the interrelationship between these constructs.

A Model of the Logistics Partnering Process: Theoretical Relationships

Figure 1 identifies the general relationship between partnership behavioural characteristics, component integration and partnership quality. In particular the framework illustrates how the seven dimensions of component integration (customer relationship management, customer service management, demand management, order fulfilment, manufacturing flow management, procurement and product development and commercialisation) influence the quality of the partnership. Moreover, it is expected that the relationship between component integration and partnership quality is moderated by external environmental factors (including political, social, economic and trade factors). Finally the influence of partner behavioural characteristics on component integration is recognised. The term partner behavioural characteristics is used as a general description of the five antecedents to component integration The five antecedents are open communications, mutual commitment, fairness, flexibility and trust.

Insert Figure 1 here

Component Integration and the Quality of the Partnership.

In this study, *Quality of the Partnership* is defined as the quality of the partnership's marketing strategy.

The goal of any marketing strategy is to effectively and efficiently allocate and coordinate resources to achieve strategic objectives, such as superior market performance (Jaworski and Kohli 2000).

A supply chain has been defined by Christopher (1992) as a network of organisations that are involved, through upstream and downstream linkages, in the different processes that produce value in the form of products and services when delivered into the hands of the ultimate consumer. The supply chain that best succeeds in reducing uncertainty and variability is likely to be most successful in improving its competitive position (Mason-Jones and Towill 1998).

Logistics partnerships built on supply chain management (SCM) methodologies are known to deliver a number of benefits, including: a reduction in lead-times; improved customer service; supply chain synergies; minimum total supply chain costs and improved quality (Bowersox and Closs 1996; Christopher 1992).

Hewitt (1994) provides a comprehensive list of logistics and related business processes that represent the domain of SCM component integration. These are customer relationship management, customer service management, demand management, order fulfilment, manufacturing flow management, procurement, product development and commercialisation.

Customer Relationship Management (CRM) calls for retailers to organise their businesses around their customers and to allow them to interface and interact with the company at whatever touchpoints are most convenient (Reda 2000). By keeping track of these interactions companies can change their behaviour and tailor products to meet the individual needs of customers (Kindgsman, Hendry, Mercer and de Souza 1994). Such actions by companies help build client loyalty and greater client loyalty means higher profit margins (Gattorna 1991).

Customer Service Management (CSM) relates to those activities that occur at the interface between the customer and the corporation which enhance or facilitate the sale and use of the corporation's products or services (LaLondee and Zinszer 1976). More recently Lancioni and Kyj (1989) note that services provided by a logistics system are inseparable from the tangible product itself, that such services cannot be spread out over time but must be provided when demanded, and that they vary as a function of the service personnel and the nature of the delivery system. Customer service is an output of the logistics function and the key to integrating marketing and logistics. It is a measure of the effectiveness of the logistics system in creating time and place utilities for a product. For many firms customer service may be the best method of gaining a competitive advantage (Lambert 1992).

Demand Management (DM) is a function of the extent to which a company bargains with a customer over price and promised due date. Bargaining finishes either with an agreed price and delivery date or with the customer declining the company's best terms and placing the order elsewhere. The company's objective is to maximise its long-term revenue and it is the associated demand management negotiation strategy that guides this bidding process (Moodie 1999). Veermani et al (1995) consider that a competitive advantage resides in a company's ability to rapidly and accurately generate quotations and that this highlights the need for capable demand management methodologies, based on on-line information processing.

Order Fulfilment (OF) refers to the point in the purchasing process where the users' initial needs are satisfied through the actions of a supplier (Novach 1989). It is generally considered to be the last stage in the order cycle. The order cycle represents all those activities that take place during the time that elapses between when a need is identified in an organisation and when that need is satisfied. The cycle can be measured from a temporal perspective in order to determine the effectiveness of a firm's supplier base management programme, i.e., to ascertain the effectiveness of a firm's suppliers in meeting user requirements in a timely and cost efficient manner. Additionally, current capabilities in respect of order fulfilment are crucial to ensuring successful outcomes for third parties (Kindgsman el al 1994). Order fulfilment provides for timely and accurate delivery of customer orders with the objective of exceeding customer need dates (Akacum and Dale 1995).

Manufacturing Flow Management (MFM) combines the premise of demand-driven production and synchronised material consumption with techniques such as just-in-time (JIT) and continuous flow manufacturing (Weil 1999). Flow management takes a comprehensive look at the production process, including line layout, materials, suppliers, process improvements, built-in quality checks and staffing resources (Prestipino 1998). While traditional manufacturing processes "push" materials into the production line, causing inventory and finished products to build-up until demand absorbs them, flow manufacturing "pulls" materials through the required processes as they are needed. This means that products are manufactured according to actual orders rather than to projections. Flow manufacturing techniques have dramatically reduced the number of steps required to build products and deliver low-cost, low-risk, manufacturing processes that allow companies to achieve the right mix of products (Bowersox 1990).

Procurement (P) refers to the function of purchasing inputs used in the firm's value chain, not to the purchased inputs themselves (Porter 1985). A given procurement activity can normally be associated with a specific value activity or set of activities, which it supports. The cost of procurement activities themselves usually represents a small portion of total costs, but often these activities have a considerable impact on a firm's overall costs and opportunity for cost differentiation. Improved purchasing practices can strongly affect the cost and quality of purchased inputs, as well as of other activities associated with receiving and using these inputs and interacting with suppliers. In addition, Speckman (1988) reports that increasing the involvement of carriers within existing buyer-supplier partnerships may allow both partners additional opportunities for cost savings, service improvements and increased equipment and labour utilisation.

Product Development and Commercialisation (PDC). In the last decade increased attention has been directed towards product development as a way for firms to build and strengthen competitive advantage. In the management literature a number of authors have stressed the need for firms to fit their product development strategies to the opportunities and demands of an increasingly turbulent marketplace (Abernathy, Clark and Kandtrow 1983; Clark and Fujimoto 1990). Other authors have suggested that product development is a driver of corporate renewal (Bowen, Clark, Holloway and Wheelwright 1994).

Wheelwright and Clark (1992) add that there are no shortcuts to effective development performance, and capabilities required to move quickly and efficiently to meet a market are, typically, deeply embedded within an organisation. The corollary is that an organisation with a deeply rooted commitment to product development and commercialisation possesses a significant competitive advantage.

In certain industries the main form of competition consists of improving product performance in order to obtain technical superiority (Foster 1985; Freeman 1982). Additionally, numerous studies have shown that companies that create superior products, through product innovation and development, enjoy commercial success (Cooper 1993; Link 1987).

The particular focus of this study is on the linkages between component integration and their influence on the quality of the partnership. Linkages are relationships between the way one value activity is performed and the cost or performance of another. Linkages can lead to competitive advantage in either of two ways: optimisation or co-ordination. They often reflect trade-offs among activities in order to achieve the desired outcome. Typically, a firm must optomise such linkages in order to reflect best its strategy for achieving competitive advantage.

From the aforementioned review of the literature relating to the logistics and business processes that represent the domain of component integration it is argued that these seven processes, if properly managed (and integrated) within a partnership, can lead to superior market performance and thus improve the quality of such partnerships. More specifically, it is hypothesised that:

H1: The greater the level of SCM component integration, the higher the quality of the partnership.

External Environment

Busch and Houston (1985) define environmental influences as those factors that affect what a company does, but over which it has little or no control. In a business setting, firms are constantly influenced by their environments and are constantly adapting their operations and plans to minimise adverse impacts and maximise opportunities presented by their environments.

International logistics partnerships operate within unique cultural environments (Treece, Miller and Melcher 1992; Rinehart 1992). Within these unique cultural settings relationships are moderated by a number of environmental factors, including prevailing regulatory and political structures and climates established by the respective partnering firms' governments and the nature and extent of competition in each of the partnering firms' marketplaces.

Regulatory frameworks and political factors are known to moderate partnership negotiations, through the influence of, for example, prevailing antitrust regulations, employment policies and macroeconomic policies. In addition to policy development, governments themselves are also often channel customers and as such place constraints on supply contracts to ensure that the parties give effect to a wide range of established regulatory and political initiatives (e.g., minority hiring practices for local firms, or regional development priorities) (Cross 1969). Competition in the form of industry concentration and market control also moderates partnership negotiations by influencing the intensity of decisions relating to required levels of interdependence (Robinson 1992).

In an international setting, the influence of governments on partnership negotiations is much greater than for a domestic setting (Coyle, Bardi and Langley 1988). Trade policy is an obvious example of where this is so, including areas such as tariffs, counter trade and free trade agreements.

The external environment provides the backdrop against which international logistics partnering firms negotiate the shape and form of their relationships. In certain settings, partnering firms may feel able to manage the salient features of their environments directly, and in a way that provides them with a measure of control that they would otherwise lack. In such cases it is argued that these firms are better able to negotiate more resilient and comprehensive partnership relations, which in turn will be reflected in higher levels of component integration. In other settings, partnering firms may feel unable to manage the salient features of their external environments in an active sense and as a consequence would feel less able to control their affect on their partnership activities. In such cases it is likely that partnering firms will negotiate a relationship of a form that limits the extent to which component integration is possible. Hence it is hypothesised that:

H2:   The greater the level of management of factors in the external environment, the stronger the relationship between component integration and partnership quality.

Behavioural Characteristics

Open Communications (OC). High performance partnerships are often characterised by constructive communications and regular information exchanges in dealing with day-to-day managerial and operational issues (Lin and Germain 1998). Partnerships are collaborative ventures and thus collaborative communication is pivotal in facilitating the relationship between two companies, and then avoiding or ameliorating misunderstandings between them (Anderson, Lodish and Weitz 1987; Mohr and Nevin 1990; Mohr and Sohi 1995). Open communication is open problem solving, involving mutual exchange and interaction between partners (Mohr and Nevin 1990; Mohr and Sohi 1995). Hart and Sanders (1997, p. 34) have emphasised the importance of sharing information with partners, which leads to "information symmetry rather than information asymmetry". When information is openly exchanged, partners tend to make internal attributions of positive outcomes, and as a consequence a positive attitude toward the interaction process is likely to develop (Lin and Germain 1998).

A pattern of open communication and interaction leads to greater knowledge and understanding of the other partner, the latter as a result of a more open sharing of information (Madhok 1995). Open communication between partners allows them to strive to better balance their needs and concerns (Ganesan 1994). Greater interaction through open communication results in clear and mutual expectations and enables more efficient co-ordination (Madhok 1995; Schaan 1988). Based on the above, the following hypothesis is proposed:

H3:   The greater the level of open communication, the higher the degree of component integration.

Mutual Commitment (MC) is a critical issue in partnership relationships (Madhok 1995). Commitment implies a willingness to make short-term sacrifices to realise longer-term benefits (Dwyer, Schurr and Oh 1987) and to extend effort and resources for the

continuation of the relationship (Moorman, Zaltman, and Deshpande 1992). Morgan and Hunt (1994) draw on the conceptualisations of commitment in social exchange (Cook and Emerson 1978), marriage (Thompson and Spanier 1983), and organisations (Meyer and Allen 1984) to define relationship commitment as a belief that "an ongoing relationship with another [partner] is so important as to warrant maximum efforts at maintaining it; that is, the committed party believes the relationship is worth working on to ensure that it endures indefinitely."

Within partnership relationships there is considerable scope for the development of mismatches in commitment between partners (Anderson and Weitz 1989). A mismatch of commitments may occur naturally, for example, by normal evolution of exchanges, or as a result of strategic initiatives - that is by one partner attempting to gain a comparative advantage (Inkpen and Beamish 1997).

Partners in a relationship are more likely to engage in constructive conflict resolution when they are equally committed. If there is an imbalance in commitment then the less committed partner has little incentive to engage in joint problem solving (Menon, Bharadwaj and Howell 1996). With an equal commitment to the partnership, partners share mutual goals and values, leading them to work together more closely in order to achieve both their individual goals and their joint goals (Anderson and Weitz 1989). Thus, the more committed partners are to the relationship, the greater the chance they have of achieving their individual and mutual goals and of avoiding the attendant problems associated with commitment asymmetry.

Asymmetric commitments can result in conflict and lead to the eventual decline of the relationship (Gundlach, Achrol, and Mentzer 1995). Conflict could arise as a consequence of the less committed partner attempting to act opportunistically, thereby reducing the likelihood of future commitment and therefore long-term exchanges. Hence it is hypothesised that:

H4:   The greater the level of mutual commitment between partners, the higher the degree of component integration.

Fairness (FR) implies reciprocal behaviour in respect of the need to give and take during the ups and downs of the business cycle (Johnston and Lawrence 1988).

According to Cooper and Gardner (1993), a long-term logistics partnership shares benefits and burdens that must be shared fairly. For example, in the case where partners are committed to driving down costs and removing inefficiencies, they should proceed in a manner that is fair and reasonable and not at the expense of the other partner (Tate 1996).

In order to ensure the success of a partnership, partners will seek to strike a balance between their individual desires to exert their own will on the relationship and the need to maintain harmonious relations (Schaan 1988). The greater the degree of perceived fairness in the relationship the less likely it is that one party will attempt to enforce their will on the partnership, without the consent of the other partner (Coos 1977). Therefore, fairness is sought by the partners as the means of ensuring that neither has the incentive to exploit the

other. Fairness, then, is seen as creating an environment conducive to cooperation. It is argued that the greater the level of perceived fairness in a partnership the more likely it is that partners will express themselves freely, and thus the more likely it is that they will engage in a constructive challenge of ideas that has the potential for creating further opportunities for cooperation, through component integration (c.f., Bucklin and Sengupta 1993). Hence, it is hypothesised that:

H5:   The greater the perceived fairness within the partnership, the higher the degree of component integration.

Flexibility (FX) is an essential ingredient in a logistics partnership (Ludvigsen and Dodd 1998). Customers' needs and the marketplace are in a constant state of flux, and both logistics partners must work together to respond to those needs. To prosper in the competitive marketplace, partners must get immediate decisions and quick response to their questions and requests.

David Ladipo (1995), examines the pressures for flexibility which are seen as coming from: (1) customers, who demand ever lower costs and immediate delivery; (2) competitors, who are striving to satisfy these same customer demands; and (3) dominant stakeholders, defined as being either private shareholders (in the private sector) wanting higher profits, or government agencies squeezing budgets and demanding better value for money in service delivery (in the public sector).

These forces put pressure on an organisation for the delivery of more time-efficient services (just-in-time production), which in turn puts more pressure on its workforce. In response to these pressures organisations will seek to ensure flexibility in respect of key aspects of their operations, namely (1) numerical flexibility; (2) temporal flexibility; (3) functional flexibility; and (4) location flexibility It is argued, then, that a rational response to meeting these pressures is for partnering organisations to increase the degree of integration of core logistics and business processes - or more simply, to seek higher levels of component integration. Hence it is hypothesised that:

H6:   The greater the level of flexibility of the partnership, the higher the degree of component integration.

Trust (TT). Sherman (1992, p. 78) concluded that "the biggest stumbling block to the success of alliances is the lack of trust." Trust is dynamic in nature and changes over the life of a partnership (Madhok 1995). It is both input into and output of a relationship and infuses a partnership relationship with value (c.f., Moorman, Deshpandle, and Zaltman 1993).

Morgan and Hunt (1994, p. 23) conceptualise trust as existing when "one party has confidence in an exchange partner's reliability and integrity." The academic literature highlights the importance of confidence within a relationship. Indeed, confidence is considered pivotal to trust formation (Moorman, Deshpande, and Zaltman 1993; Morgan and Hunt 1994).

Since partnerships come with more alliance specific investment, a higher level of inter-firm embeddedness, and more possibilities of opportunistic transfer, a high level of confidence in partner co-operation is essential (Das and Teng 1998). Thus, in a partnership trust is especially valuable, as firms have to rely on their partners' performance and, in turn, remain vulnerable themselves to their partners' actions. Trust literature suggests that the parties must be vulnerable to some extent for trust to become operational (see Moorman, Deshpande, and Zaltman 1993; Morgan and Hunt 1994). Without vulnerability, trust would be unnecessary because outcomes would be inconsequential to the respective partners (Moorman, Deshpande, and Zaltman 1993).

Trust conveys a long-term intent and creates reciprocal obligations (Madhok 1995). Such reciprocal obligations encourage flexibility within the relationship and the use of consultative give and take in respect of the integration of logistics and related business processes (Madhok 1995; Wilkins and Ouchi 1983). Trust reduces friction and is "the behavioural lubricant that can improve a system's operating efficiencies" (Parkhe 1993).

Trust cements the partnership relationship and provides an opportunity to make the relationship more resilient and consequently durable (Madhok 1995). Resiliency and durability, it is argued, provide a basis for sustaining and developing a partnership, which could reasonably lead to further opportunities for integration of core logistics and related business processes. Accordingly, it is hypothesised that:

H7:   The greater the level of trust between partners, the higher the degree of component integration

Method

Research Setting

The setting for the study was a group of Mexican companies involved in logistics partnerships with foreign partners.

Sample and Data Collection

The sampling frame comprised a directory of international partnerships, maintained by the Mexican Ministry of Commerce and Industry. This provided a list of a 935 international partnerships, spanning 23 business sectors. Examination of this list showed Mexican companies to be operating in Mexico, with partners from many parts of the world, including Colombia, France, Germany, Italy, New Zealand, Spain, and United States of America. For the sake of convenience, only companies based in Mexico City were considered. A sample of 150 International Logistics Partnerships was selected from the sampling frame.

The study was conducted by a self-administered questionnaire.

Of the 150 questionnaires mailed a total of 43 usable responses were received, representing an overall response rate of 28.6%. This rate is considered satisfactory, given that studies involving senior management achieve response rates of around 20 percent (c.f. Powell 1992; Tootelian and Gaedeke 1987).

While the sample is small it comprises a variety of different types of businesses and partner nationalities, thus reflecting a reasonable degree of heterogeneity (Ding 1997). Specifically, there were seven different combinations of partner nationalities: Colombia (3%), France (8.3%), Germany (26.5%), Italy (11.8), New Zealand (4.7%), Spain (13.4%) and the United Stated of America (32.3%).

No response bias was evident from an analysis of early and late responses (Armstrong and Overton 1977).

Measure Development and Validation

A paucity of space precludes a detailed explication of the issues relating to measure development and scale refinement. However, Table 1 provides a summary of model constructs, reference to the literature sources used to obtain their respective measures and the outcome of the scale purification process used to assess construct reliability and unidimensionality.

Reliability of the multi-item scales was assessed using Cronbach's alpha (1951). Unidimensionality was assessed using factor analysis, employing principal components analysis as the extraction method.

As can be seen from Table 1, reliability coefficients for the study constructs exceeded the minimum level recommended by Cronbach (1951) of 0.5, except for *External Environment* (0.4372) and *Trust* (0.4622). Menon (1996) suggests, however, that values between 0.42 and 0.49 are minimally acceptable and as such the alpha coefficients for these two scales are regarded as adequate. It is accepted, however, that all of the reliability coefficients fall below the level of 0.7 recommended by Nunnally (1978).

Insert Table 1 here

Hypothesis Testing

Table 2 below shows a summary of the correlation results.

Insert Table 2 here

The results of a multiple regression of component integration (independent variable) and quality of the partnership (dependent variable) are shown in Table 3 below.

Insert Table 3 here

Table 4 is a multiple regression of the antecedents of component integration (dependent variable). The antecedents are hypotheses 3 to 7 (independent variables). All variables were entered simultaneously into the regression equation.

Insert Table 4 here

Summary of Results

A summary of findings, including those set out in Tables 1– 4, is as follows:

H1:   The greater the level of SCM component integration, the higher the quality of the partnership.

 Not supported, either by partial correlation or linear regression.

H2:   The greater the level of management of factors in the external environment, the stronger the relationship between component integration and partnership quality.

Not supported by partial correlation analysis (r = -0.027, p = 0.431), or by moderated regression analysis. In respect of the latter, the change in the R squared value between the two regression specifications   (with and without the moderator variables) was not significant at the 0.1level ($r^2 = 0.083$, p = 0.355).

H3:   The greater the level of open communication, the higher the degree of component integration.

H4:   The greater the level of mutual commitment between partners, the higher the degree of component integration.

H5:   The greater the perceived fairness within the partnership, the higher the degree of component integration.

H6:   The greater the level of flexibility of the partnership, the higher the degree of component integration.

H7:   The greater the level of trust between partners, the higher the degree of component integration

H3 to H7 not supported, either by bivariate correlation analysis or by regression analysis.

Discussion and Contribution

Discussion

The model of the logistics partnering process presented here explicated a series of seven relationships between the principal construct (SCM component integration), its antecedents (behavioural characteristics) and its consequence (quality of the partnership). In the event support was found for none of these hypotheses, indicating that, in this case, the proposed model is not a good representation of the study data.

This may be so for a number of reasons. Firstly, it could be that the conceptualisation of the logistics partnering process is invalid, notwithstanding the fact that it was extracted from a synthesis of findings drawn from a comprehensive review of the relevant literature. Secondly, it might well be that the principal components of the conceptualisation have been identified correctly, but that the posited relationships have been wrongly specified. Thirdly, it is possible that both the conceptualisation and specification of the relationships between the constructs are correct, but that the study outcomes are the result of weak measures and a paucity of data.

It is the view of the writers that an appropriate way forward is to accept, initially, the third scenario.

Adopting this view, it is suggested that a replication of this study be undertaken, in a different international setting, and on a scale that is able to test the model much more comprehensively. Specifically, a goodly amount more response data are required. With this data at hand it should be possible to generate more reliable and robust estimates of the principal constructs. Additionally, it should also be possible to use a more powerful methodology for generating information about construct interrelationships – structural equation modelling is an obvious choice. Finally, the expanded dataset would provide the basis for more precise statistical testing of the study hypotheses.

Contribution

Notwithstanding the non-significant outcomes the model does, however, present a unique perspective on the international logistics partnering process, particularly as it relates to the relationships between supply chain management component integration, its antecedents and its consequence (quality of the partnership).

It is the view of the writers that this perspective on the international logistics partnering process is a valid one and worthy of further investigation. Presenting the model in this way provides others with the opportunity of testing the model, through replication. Again, in the writers' view, this constitutes a useful contribution to work in the area.

References

Abernathy, W J, Clark, K B and Kandtrow, A M (1983), Industrial Renaissance: Producing a Competitive Future for America, New York: Basic Books.

Akacum, A and Dale, B G (1995), "Supplier Partnering: Case Study Experiences", *International Journal of Purchasing and Materials Management*, 31 (1), 38-44.

Anderson, E and Weitz, B (1989), "Determinants of Continuity in Conventional Industrial Channel Dyads", Marketing Science, 8 (4), 310-323.

Anderson, E, Lodish, L M, Weitz, B A (1987), "The Impact of Financial Incentives and Aspects of the Channel Relationship on the Allocation of Resources", *Journal of Marketing Research*, 24 (1), 85-97.

Anderson, J C and Narus, J A (1990), "A Model of Distributor Firm and Manufacturer Firm Working Partnership", *Journal of Marketing*, 54 (January), 42-58.

Armstron, J S and Overton, T S (1977), "Estimating Nonresponse Bias in Mail Surveys", Journal of Marketing Research, 14 (August), 396-402.

Bowen, H K, Clark, K B, Holloway, C H and Wheelwright, S C (1994), "Development Projects: The Engine of Renewal", *Harvard Business Review*, Sept-Oct, 110-120.

Bowersox, D J (1990), "The Strategic Benefits of Logistics Alliances", *Harvard Business Review*, 90 (4), 36-45.

Bowersox, D J (1997), "Integrated Supply Chain Management: A Strategic Imperative", Annual Conference Proceedings, Chicago, Illinois: Council of Logistics Management, 181-189.

Bowersox, D J and Closs, D (1996), Logistical Management, International Edition, London: McGraw-Hill.

Bucklin, L P and Sengupta, S (1993), "Organising Successful Co-Marketing Alliances", *Journal of Marketing*, 57 (2), 32-46.

Busch, P S and Houston, M J (1985), Marketing, Irwin, Homewood, IL, 255.

Christopher, M (1992), Logistics and Supply Chain Management, London: FT Pitman Publishing.

Clark, K B and Fujimoto, T (1990), Product Development Performance, Cambridge MA: Harvard Business School Press.

Cook, K S and Emerson R M (1978), "Power, Equity and Commitment in Exchange Networks", *American Sociological Review*, 43, October, 721-739.

Cooper, R G (1993), Winning at new Products, 2nd ed., Reading, MA: Addison-Wesley.

Cooper, M C and Gardner, J T (1993), "Building Good Business Relationships – More than Just Partnering or Strategic Alliances", *International Journal of Physical Distribution and Logistics Management*, 23 (6), 14-26.

Cooper, M C and Gardner, J T (1994), "Partnerships: a natural evolution in logistics", *Journal of Business Logistics*, 15 (2), 121-144.

Coyle, J J, Bardi, E J and Langley, C J (1988), The Management of Business Logistics, 4th ed., West Publishing Company, St Paul, MN.

Cronbach, L J (1951), "Coefficient Alpha and the Internal Structure of Tests", Psychometrica, 16 (September), 297-334.

Cross, J (1969), The Economics of Bargaining, Basic Books, New York.

Das, T K and Bing-Sheng Teng (1998), "Between Trust and Control: Developing Confidence in Partner Cooperation in Alliances", *Academy of Management Review*, 23 (3), 491-592.

Dwyer, F R, Schurr, P H and Oh, S (1987), "Developing Buyer-Seller Relationships", Journal of Marketing, 51 (2), 11-27.

Foster, R N (1985), "Timing technological transitions", *Technology in Society*, 7 (3), 127-141.

Freeman, D (1982), The Economics of Industrial Innovation, Cambridge, MA: The MIT, Press.

Ganesan, S (1994), "Determinants of long-term orientation in buyer-seller relationships", *Journal of Marketing*, 58 (2), 1-19.

Gattorna, J L (1991), "Building Relationships in Distribution Channels", *International Journal of Physical Distribution and Logistics Management*, 21 (8), 36-39.

Gundlach, G T, Achrol, G T and Mentzer, J T (1995), "The structure of commitment in exchange", *Journal of Marketing*, 59 (1), 78-92.

Hakannson, H and Snehota, I (1995), Developing Relationships in Business Networks, London: Routledge.

Hamel, G (1991), "Competition for Competence and Inter-partner Learning within Strategic Alliances", *Strategic Management Journal*, 12, 83-103.

Hewitt, F (1994), "Supply Chain Redesign," *The International Journal of Logistics Management"*, 5 (2), 1-10.

Inkpen, A C and Beamish, P W (1997), "Knowledge, bargaining power, and the instability of international joint ventures", *The Academy of Management Review*, 22 (1), 177-202.

Jaworski, B, Kohli, A K and Sahay, A (2000), "Market-driven versus driving markets", Academy of Marketing Science, 28 (1), 45-54.

Johnston R and Lawrence, P R (1988), "Beyond Vertical Integration – the Rise of the Value-Adding Partnership", *Harvard Business Review*, 66 (4), 94-101.

Kanter, R M (1994), "Collaborative advantage: The art of alliances", *Harvard Business Review*, 72 (4), 96-108.

Kindgsman, B G, Hendry, L C, Mercer, A and de Souza, A (1994), "Responding to customer enquiries in make-to-order companies: problems and solutions", Department of Management Science Working Paper, Lancaster University, UK.

LaLondee, B J and Zinszer, P H (1976), Customer Service: Meaning and Measurement, National Council of Physical Distribution Management, Chicago, IL.

Lambert, D M, Emmelhainz, M A and Gardner, J T (1996), "Developing and Implementing Supply Chain Partners", *The International Journal of Logistics Management*, 7 (2), 1-18.

Lambert, D M (1992), "Developing a Customer-Focused Logistics Strategy", *International Journal of Physical Distribution and Logistics Management*, 22 (6), 12-16.

Lancioni, R and Kyj, M J (1989), "Is a Global Customer Service Policy Desirable?", *Asia Pacific International Journal of Business Logistics* , 2 (2), 10-13.

Lin, X, Germain, R (1998), "Sustaining satisfactory joint venture relationships: The role of conflict resolution strategy", *Journal of International Business Studies*, 29 (1), 179-196.

Link, P L (1987), "Keys to new product success and failure*", Industrial Marketing Management*, 16, 109-118.

Madhok, A (1995), "Revisiting multinational firms' tolerance for joint ventures", *Journal of International Business Studies*, 26 (1), 117-137.

Mason-Jones, R K and Towill, D R (1998), "Shrinking the Supply Chain Uncertainty Cycle", *The Control Journal of the Institute of Operations Management*, September.

Menon, A, Bharadwaj, S G and Howell, R (1996), "The Quality and Effectiveness of Marketing Strategy: Effects of Functional and Dysfunctional Conflict in Intraorganisational Relationships", *Journal of the Academy of Marketing Sciences*, 24 (4), 299-313.

Meyer, J P and Allen, N J (1984), "Testing the 'Side-Bet' Theory of Organisational Commitment: Some Methodological Considerations", *Journal of Applied Psychology*, 69 (3), 372-78.

Mohr, J and Nevin, J R (1990), "Communication Strategies in Marketing Channels: A Theoretical Perspective", *Journal of Marketing*, 54 (4), 36-51.

Mohr, J and Sohi, R S (1995), "Communication Flows on Distribution Channels: Impact on Assessments of Communication Quality and Satisfaction", *Journal of Retailing*, 71 (4), 393-416.

Moodie, D (1999), "Demand management: the evaluation of price and due date negotiation strategies using simulation", *Production and Operations Management,* 8 (2), 151-162.

Moorman, C, Zaltman, G and Deshpande, R (1992), "Relationships Between Providers and Users of Market Research", *Journal of Marketing Research*, 29 (3), 314 –328.

Morgan, R M and Hunt, S D (1994), "The commitment-trust theory of relationship marketing", *Journal of Marketing*, 58 (3), 20- 38.

Novach, R A (1989), "Quality and Control in Logistics: A Process Model", Monograph published by the *International Journal of Physical Distribution and Materials Management*, 19 (11).

Nunnally, J C (1978), Psychometric Theory, 2nd ed., New York: McGraw-Hill Book Company.

Parkhe, A (1993), "Partner Nationality and the Structure-Performance Relationship in Strategic Alliances", *Organisation Science*, 4, 301-314.

Porter, E Michael (1985), Competitive Advantage: Creating and Sustaining Superior Performance, The Free Press, New York, 33-61.

Powell, T C (1992), "Organisational Alignment as Competitive Advantage", *Strategic Management Journal*, 13 (February), 119-134.

Prestipino, F (1998), "Flow Manufacturing", *New Zealand Manufacturer*, December, 22-23.

Reda, S (2000), "Customer relationship management", *Stores*, New York, 82 (4), 33-36.

Rinehart, M L 1992), "Global Logistics Partnership Negotiations", International *Journal of Physical Distribution and Logistics Management*, 22 (1), 27-34.

Robinson, R (1992), Some New Competitive Factors in International Marketing, Pergamon Press, 39-57.

Saxton, T (1997), "The Effects of Partner and Relationship Characteristics on Alliance Outcomes", *Academy of Management Journal*, 40 (2), 443-461.

Schaan, J-L (1988), "How to Control a Joint Venture Even as a Minority Partner", *Journal of General Management*, 14 (1), 4-16.

Smith, J B and Barclay, D W (1997), "The effects of organisational differences and trust on the effectiveness of selling partner relationships", *Journal of Marketing*, 61 (1), 3-21.

Sherman, S (1992), "Are Strategic Alliances Working", *Fortune*, 126 (6), 77-78.

Speckman, R E (1988), "Strategic Supplier Selection: Understanding Long-Term Buyer Relationships", *Business Horizons*, July-August, 75-81.

Tate, K (1996), "The Elements of a Successful Logistics Partnership", *Journal of Physical Distribution and Logistics Management, 26 (3), 7-13.*

Thompson, L and Spanier, G B (1983), "The end of Marriage and Acceptance of Marital Termination", *Journal of Marriage and the Family*, 45 (February), 103-113.

Tootelian, D H and Gaedeke, R M (1987), "Fortune 500 List Revised 12 Years Later: Still an Endangered Species for Academic Research?", Journal of Business Research, 15 (August), 359-363.

Treece, J, Miller, K and Melcher, R (1992), "The Partners", *Business Week*, 10 February.

Veeramani, D, Bernard, J J, Chung, C H and Gupta, Y P (1995), "Computer-Integrated Manufacturing: A taxonomy of integration and research issues," *Production and Operations Management*, 4 (4), 360-380.

Weil, M (1999), "Flow pulls out the power", *Manufacturing Systems*, Wheaton, 17 (4), 73-78.

Wilkins, A L and Ouchi, W G (1883), "Efficient Cultures: Exploring the Relationship Between Culture and Organisational Performance", Administrative Science Quarterly, 28 (3), 468-481.

Wheelwright, S C and Clark, K B (1992), Revolutionising Product Development: Quantum Leaps in Speed Efficiency and Quality, New York: Free Press.
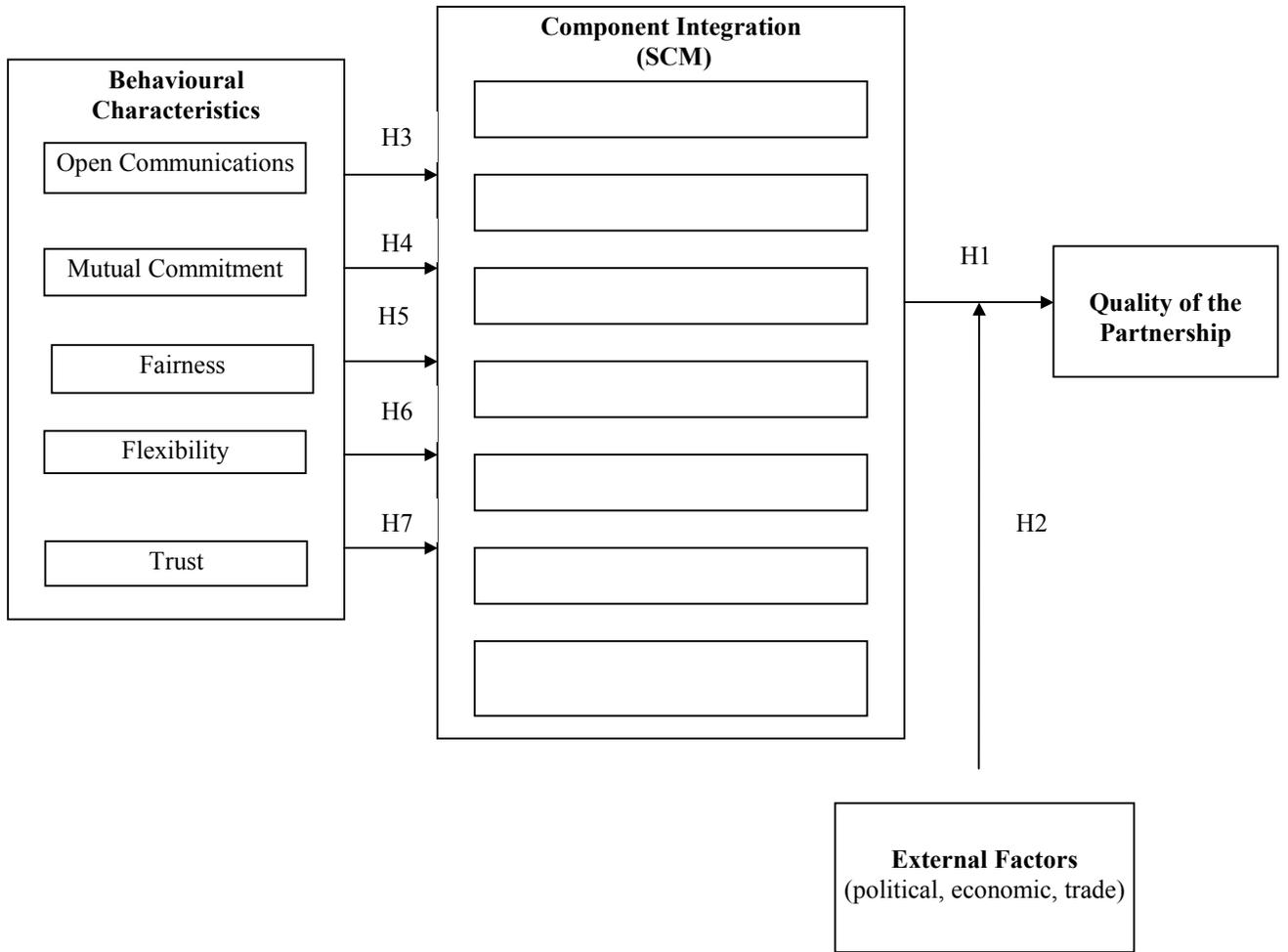
Component Integration
(SCM)

Behavioural
Characteristics

Open Communications

H3

Mutual Commitment

H4

H5

Fairness

H6

Flexibility

H7

Trust

H1

Quality of the
Partnership

H2

External Factors
(political, economic, trade)

Figure 1 – Model of the Logistics Partnering Process

Table 1 Summary of Model Constructs and Measurement Scales

Quality of the Partnership (α = 0.6459)	Adapted from (illustrative articles)
Quality of the Partnership (7 item, 7 point Likert scale)	Menon et al (1996); Bollen and Lennox (1991)
SCM Component Integration (α = 0.6175)	**Adapted from (illustrative articles)**
Customer Relationship Management (CRM) (2 item, 7 point Likert scale)	Mohr and Sohi (1995)
Customer Service Management (CSM) (2 item, 7 point Likert scale)	Saxe and Weitz (1982)
Demand Management (DM) (2 item, 7 point Likert scale)	Moodie (1999)
Order Fulfilment (OF) (2 item, 7 point Likert scale)	Novach (1981)
Manufacturing Flow Management (MFM) (1 item, 7 point Likert scale)	Saxe and Weitz (1982)
Procurement (P) (2 item, 7 point Likert scale)	Sager (1991)
Product Development and Commercialisation (PDC) (2 item, 7 point Likert scale)	Birou and Fawcet (1994)
External Factors (α = 0.4372)	**Adapted from (illustrative articles)**
External Factors (2 item, 7 point Likert scale)	Morgan and Hunt (1994)
Sub-components of Characteristics of the Partnership	**Adapted from (illustrative articles)**
Open Communications (OC) (10 item, 7 point Likert scale, α = 0.6258)	Mohr and Sohi (1995)
Mutual Commitment (MC) (9 item, 7 point Likert scale, α = 5983)	Morgan and Hunt (1994)
Fairness (FR) (3 item, 7 point Likert scale, α = 0.5785)	Sager (1991)
Flexibility (FX) (3 item, 7 point Likert scale, α = 0.5801)	Bollen and Lennox (1991)
Trust (TT) (2 item, 7 point Likert scale, α = 0.4622)	Morgan and Hunt (1994)

Table 2: Summary of Correlation Analysis

Hypothesis	Expected Direction of Relationship	Linear Association (r) *	Significance Value (p) **	Supported / Not Supported
H1: CI ⇒ QLPTS	+	- 0.010	0.475	NS
H2: EC ⇒ CI and QLPTS	+	- 0.058 - 0.282	0.355 0.033 0.475	NS
H3: OC ⇒ CI	+	0.190	0.111	NS
H4: MC ⇒ CI	+	0.176	0.129	NS
H5: FR ⇒ CI	+	-0.081	0.303	NS
H6: FX ⇒ CI	+	-0.104	0.253	NS
H7: TT ⇒ CI	+	0.143	0.180	NS

CI = component integration; QLPTS = quality of the partnership; OC = open communication;
MC = mutual commitment; FR = fairness; FX = flexibility; and TT = trust.
* Partial Correlation and Bivariate Pearson Product Moment Correlation used.
** Correlation is significant at the 0.10 level (1-tailed)

Table 3: Standardised Regression Coefficient for H1

Measures	Hypothesis	Expected Direction of Relationship	Standardised coefficient (β)	Significance (p)	Tolerance
Component Integration	H1	+	0.0238	0.475	0.949

Table 4: Standardised Regression Coefficients for Antecedents to Component Integration

Measures	Hypothesis	Expected Direction of Relationship	Standardised coefficient (β)	Significance (p)	Tolerance
Open Communication	H3	+	0.0229	0.111	0.216
Mutual Commitment	H4	+	0.0230	0.129	0.253
Fairness	H5	+	0.0236	0.303	0.601
Flexibility	H6	+	0.0235	0.253	0.500
Trust	H7	+	0.0233	0.180	0.354