

Towards a theory of supply chain alignment enablers: a systematic literature review

Chee Wong

Business School and Logistics Institute, University of Hull, Hull, UK

Heather Skipworth and Janet Godsell

Cranfield School of Management, Cranfield University, Cranfield, UK, and

Nemile Achimugu

Authentic Sourcing Knowledge Ltd, London, UK

Abstract

Purpose – The importance of supply chain alignment has been discussed since the birth of supply chain management (SCM). Yet it remains a major challenge for supply chains. This paper aims to systematically review the cross disciplinary literature on supply chain alignment in order to identify, and develop constructs for enablers to alignment, and an associated set of hypotheses.

Design/methodology/approach – A systematic approach has been taken to the literature review, which ensures it is auditable and repeatable. The selection criteria are clearly aligned with the review question ensuring all literature pertinent to the question is identified and reviewed. Relevant information is extracted from the selected papers and synthesised into a set of hypotheses.

Findings – Six main constructs for the enablers of alignment are identified and defined: organisational structure, internal relational behaviour, customer relational behaviour, top management support, information sharing and business performance measurement system. While the literature is disparate, across different disciplines there is good support for these enablers. The relationships between supply chain alignment and shareholder and customer value are also argued with the support of the literature. Although each of the enablers is argued to positively affect shareholder and customer value, their interactions with one another are not well supported in the literature, either theoretically or empirically, and therefore this could be an area for further research.

Research limitations/implications – While the hypotheses remain theoretical, it is now possible to test them and understand the relative significance of the various enablers to alignment.

Practical implications – The significance of shareholder and customer alignment on the delivery of shareholder and customer value can be examined, thus moving towards a theory of supply chain alignment. This is needed since in practice companies are struggling with supply chain alignment.

Originality/value – The existing literature on supply chain alignment is disparate and multi-disciplinary as this descriptive analysis shows, with 72 papers published in 43 different journals. Moreover, most of the papers focus on particular enablers, while this paper brings together six key enablers from the literature to produce a set of hypotheses.

Keywords Supply chain, Supply chain management, Alignment, Enablers, Inhibitors, Shareholder value, Customer value, Shareholder value analysis

Paper type Literature review

1. Introduction

A supply chain consists of a chain of suppliers and customers aiming to provide a product or service to the end customers. Alignment within a supply chain is an emerging and important issue. Gattorna (1998) suggests that “there must be alignment between each firm’s supply chain strategy and those of its supply chain partners, both internal and external”. Thus supply chain alignment results in a fit in terms of objectives, structures and processes within and between different functions and members in a supply chain. The need for supply chain alignment is indisputable. Houlihan (1985)

suggested that SCM is about addressing the imbalances due to conflicting objectives in marketing, sales, manufacturing, and distribution by managing the trade-offs between supply policies, economics of manufacturing and complexity. In response to issues of this nature Gattorna proposes a four-stage framework for strategic alignment (Gattorna and Walters, 1996; Gattorna, 1998, 2009) where supply chain strategy is developed to meet the requirements of customer segments, and is supported by the right culture and leadership style, aligned with four logics (based on Carl Jung’s theory).

In particular, there is a need to achieve shareholder alignment so that functional strategies and business processes used to deliver them are compatible with business strategy and shareholder expectations, such as revenue growth, working capital efficiency, operating cost reduction and fixed capital efficiency (Christopher and Ryals, 1999). This

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is because poor business performance is often caused by firms' failure to align internal supply chain processes with strategic goals (Tamas, 2000).

In addition to shareholder alignment, the alignment with customers is equally critical. Since every member in a supply chain tends to maximise their own interests, optimal decisions made by one supply chain member may cause delivery delays and excessive inventories in another part of the supply chain (Lee, 2004). Ideally everyone in the supply chain should have the same objective – to deliver the best value to the end consumers. That means a supply chain has to be aligned to deliver customer value, measured in terms of customer perceived benefits gained from a product/service compared to the cost of purchase (Johnson and Scholes, 1999). The importance of customer alignment is supported by the customer-orientation literature (Anderson and Narus, 1990; Jeong and Hong, 2007) and the need for aligning the demand creation processes with the demand fulfilment or SCM processes to achieve customer responsiveness (Godsell *et al.*, 2006). The relationship between shareholder and customer alignment in terms of the extent to which they reinforce each other, or indeed are conflicting, is however not clearly explained in the supply chain literature.

Despite general agreement on the need for supply chain alignment to achieve shareholder and customer value, SCM research and practice lacks knowledge on how exactly such an alignment can be achieved and what performance implications it has (Baier *et al.*, 2008). A survey carried out by Tamas (2000) found that only 13 per cent of the 80 supply chain executives questioned believed that their companies' supply chain practices are actually fully aligned with their business unit strategies. In reality, the ability to create “seamless” or “boundary-less” connections in a supply chain (Christopher *et al.*, 2004) is hard to achieve. Many supply chain experts agree that internal alignment is still an unresolved issue and can be more difficult than building external alliances. Indeed, breaking down silos between sales/marketing and the operations/supply chain functions is still a pervasive problem (Beth *et al.*, 2003; Pagell, 2004; Van Hoek and Mitchell, 2006). This strongly suggests the need to identify and understand enablers of supply chain alignment.

Alignment or fit has been identified as an essential antecedent of firm performance by the major business and management disciplines including strategy literature (Powell, 1992; Venkatraman, 1989), organisation literature (Nadler and Tushman, 1988; Kathuria *et al.*, 2007), information system literature (Brown and Magill, 1994; Luftman and Brier, 1999) and manufacturing strategy literature (Skinner, 1969; Wheelwright, 1984; McAdam and Brown, 2001). However, at the moment the literature on supply chain alignment is fragmented and largely theoretical in nature. Given the emergent and multi-disciplinary nature of such a literature, the development of both theory and practice of supply chain alignment would benefit from a theoretical framework which “poses a degree of order on a disorderly mélange” (Starbuck, 2006). To do this, a systematic literature review (SLR) of relevant literature will allow us to perform a meta-analysis of the theories and empirical evidence. Indeed Starbuck (p. 96) believes that, as demonstrated by Kelley and Thibaut (1954), “a good literature review makes sense out of nonsense”.

Through an SLR this paper aims to identify enablers of supply chain alignment, develop constructs for them and develop a set of hypotheses, which address the complex relationships between shareholder alignment/value and customer alignment/value. Through the SLR, the paper aims to answer two crucial questions:

- 1 What are the enablers for customer and shareholder alignment?
- 2 How can they be defined and how do they affect alignment and ultimately customer and shareholder value?

Answers to these questions will enhance the knowledge about how exactly supply chain alignment can be achieved and its performance implications (Baier *et al.*, 2008). Since alignment is a research topic shared by many disciplines, the SLR includes cross-disciplinary literature on supply chain alignment. This paper begins with a description of the SLR methodology used in this study. The results follow with a descriptive analysis of the papers selected for review and a discussion of the emerging themes from the literature, which constitute the enablers of supply chain alignment. Based on a reductionist approach, this paper further develops a set of hypotheses relating supply chain alignment enablers to shareholder and customer alignment and value. Finally the implications and limitations of this paper are discussed in the conclusions.

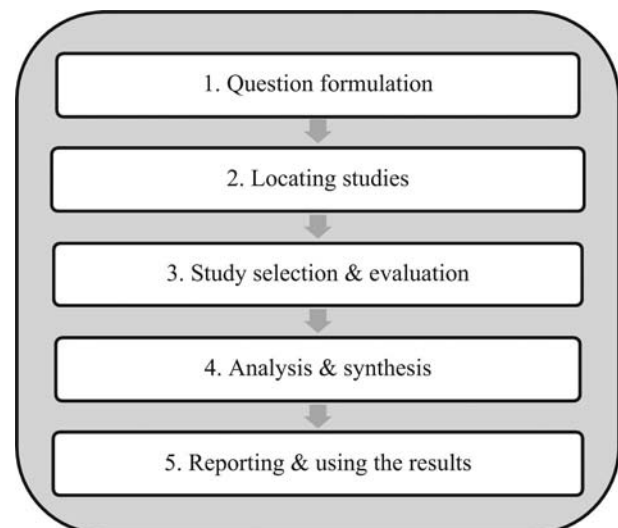
2. Method

To overcome the perceived weaknesses of a narrative review (Tranfield *et al.*, 2003) this study adopted a systematic or evidence-informed approach based on the five-step approach outlined by Denyer and Tranfield (2009). The five steps as illustrated in Figure 1 include: question formulation, locating studies, study selection and evaluation, analysis and synthesis, and finally reporting and using the results. Each step will now be discussed in turn.

2.1 Question formulation

A clear research question is critical to provide the focus and direction for any research. It is particularly important for a

Figure 1 Overview of the five-step systematic literature review process



Source: Adapted from Denyer and Tranfield (2009)

systematic literature review (SLR) and hence a panel is formed to help to review and refine this question. The panel for this study included five different stakeholders, each with a different area of expertise relevant to the study, including: customer driven supply chain strategy, shareholder value, manufacturing strategy and quantitative methods.

The primary question that this study seeks to address is:

- 1 What are the enablers to customer and shareholder alignment?

Supported by two supplementary questions:

- 1 How can they be defined?
- 2 How do they effect alignment, and ultimately customer and shareholder value?

2.2 Locating studies

The next step is to locate the relevant studies. There are two key decisions to make at this stage of the review; the search engine and search strings. After consultation with a database expert with significant experience of supporting faculty in conducting SLRs, two search engines were chosen: ABI Inform ProQuest and EBSCO host. Given that the context for the study is the supply chain, these were identified as the databases with the best coverage for this field.

The initial search terms used were quite broad to ensure that papers adopting alternative nomenclature were identified. Two alternative sets of search strings were used as summarised in Table I and resulted in the identification of 1,944 papers. The search was limited to scholarly articles, published between January 1976 and December 2010. The initial study took place as part of an Innovative Manufacturing Research Council project (IMRC 40) exploring the alignment and integration of marketing and supply chain strategy in late 2007 and this was later updated.

2.3 Study selection and evaluation

Given the breadth and fragmentation of the field, a decision was taken not to try and reduce the number of articles further by refining the search strings. Instead a decision was made to review the title, journal and abstracts for relevance. The selection criteria used were:

- Alignment – the paper had to be relevant to process alignment and strategic alignment with the objective of maximising shareholder and customer value.
- Supply chain – whilst a broad topic, the papers had to focus on relationships and strategy alignment.
- Language – the paper had to be written in English.
- Journal type – top quality, double-blind peer reviewed journals.

An initial sample of 50 abstracts was reviewed by two reviewers to check for inter-code reliability. The inclusion or

exclusion of the abstracts was checked against the general criteria, results compared and discussed, and issues of disagreement resolved (Miles and Huberman, 1994). This exercise reduced the number of potential papers to 253.

At this stage a more robust set of quality criteria was then applied to the full text review of the 253 papers. Two sets of criteria were applied: subject matter selection and quality criteria. The subject matter criteria varied by paper type and are summarised in Table II.

The quality criteria applied were based on the standard criteria developed for SLR at Cranfield University. As illustrated in Table III they include: contribution, theory, methodology and data analysis.

For a full paper to be accepted, it had to meet the subject matter selection criteria and satisfy at least one of the quality criteria in the “high band”. Similarly to the abstract read, initial samples of papers were reviewed by the two reviewers. The inclusion or exclusion of the papers was checked against the two sets of criteria, results compared and discussed, and issues of disagreement resolved (Miles and Huberman, 1994). Application of these criteria reduced the resultant number of full papers for analysis and synthesis to 72.

2.4 Analysis and synthesis

Each paper was analysed for both its descriptive and thematic content by the two reviewers, who both reviewed a sizeable sample of the papers discussing their findings, before splitting the papers between them. This ensured they were interpreting the content in a similar way. The descriptive analysis was more deductive in nature, and focused on the categorisation of papers by year, ABS code, country, methodology and industry.

The thematic analysis identifies and categorises emerging enablers to supply chain alignment. Its purpose was to identify the emerging constructs around the enablers to supply chain alignment. A more inductive approach was taken. Enabling factors were identified, and then grouped into a series of enabling constructs. Given that the initial study took place in 2007, the constructs were updated to include more relevant references. These were identified through a much simplified search of papers focused on supply chain alignment. This was deemed the most appropriate means to update the study as firstly, the incidence of papers was relatively low and secondly to avoid undermining the integrity of the original study. These papers are easily identifiable as they have references with a date after 2006.

2.5 Reporting and using the results

This paper is the first formal presentation of the results to an academic audience, though already presented to a practitioner

Table I Search strings and resultant number of papers

Search	Actual search strings	No. papers
1	(enabl* OR facilitat* OR inhibit* OR barrier* OR prevent* OR constrain*) AND (customer* OR shareholder*) AND (supply chain* OR demand chain* OR value chain* OR supply network* OR manufactur*) AND (align* OR integrat* OR coordinat* OR fit* OR link* OR value*)	1,393
2	(enabl* OR facilitat* OR inhibit* OR barrier* OR prevent* OR constrain*) AND (customer* OR shareholder*) AND (value*) AND (strateg*) AND (deploy* OR formulat* OR process* OR plan* OR align* OR integrat* OR coordinat* OR fit* OR link*)	551
Total		1,944

Table II Subject matter selection criteria

Paper type	The papers must contain ...
Conceptual/theoretical	Enablers (or inhibitors) and arguments in support
Empirical	Enablers (or inhibitors) and empirical evidence in support
Methodological	Causal relationships between enablers (or inhibitors)

workshop of 36 practitioners, by whom the results were well received. The remainder of this paper is dedicated to reporting these results; descriptively, thematically and as a theoretical framework for application to both academia and practice.

3. Descriptive results: characterising the supply chain alignment literature

The 72 papers identified through the SLR are analysed in this section with respect to the publication year, methodology, journal and sector studied, in order to understand the trends in this body of literature relevant to supply chain alignment and the associated enablers.

The papers were published between 1985 and 2010 with sporadic publications in the 1980s and 1990s as illustrated in Figure 2. Through the late 1990s and into the early 2000s the number of annual publications rose, peaking sharply in 2005 with 14 papers published. From 2000 through to 2010, 51 articles were published, which constitutes about 70 per cent of the papers in this study. This indicates an increasing interest in supply chain alignment and approaches to achieving it. This could be fuelled by the persistent need to break down functional silos between sales/marketing and the operations/supply chain (Beth *et al.*, 2003, Pagell, 2004; Van Hoek and Mitchell, 2006).

The case study (35 per cent of papers) and literature review (39 per cent of papers) are used to a similar extent and are clearly the most frequently used methodologies, accounting for almost three quarters of the publications. Further they tend to be used consistently over the years of publication. However, the literature review is the most popular method used for this topic as researchers struggle to develop theory from existing literature. Only in recent years have there been some empirical case studies and surveys, indicating the infancy stage of the theoretical development process. Our paper aims to use a systematic approach to the literature review that is able to identify and synthesise this body of literature. This is no easy task because it is a wide-ranging body of literature involving many disciplines. As evidenced by the analysis of papers by journal and the Association of Business School (ABS) categories (shown in Table IV), it has been published in a wide range of journals.

The 72 papers identified by the literature review were published in 43 different journals. Indeed 63 per cent of the journals had only one article published on this topic. This emphasises that this topic has wide ranging relevance across many different disciplines, as might be expected. Alignment, after all, is seeking to develop consistency between all the business functions. However, 55 per cent of the papers were published in journals within the Operations and Technology category, with many of these journals focussing on supply chain and logistics. In fact the *International Journal of Physical Distribution and Logistics Management (IJPDLM)* publishing

the most papers (6). This reflects the fact that many of the functions, which require alignment, to deliver either shareholder or customer value, are within the supply chain field: purchasing, manufacturing, logistics and operations planning. Moreover, supply chain management is often defined in terms of alignment of these functions. For example Lambert *et al.* (1998) cite a definition of supply chain management originally defined in 1994 and refined in 1998 by the members of the Global Supply Chain Forum: “supply chain management is the alignment of key business processes (Plan-Source-Make-Deliver) from customer through original suppliers that provides products, services, and information that add value for customers and other stakeholders”.

Considering the geographical location of the authors’ affiliated institution, 49 per cent of the papers originated from the USA, suggesting a strong interest in supply chain alignment in the USA. The UK accounts for the second largest proportion of papers at 19 per cent, and other countries account for 5 per cent or less, with nine countries being the origin of a single paper each.

Finally it is important to determine which industrial sectors have made a contribution to the body of knowledge on supply chain alignment. Empirical data were the bases of the findings in 34 of the papers (47 per cent) and these data were collected from four sectors:

- 1 retail;
- 2 manufacturing;
- 3 airline; and
- 4 service industries.

Six publications studied both the retail and the manufacturing sectors and these were counted against both. The vast majority of the empirical papers (91 per cent) studied retail and/or manufacturing sectors while only four papers considered airline and service sectors. This is entirely consistent with the earlier observation that 55 per cent of the papers are published in operations journals with an emphasis on supply chain management.

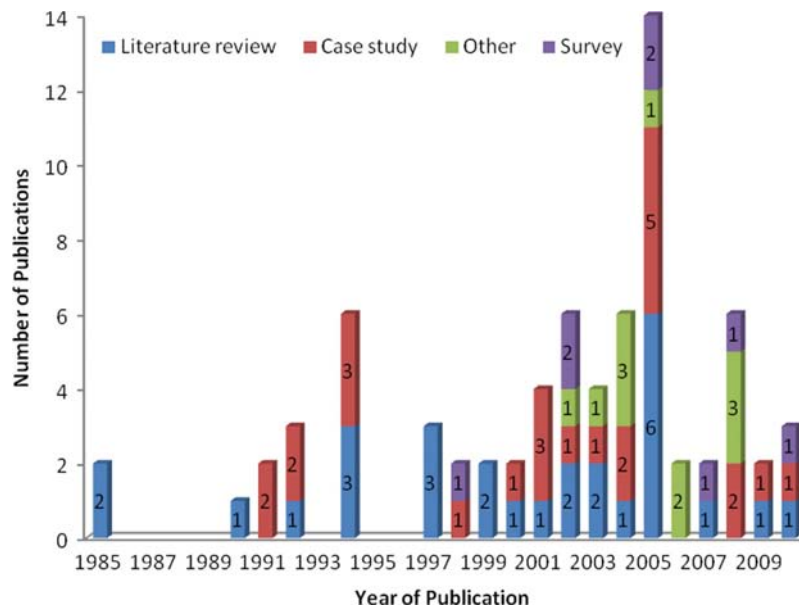
4. Thematic results: understanding the enablers

The SLR has identified six major enablers of alignment which are defined and explained in this section (see Table V for a summary of the constructs and supporting literature).

4.1 Organisational structure (OS)

The organisation literature advocates that organisation structure, in terms of formalisation, centralisation, and hierarchy, have to be aligned with strategy and the environment (Thompson, 1967; Lawrence and Lorsch, 1967). However, these generic features are not suitable for describing the process-oriented organisation structure required to achieve alignment across functions (Lambert *et al.*, 2005). The SLR identified five characteristics of an

Elements to consider	Level			Not applicable	
	0 – Absence	1 – Low	2 – Medium		3 – High
Contribution	The article does not provide enough information to assess this criteria	The paper adds little to the body of knowledge in this area	The paper adds a contribution of limited importance to the body of knowledge	The paper adds a highly significant contribution to the body of knowledge	This element is not applicable to this paper
Theory	The article does not provide enough information to assess this criteria	Literature review is inadequate	Literature review is acceptable	Excellent literature review. In domain of theory	This element is not applicable to this paper
Methodology	The article does not provide enough information to assess this criteria	Not fully explained, difficult to replicate.	Acceptable explanation and replicability of methodology.	Clear explanation of methodology and excellent records for audit trail.	This element is not applicable to this paper
Analysis	The article does not provide enough information to assess this criteria	Data sample is insufficient. Weak connection between data and story	Appropriate data sample. Adequate analysis but weak explanation	Adequate data sample, results support theoretical arguments. Good explanations	This element is not applicable to this paper

Figure 2 Analysis of papers according to year of publication and methodology

organisational structure (labelled OS1...OS5) required for supply chain alignment and summarised in Table V.

For effective alignment, organisational structure (OS) must be able to accommodate the evolving interdependencies among new and existing businesses (Burgelman and Doz, 2001). In order to break down barriers among functional departments there is a need to assign a business process owner (OS2) that has overall responsibility and accountability for the delivery of customer value from the process. Process owners act as integrators whose role is to stimulate operational units to pursue complex strategic integration (Burgelman and Doz, 2001). The need for process owners with adequate authority to influence multiple functions has been recognised in operations management, quality management and business reengineering, and information system literature (Davenport, 1993; Earl, 2002; Karapetrovic and Willborn, 2002; Hammer and Champy, 1993; Lewis and Slack, 2003). The influence of other functions cannot be achieved without providing the process owner with a wider span of control (OS1) or boundary spanning width (Aldrich and Herker, 1977; Ettlie and Reza, 1992; Susman and Dean, 1992) and supply chain literature (Clark *et al.*, 2001; Monczka *et al.*, 2009). However, there is also a need to improve cross-functional knowledge (OS3) to create mutual understanding and an overview of the business processes which actually deliver value to the customers (Eng, 2006; Fawcett and Magnan, 2002). Also, cross-functional knowledge (OS3) will be improved once the focal firm is able to enable inter-departmental activity (OS5) (Danese and Romano, 2004; Ellinger, 2000; Esper *et al.*, 2010). Finally, a process-oriented organisation structure (OS4) is needed to ensure consistency between structure and adopted solutions to meet customer needs (Kalchschmidt *et al.*, 2003).

4.2 Internal relational behaviour (IR)

Internal relational behaviour (IR) refers to activities and manners in which these activities are performed within an organisation to facilitate the process of building up and

maintaining customer relationships. It is similar to the concept of intra-organisational connectedness, which refers to the degree of formal and informal direct contacts among employees across departments (Jaworski and Kohli, 1993). Internal relational behaviour is characterised by cross-functional team (IR1), mutual understanding (IR2), joint problem-solving (IR3), and joint planning (IR4). The benefits of cross-functional teams have been widely recognised (Fassoula, 2006). The use of cross-functional teams is found to enable strategic alignment of account systems (Yasin *et al.*, 2005). To encourage cross-functional team working, a cross-departmental reward system may be used (Yasin *et al.*, 2005). Cross-functional activities often improve mutual understanding. The existence of different goals within an organisation inhibits internal collaboration (Sabath and Whipple, 2004). Alignment of internal relational behaviour is essential to achieve mutually accepted outcomes (Pagell, 2004; O'Leary-Kelly and Flores, 2002). The lack of common terminology for operations-focused and customer-facing activities will generate misunderstanding and inhibit internal collaboration (Sabath and Whipple, 2004). The importance of joint problem-solving (Ellinger, 2000) and joint planning (Chen *et al.*, 2004; Anderson and Narus, 1990) across functional departments has also been highlighted by many studies (Susman and Dean, 1992).

4.3 Customer relational behaviour (CR)

Customer relational behaviour (CR) refers to customer interactions, which facilitate the process of building up and maintaining customer relationships. CR is grounded in the boundary spanning literature. Boundary spanning capability is claimed to allow organisations' processes to focus on providing superior value to external or internal customers (Day, 1994; Tracey *et al.*, 2005). Boundary spanning activities such as market sensing, customer linking and channel bonding are essential to enhance relationships with customers. Focal firms that emphasise boundary spanning will assign roles such as liaison, task force, standing

Table IV Analysis of papers according to journal and ABS category

ABS field	Journals	No. of articles	Author (year)
Operations & Technology 40 (55%)	<i>International Journal of Physical Distribution & Logistics Management</i>	6	Halldórsson <i>et al.</i> (2008) Lehtonen <i>et al.</i> (2005) Barratt and Oliveira (2001) Rich and Hines (1997) Scott and Westbrook (1991) Gattorna <i>et al.</i> (1991)
	<i>Supply Chain Management: An International Journal</i>	5	Kannan and Tan (2010) Scott and Westbrook (1991) Othman and Ghani (2008) Soosay <i>et al.</i> (2008) Tracey <i>et al.</i> (2005)
	<i>International Journal of Logistics Management</i>	4	Sandberg (2007) Holweg (2005) Bagchi and Skjoett-Larsen (2003) Barratt (2003)
	<i>Journal of Manufacturing Technology Management</i>	3	Tsinopoulos and Bell (2010) Fassoula (2006) Buyukozkan (2004)
	<i>Journal of Business Logistics</i>	3	Lambert <i>et al.</i> (2005) Rodrigues <i>et al.</i> (2004) Sabath and Whipple (2004)
	<i>Journal of Operations Management</i>	3	Petersen <i>et al.</i> (2005) Childerhouse <i>et al.</i> (2002) Hill and Scudder (2002)
	<i>International Journal of Production Economics</i>	2	Kauremaa <i>et al.</i> (2009) Kalchschmidt <i>et al.</i> (2003)
	<i>International Journal of Operations & Production Management</i>	2	Reichhart and Holweg (2007) Storey <i>et al.</i> (2005)
	<i>Benchmarking</i>	2	Simatupang and Sridharan (2004) Fawcett and Cooper (2001)
	<i>International Journal of Physical Distribution & Materials Management</i>	2	Houlihan (1985) Jones and Riley (1985)
	<i>International Journal of Production Research</i>	1	Campbel and Sankaranl (2005)
	<i>Business Process Management Journal</i>	1	Harrison (1998)
	<i>International Journal of Logistics: Research & Applications</i>	1	Auramo <i>et al.</i> (2004)
	<i>Production Planning & Control</i>	1	Chung and Leung (2005)
	<i>Planning Review</i>	1	Robertson and Barich (1992)
	<i>Performance Improvement</i>	1	Maku <i>et al.</i> (2005)
	<i>Journal of Supply Chain Management: A Global Review of Purchasing & Supply Production & Inventory Management Journal</i>	1	Hartley (2000)
		1	Lummus and Vokurka (1999)
Marketing 10 (14%)	<i>The Journal of Business & Industrial Marketing</i>	3	Storbacka and Nenonen (2009) Sabath and Whipple (2004) Campbell (1998)
	<i>Journal of the Academy of Marketing Science</i>	2	Esper <i>et al.</i> (2010) Woodruff (1997)
	<i>Industrial Marketing Management</i>	2	Matthyssens and Vandenbempt (2008) Christopher and Gattorna (2005)
	<i>Journal of Marketing</i>	1	Srivastava <i>et al.</i> (1999)
	<i>Marketing Intelligence & Planning</i>	1	Groth (1994)
	<i>Academy of Marketing Science Review</i>	1	Hoffman (2000)
		1	

(continued)

Table IV

ABS field	Journals	No. of articles	Author (year)
General Management 9 (13%)	<i>Harvard Business Review</i>	2	Heskett <i>et al.</i> (1994) Day and Fahey (1990)
	<i>Business Review</i>	1	Muratoglu (2008)
	<i>International Journal of Management</i>	1	Yasin <i>et al.</i> (2005)
	<i>MIT Sloan Management Review</i>	1	Burgelman and Doz (2001)
	<i>Management Decision</i>	1	Feurer and Chaharbaghi (1994)
	<i>Business Horizons</i>	1	Slater and Narver (1994)
	<i>The McKinsey Quarterly</i>	1	George <i>et al.</i> (1994)
Information Management 6 (8%)	<i>Industrial Management and Data Systems</i>	2	Sahay (2003) Tarn <i>et al.</i> (2002)
	<i>International Journal of Information Management</i>	1	Pollalis (2003)
	<i>Journal of Management Information Systems</i>	1	Clemons and Weber (1994)
	<i>Decision Support Systems</i>	1	Marquez and Blanchar (2006)
	<i>Information Technology and Management</i>	1	Clark <i>et al.</i> (2001)
Organisation & Management Science 3 (4%)	<i>Decision Sciences</i>	2	Frohlich (2002) Sahin and Robinson (2002)
	<i>Systems Research and Behavioural Science</i>	1	Osterlund and Loven (2005)
Strategy 3 (4%)	<i>Long Range Planning</i>	1	Buhner (1997)
	<i>The Journal of Business Strategy</i>	1	Nichol (1992)
	<i>Strategy & Leadership</i>	1	Kaplan and Norton (2004)
Accounting 1 (1%)	<i>Critical Perspectives on Accounting</i>	1	Bourguignon (2005)

Note: the authors categorised those papers in bold

committee and integrating managers (Ettlie and Reza, 1992; Danese and Romano, 2004; Godsell *et al.*, 2005; George *et al.*, 1994).

Despite its importance, existing supply chain literature fails to define the characteristics of CR. The SLR has enabled the identification of five key characteristics. Since a conflicting objective is often the main obstacle to customer responsiveness, the SLR suggests goal sharing (CR1), cost sharing (CR2) and profit sharing (CR3) as crucial indicators for CR in supply chains. The lack of shared goals is one of the inhibitors of collaboration in planning, forecasting and replenishment (Barratt and Oliveira, 2001; Chung and Leung, 2005). Very often any transaction or joint effort in improving a supply chain will incur costs and these costs are often unevenly distributed. Supply chain members that choose to push additional costs to other members often inhibit alignment efforts. It is also possible to devise profit-sharing contracts to share rewards (Fawcett and Cooper, 2001; Simatupang and Sridharan, 2004) and further encourage long-term collaboration. Even though the benefits of cost-sharing and profit-sharing contracts have been confirmed by numerous mathematical models in the academic literature (Simatupang and Sridharan, 2004; Reichhart and Holweg, 2007; Sha *et al.*, 2008; Soosay *et al.*, 2008), they are still very hard to achieve in practice, due to the asymmetric information and interests among suppliers and customers (Cachon and Lariviere, 2005).

The sharing of goals, cost and profits is only part of CR. At an operational level, focal firms need to jointly solve problems (CR4) and plan (CR5) with the customers to improve delivery performance (Auramo *et al.*, 2004). Scott and

Westbrook (1991) suggested that closer collaboration with suppliers increases supply chain integration and performance. Rich and Hines (1997) describe the use of a “supplier association” for joint problem-solving. The association extends from the focal purchasing organisation, and jointly determined supply chain improvements can be shared between the focal customer organisation and the group of suppliers. According to Rich and Hines this ensures that the efforts of each and every supplier are aligned to the changing requirements of the consumer market. As early as 1985, Jones and Riley proposed that the key to efficiently managing a supply chain is to plan and control the inventories and activities as an integrated single entity. The use of programmes such as Collaborative Planning, Forecast and Replenishment (CPFR) can also be effective (Barratt and Oliveira, 2001; Chung and Leung, 2005). The cooperation between supply chain members (Campbell, 1998) in joint planning allows decision synchronisation (Simatupang and Sridharan, 2004; Reichhart and Holweg, 2007; Soosay *et al.*, 2008) and collaborative value analysis (Hartley, 2000) hence ensuring alignment.

4.4 Top management support (TS)

Managerial commitment to SCM is required for achieving collaboration breakthrough (Akkermans *et al.*, 1999; Luftman and Brier, 1999) and customer responsiveness (Storey *et al.*, 2005). According to Fawcett *et al.* (2006), top management support, broad-based functional support, channel support, and infrastructure/governance support are needed to achieve the highest levels of supply chain success. To align business strategy with supply chain strategy and business processes, it

Table V Constructs and indicators together with supporting references, for the enablers to supply chain alignment

Enabler constructs	Indicators		Supporting references
	No.	Description	
Organisational structure (OS)	OS1	Control spans	Aldrich and Herker, 1977; Ettlie and Reza, 1992; Susman and Dean, 1992; Clark et al., 2001; Monczka et al., 2009
	OS2	Business process owner	Davenport, 1993; Hammer and Champy, 1993; George et al., 1994; Earl, 2002; Karapetrovic and Willborn, 2002; Lewis and Slack, 2003
	OS3	Cross-functional knowledge flow	Fawcett and Magnan, 2002; Eng, 2006; Esper et al., 2010
	OS4	Process-oriented organisation	Kalchschmidt et al., 2003; Lambert et al., 2005
	OS5	Inter-departmental activities	Slater and Narver, 1994; Ellinger, 2000; Danese and Romano, 2004; Esper et al., 2010
Internal relational behaviour (IR)	IR1	Cross-functional team	Wheelwright and Clark, 1992; Pagell, 2004; Yasin et al., 2005; Fassoula, 2006
	IR2	Mutual understanding	Kahn and Mentzer, 1996; O'Leary-Kelly and Flores, 2002
	IR3	Joint problem solving	Susman and Dean, 1992; Khan and Mentzer, 1996; Ellinger, 2000
	IR4	Joint planning	Anderson and Narus, 1990; Chen et al., 2004
Customer relational behaviour (CR)	CR1	Goal sharing	Barratt and Oliveira, 2001; Sabath and Whipple, 2004
	CR2	Cost sharing	Campbell, 1998; Cachon and Lariviere, 2005; Reichhart and Holweg, 2007; Sha et al., 2008; Soosay et al., 2008
	CR3	Profit sharing	Fawcett and Cooper, 2001; Simatupang and Sridharan, 2004
	CR4	Joint problem solving	Ellinger, 2000; Rich and Hines, 1997
	CR5	Joint planning	Jones and Riley, 1985; Anderson and Narus, 1990; Auramo et al., 2004; Simatupang and Sridharan, 2004; Chen et al., 2004; Reichhart and Holweg, 2007; Soosay et al., 2008
Top management support (TS)	TS1	Listen to employees	Heskett et al., 1994; Carrilat et al., 2004
	TS2	Management involvement	Nichol, 1992; Wheelwright and Clark, 1992; Susman and Dean, 1992; Gebbing et al., 1994; Luftman, 1998; Lee, 2004; Fawcett et al., 2006; Sandberg, 2007
	TS3	Provisions of resources	Buhner, 1997; Kaplan and Norton, 2004; Storey et al., 2005
	TS4	Provisions of finance	Buhner, 1997; Kaplan and Norton, 2004; Storey et al., 2005
	TS5	Recognise importance of SCM	Christopher, 1998; Fassoula, 2006
Information sharing (IS)	TS6	Understand supply chain capabilities	Srivastava et al., 1999; Kim, 2006; Soosay et al., 2008; Tsinopoulos and Bell, 2010
	IS1	Share relevant information	Bowersox and Daugherty, 1995; Lee et al., 1997; Frohlich and Westbrook, 2002; Soosay et al., 2008
	IS2	Share accurate information	Bourland et al., 1996; Lee and Whang, 2000; Li and Lin, 2006; Lehtonen et al., 2005; Kamnan and Tan, 2010
	IS3	Share sufficient information	Huang et al., 2003
	IS4	Timely information sharing	Bourland et al., 1996; Lee and Whang, 2000; Lehtonen et al., 2005; Osterlund and Loven, 2005; Kamnan and Tan (2010)
	IS5	Knowledge to use shared information	Sahin and Robinson, 2002
Business performance measurement system (PM)	PM1	Linked to strategic objectives	Maskell, 1991; Schmenner and Vollmann, 1994; De Toni and Tonchia, 1996; O'Mara et al., 1998; Neely, 2002
	PM2	Shared metrics	Fawcett and Cooper, 2001; Robson, 2004; Chenhall, 2005; Muratoglu, 2008
	PM3	Shared targets, incentives and rewards	Morash and Clinton, 1998; Burgelman and Doz, 2001; Kamnan and Tan, 2010; Lee, 2004; Simatupang and Sridharan, 2004; Yasin et al., 2005; Muratoglu, 2008
	PM4	Timely reporting	Wilcox and Bourne, 2003; Franco-Santos et al., 2004

is important for top management to fully support the internal communication department by being accessible, serving as a model for communication, and expecting other managers in the organisation to be strong communicators (Powers, 1996). Alignment often involves a two-way communication process between management and employees. Thus, it is essential for top management to listen to the employees (TS1) as leaders who listen (Heskett *et al.*, 1994) will be more likely to enable change (Carrillat *et al.*, 2004).

Top management support can also be demonstrated by participation of top management in employees' daily operations and decision-making processes. Gerbing *et al.* (1994) suggest that management participation has two dimensions – involvement and influence (TS2). Management involvement in goal setting, environment scanning, evaluation of the internal capabilities, generation of strategic alternatives, strategic selection and supply chain activities are critical to the success of internal and external alignment. Functional support may be demonstrated by getting middle management involved in the planning process (Nichol, 1992) as managerial influence is essential for aligning conflicting objectives and interests. As such, management can demonstrate visible support and involvement, by participating in key supply chain decision-making activities (Wheelwright and Clark, 1992; Susman and Dean, 1992; Luftman, 1998; Lee, 2004; Fawcett *et al.*, 2006).

The most obvious ways of demonstrating management support are the provisions of resources (TS3) and finance (TS4) to collaboration efforts, showing full commitment from top management (Storey *et al.*, 2005). Another aspect of top management support is recognising the importance of SCM (TS5) as firms that do not discuss supply chain issues in the boardroom will be more internally oriented and less customer oriented. To achieve customer alignment, it is essential to demonstrate ambition and a sense of urgency and commitment from top management (Hamel and Prahalad, 1989; Bessant *et al.*, 1994) and the embracing of SCM (Christopher, 1998; Fassoula, 2006). Awareness of supply chain (Tsinopoulos and Bell, 2010) capabilities (TS6) will help determine what is required to achieve customer and shareholder alignment (Kim, 2006; Soosay *et al.*, 2008; Srivastava *et al.*, 1999).

4.5 Information sharing (IS)

The SLR identifies information-sharing as a crucial enabler for supply chain alignment (Frohlich and Westbrook, 2002; Tarn *et al.*, 2002; Soosay *et al.*, 2008). The lack of transparency and visibility across supply chains is the main obstacle to internal and external alignment (Christopher and Gattorna, 2005) and collaborative planning (Barratt, 2003; Holweg, 2005). The lack of alignment between information technology (IT) and information systems (IS) with business strategy has long been recognised as a major inhibitor to organisational success (Luftman, 1998). Incompatible information systems, standards and operating procedures often inhibit collaboration across independent enterprises (Houlihan, 1985). Information sharing helps to improve visibility (Lehtonen *et al.*, 2005) and therefore improves the allocation of inventory (Lee *et al.*, 1997), production scheduling and knowledge transfer process (Bagchi and Skjoett-Larsen, 2003; Barratt and Oliveira, 2001; Simatupang and Sridharan, 2004).

It is not enough to simply share information – it is crucial to share quality information. Quality of information is achieved by sharing relevant (IS1), accurate (IS2) and sufficient information (IS3) in a timely manner (IS4). For example, the sharing of information on operations cost will help in making effective cost trade-off decisions (Bowersox and Daugherty, 1995; Frohlich and Westbrook, 2002) and the sharing of order creation information will reduce the bullwhip effect (Lee *et al.*, 1997). Relevant information facilitates demand management (Lummus and Vokurka, 1999) whereas relevant but delayed information can result in amplified demand (Lee *et al.*, 1997). Thus, the importance of sufficient, accurate and timely information has been mentioned in several studies (Bourland *et al.*, 1996; Lee and Whang, 2000; Huang *et al.*, 2003; Li and Lin, 2006; Lehtonen *et al.*, 2005; Kannan and Tan, 2010). Early capture of demand information (Campbell and Sankaran, 2005; Buyukozkan, 2004) and early notification of change (Osterlund and Loven, 2005) will often improve customer responsiveness and reduce cost. Further, in today's information-rich supply chains, it is essential for a focal firm to acquire just enough information and not be overloaded by too much information. One of the least studied areas of information system research is the information processing capability. Without this, it is hard to capture the value of shared information (IS5). Thus, it is essential to understand the value of information and how shared information (Sahin and Robinson, 2002) may be processed to improve supply chain performance.

4.6 Business performance management system (PM)

The SLR indicated that a performance measurement system (PM) would either enable or inhibit alignment. Melnyk *et al.* (2004) suggested that performance measurement system is ultimately responsible for maintaining alignment and coordination. PM can enable alignment by motivating staff and ensuring alignment in strategy and process (Waggoner *et al.*, 1999; Gunasekaran *et al.*, 2001; Holmberg, 2000; Chan *et al.*, 2003; Morgan, 2004). Also, PM helps decision-making by indicating how well an organisation/supply chain has performed, where they currently are and where they need to be. To do this effectively PM would need to be relevant and linked with strategic objectives (PM1) and the measures have to be agreed and shared by the users (PM2) especially when they involve different groups and organisation units (Fawcett and Cooper, 2001; Chenhall, 2005). Often the current approaches to PM encourage functional sub-optimisation by driving the wrong organisational behaviours in supply chains (Storey *et al.*, 2005; Morash *et al.*, 1996). PM can be inhibiting when it lacks relevance to organisational goals and strategic objectives (Schmenner and Vollmann, 1994) or lacks useful metrics which can be changed as necessary to match changing strategic intent (Neely, 2002; O'Mara *et al.*, 1998; De Toni and Tonchia, 1996; Maskell, 1991). For performance, an individual has no direct control; PM has to be designed to act as a communication mechanism, which encourages teamwork, establishes accountability and priorities Robson (2004). This would make PM a reflection of strategic goals, representation of complex relationships amongst partners, and a concern for both internal and external stakeholders (Chan *et al.*, 2003; Gunasekaran *et al.*, 2001; Maku *et al.*, 2005). A lack of training and understanding of this potentially complex link can lead to

decisions that are made based on measurement that are not aligned with strategy.

Essentially, the performance target is a statement of strategic intent and strategic intent is a target setting exercise. Inappropriate target setting (PM3) may lead to narrow focus, sub-optimisation and conflicting goals (Neely, 2002). This means that employees are provided with incentives to improve certain measures without taking a broader scope, hence not creating holistic “improvements” and ultimately leading to tensions between functions (Muratoglu, 2008). This view is supported by Storey *et al.* (2005) who found that SMART (Specific, Measurable, Achievable, Realistic and Timely) targets and the desire for individual accountability have contributed to functional sub-optimisation. They proposed that an effective performance measurement needs to balance the requirements of the individual with the requirements of the organisation and wider supply chain. Yasin *et al.* (2005) proposed the use of a cross-departmental reward system as a means of overcoming this. Overall the effect desired of an aligning PM would be one that provoked the timely provision of feedback (PM4) which would, in turn, facilitate decision-making for continual improvement (Wilcox and Bourne, 2003; Franco-Santos *et al.*, 2004) thus allowing the appropriate course of action to be taken.

5. Theoretical hypotheses for supply chain alignment

The six constructs for enablers developed (Table V) are essential for achieving both shareholder and customer alignment. Taking these results as a starting point this section establishes a set of hypotheses for the relationships between the six enablers and alignment (shareholder and customer) and value (shareholder and customer).

5.1 Relationships between enablers and shareholder and customer alignment

Before establishing the impacts of supply chain alignment there is a need to clarify the concepts of shareholder and customer alignment. Shareholder alignment is achieved when business strategy, supply chain strategy and employees' expectations are aligned with shareholder objectives, and the business strategy is well defined to ensure organisational change to meet shareholder objectives. Customer alignment is the state where business strategy and supply chain strategy are aligned to meet customer expectations, and the business and supply chain strategies are designed to adjust the supply chain to meet customer needs. Table VI and summarise some hypotheses of the impacts of supply chain alignment enablers on shareholder alignment (*H1a-H6a*) and customer alignment (*H1b-H6b*), which are theoretically developed based on the SLR. These hypotheses are motivated as follows.

In order to achieve shareholder alignment there is a need to make organisational structures compatible with business strategy and shareholder expectations (Thompson, 1967; Lawrence and Lorsch, 1967). The SLR affirms a more process-oriented organisational structure with the ability to enable/support cross-functional knowledge exchange and inter-departmental activities to achieve cost effectiveness (Davenport, 1993; Lewis and Slack, 2003; Ettlie and Reza, 1992). A process-oriented organisational structure, which facilitates inter-functional collaboration is also necessary for

meeting customer needs. Organisations with functional silos are often blamed for the inability to respond to various customer demands (Beth *et al.*, 2003; Pagell, 2004; Van Hoek and Mitchell, 2006). However, when an organisation is segmented and aligned to processes, which focus on different value streams, then it is more likely to meet customer needs with the same resources (Godsell *et al.*, 2006). Furthermore, appropriate process owners with a wider control span are able to stimulate complex strategic integration (Burgelman and Doz, 2001). These arguments suggest the above-mentioned characteristics of organisational structure are effective in meeting shareholder alignment, especially in terms of capital efficiency and customer alignment, and delivery service, leading to the formulation of hypotheses *H1a* and *H1b*.

In addition, internal relational behaviour encompassing the ability to achieve mutual understanding and support joint planning among functions, is essential for improving cost effectiveness (O'Leary-Kelly and Flores, 2002; Pagell, 2004; Anderson and Narus, 1990). Internal relational behaviour is also essential for meeting customer needs. Customer delivery performance can be improved when suppliers cooperate with customers to re-align order penetration points (Auramo *et al.*, 2004). It is argued that internal integration is the central link between customers and an organisation's responses to changes in the market (Flynn *et al.*, 2010). The improvement of cross-functional relationships and the use of cross-functional teams often promote mutual understanding towards a more customer responsive culture (Godsell *et al.*, 2006) and mutually accepted objectives (Pagell, 2004). Without a close internal relationship, it is very difficult for top management to implement any strategy. Therefore, we argue that internal relational behaviour is an enabler for customer alignment as well as shareholder alignment. These arguments suggest internal relational behaviour is required to achieve shareholder alignment and customer alignment, leading to the formulation of hypotheses *H2a* and *H2b*.

The next enabler – customer relational behaviour – facilitates goal/cost/profit sharing, and joint planning and problem-solving with customers to ensure customer loyalty and eventually revenue growth, and subsequently creates shareholder alignment (Day, 1994; Auramo *et al.*, 2004; Tracey *et al.*, 2005). Customer relational behaviour is crucial for the alignment of customer demand with production planning and replenishment (Lee and Whang, 2000; Barratt and Oliveira, 2001) to lower inventory (working capital) cost and at the same time maintain delivery performance. Thus, customer relational behaviour is perhaps one of the most significant enablers for customer alignment. However, it is also crucial for achieving shareholder alignment because one way firms align their customers' interests with their own is by redefining the terms of their relationships so that firms share risk, costs, and rewards equitably (Lee, 2004). Such an alignment is required to ensure that everyone in the chain has the same objective, i.e. to deliver the best service to the end consumers (Lee, 2004). This means that customer relational behaviour may be able to influence the customers such that shareholders' interests are safeguarded. These arguments suggest internal relational behaviour is required to achieve shareholder alignment and customer alignment, leading to the formulation of hypotheses *H3a* and *H3b*.

Top management is the crucial channel between shareholders and employees because they translate shareholders' goals into business strategies and support

Table VI Hypotheses relating enablers to alignment

Phenomena influenced	Hypotheses
Shareholder alignment (SA)	<i>H1a</i> Organisation structure (OS) positively affects shareholder alignment (SA)
	<i>H2a</i> Internal relational behaviour (IR) positively affects shareholder alignment (SA)
	<i>H3a</i> Customer relational behaviour (CR) positively affects shareholder alignment (SA)
	<i>H4a</i> Top management support (TS) positively affects shareholder alignment (SA)
	<i>H5a</i> Business performance measurement system (PM) positively affects shareholder alignment (SA)
	<i>H6a</i> Information sharing (IS) positively affects shareholder alignment (SA)
Customer alignment (CA)	<i>H1b</i> Organisation structure (OS) positively affects customer alignment (CA)
	<i>H2b</i> Internal relational behaviour (IR) positively affects customer alignment (CA)
	<i>H3b</i> Customer relational behaviour (CR) positively affects customer alignment (CA)
	<i>H4b</i> Top management support (TS) positively affects customer alignment (CA)
	<i>H5b</i> Business performance measurement system (PM) positively affects customer alignment (CA)
	<i>H6b</i> Information sharing (IS) positively affects customer alignment (CA)

employees to achieve business strategies (Tamas, 2000). Top management who listens to employees invests in human assets through the provision of training leading to a better shareholder alignment (Buhner, 1997). Also, top management's participation in operational issues and encouragement of open communication helps to align employees' behaviour (Gerbing *et al.*, 1994). Brown *et al.* (2007) argue that involving manufacturing/operations managers in the strategic planning process helps align manufacturing and business strategy, and this alignment is associated with higher manufacturing performance. Furthermore, top management support in supply chain management is crucial in aligning employees' behaviour in contributing to cost saving and customer service improvement, leading to customer alignment. Top management not only have the authority to provide resources, but also to direct the supply chain and business unit strategies towards meeting customer needs. These arguments suggest top management support is required to achieve shareholder alignment and customer alignment, leading to the formulation of hypotheses *H4a* and *H4b*.

Information sharing is argued to have a significant impact on shareholder and customer alignment. Increased intensity of organisational connectivity due to information sharing often decreases production cost (Clark *et al.*, 2001) and increases customer service because accurate information (Bourland *et al.*, 1996; Lee and Whang, 2000) combined with the capability to use shared information (Sahin and Robinson, 2002) is required to plan production and inventory effectively. During the strategy formulation and implementation information sharing across the hierarchy, it is essential to achieve buy in and therefore alignment between business strategy and employees. These arguments suggest information sharing is required to achieve shareholder alignment and customer alignment, leading to the formulation of hypotheses *H5a* and *H5b*.

People act according to incentives, which are often related to performance targets. Thus, business performance management systems, if properly aligned with shareholders' objectives, will act as catalysts for change and allow employees to contribute to shareholders' objectives (Schmenner and Vollmann, 1994; Gunasekaran *et al.*, 2001; Morgan, 2004), leading to the formulation of hypothesis *H6a*. Furthermore, employees act according to rewards and performance targets

and if these are not aligned to business strategies and customer needs, then there will be a greater tendency to sub-optimize, which may adversely affect customer delivery performance. Finally, when employees act upon accurate and timely customer demand information, they will be able to respond to customer needs more accurately and quicker. Furthermore, by using shared information systems it is possible to achieve full potential in developing flexible pricing strategies and tailored offerings for individual customers (Clemons and Weber, 1994). Thus, we take the view that supply chain alignment is required to deliver value to the customer (Christopher, 1998) in an efficient manner that will also deliver shareholder value (Christopher and Ryals, 1999), leading to the formulation of hypothesis *H7* and *H8*.

Even though the above discussion supports positive relationships between supply chain alignment enablers and shareholder and customer alignment, it is recognised that supply chain alignment efforts cost money and they may disturb the customer service process. Firms, which are not skilful in implementing supply chain alignment may find themselves encumbered with high costs and low customer service and therefore be unable to achieve shareholder and customer alignment. Thus, for some firms, we might find insignificant or even negative correlations between supply chain alignment enablers, and shareholder and customer alignment.

5.2 Relationships between shareholder and customer alignment and value

Based on the literature, hypotheses about the complex relationships between shareholder and customer alignment and value are developed. The relationship between shareholder alignment and shareholder value is straightforward. When the business unit and supply chain strategies and employees are aligned to meet shareholders' objectives, such as working capital efficiency and revenue growth, then it is more likely for an organisation to provide higher earnings per share, leading to hypothesis *H7*. Similarly, for customer alignment and customer value, when the business unit and supply chain strategies are aligned to meet customer needs, it is then more likely to meet customer needs, supporting hypothesis *H8* (Table VII).

Challenge comes when shareholder alignment/value and customer alignment/value are considered simultaneously. The

Table VII Hypotheses relating shareholder and customer alignment to each other and customer and shareholder value

Phenomena influenced	Hypotheses
Impacts of shareholder alignment	<i>H7</i> Shareholder alignment positively influences shareholder value
	<i>H9a</i> Shareholder alignment positively influences customer alignment
Impacts of customer alignment	<i>H8</i> Customer alignment positively influences customer value
	<i>H9b</i> Customer alignment positively influences shareholder alignment
Joint impacts of shareholder and customer alignment	<i>H12</i> Companies with both high customer alignment and high shareholder alignment have higher customer and shareholder value than companies with lower customer alignment and shareholder alignment

SLR reveals that shareholder value has hardly been considered together with customer value in the past. For example, the value chain theory of Porter (1985) focuses on the building blocks by which a firm creates a product valuable to its buyers, taking shareholder value for granted. Day and Fahey (1990) mentioned the importance of alignment between business unit strategies and shareholder value. Only since the mid-1990s has some literature started to consider both shareholder and customer value (Bourguignon, 2005). Still, there is debate in the literature over which of these values should take priority. Some argue that organisations are in business primarily to maximise shareholder value (Cornelius and Davies, 1997; Rappaport, 1987) and can do so by also delivering customer value and therefore maintaining competitiveness. Frohlich (2002) argued that the lack of alignment between business models and practices and customer needs will have an adverse effect on shareholder alignment. Under this perspective, shareholder alignment and customer alignment appear to reinforce each other, meaning that shareholder alignment positively affects customer alignment and vice versa, leading to hypotheses *H9a* and *H9b*.

Others have argued that customer alignment comes first because a business is more likely to achieve its goals when it organises itself to meet the current and potential needs of customers more effectively than its competitors (Doyle, 1994; Drucker, 2001; Copulsky, 1991; Laitamaki and Kordupleski, 1997). An alternative to this trade-off perspective is that organisations need to be able to balance between the two (Feurer and Chaharbaghi, 1994; Cleland and Bruno, 1997) as they can be conflicting and can destroy each other.

In a way customer value ensures customer loyalty and thus promises continuous revenue and contributing to shareholder value, and shareholder value promises continuous investment which supports the implementation of the business unit and supply chain strategies to meet customer need (Slater and Narver, 1994; Kaplan and Norton, 2004). Thus, we argue that both shareholder alignment and customer alignment are reinforcing each other (hypotheses *H10* and *H11*) and both alignments are required to contribute to both customer and shareholder value (hypothesis *H12*). Marquez and Blanchar (2006) emphasise the importance of connecting customer value with business targets, thus suggesting the joint effects of customer alignment and shareholder alignment on shareholder and customer value (hypothesis *H12*).

5.3 Relationships between supply chain alignment enablers

As indicated by the previous section on supply chain alignment enablers (section 4), potentially causal

relationships could exist between the enablers. The relationships among these enablers are tenuous and complex and not well supported in the literature, either theoretically or empirically. Nonetheless it would be valuable to understand such relationships. The literature review suggests that organisational structure and top management support are two enablers, which significantly reinforce other enablers. A process-oriented organisation with a greater span of control given to a supply chain manager as well as appropriate top management support is likely to improve internal relational behaviour, customer relational behaviour and information sharing within the supply chain. This will be further enhanced by performance measurement systems with share metrics, targets and incentives designed to encourage these behaviours. Furthermore, top management support is required to change the organisational structure and performance measurement system so that internal relational behaviour, external relational behaviour and information sharing are aligned with the shareholder and customer value. In terms of analysis, that means it is likely to find positive relationships among all these enablers, and is more likely to find top management support, performance management system and organisation structure as the main predictors of internal relational behaviour, customer relational behaviour and information sharing.

Indeed a more complex relationship among these enablers has been reviewed. For example, it is found that information sharing enables functional integration and co-alignment among organisation structure, information technology and organisation planning (Pollalis, 2003). This study, though valuable, is inadequate for forming the foundation of a more concrete theoretical model. However, such an important understanding, if achieved, will certainly provide a significant contribution to theory and practice.

6. Conclusion

Based on a systematic literature review, this paper identifies, and develops the constructs for, six enablers of supply chain alignment: organisational structure, internal relational behaviour, customer relational behaviour, top management support, information sharing and business performance measurement system. A set of hypotheses are developed, which posit the positive impacts of the six enablers on shareholder and customer alignment, and the complex relationships between shareholder alignment/value and customer alignment/value. The paper culminates in a series of hypotheses, which are grounded in the literature and together form the basis for developing a theoretical model.

This is succeeded by a systematic approach in reviewing publications from journals across operations and technology, general management, marketing, information management, organisation management, accounting and strategy. The main contribution of this literature review is that it brings together the theoretical arguments and findings from a disparate and multi-disciplinary body of literature (where 72 papers span 43 journals) and synthesises them into a set of enablers and hypotheses of supply chain alignment, which takes into account both shareholder and customer value.

While the proposed hypotheses remain theoretical, it is now possible to test them on a population of companies (residing within supply chains) and understand the relative significance of the various enablers to alignment; this can also be related to contextual factors such as sector, position in supply chain and company size. Further, the significance of shareholder and customer alignment on the delivery of shareholder and customer value can be examined leading to the development of a theory of supply chain alignment. In practice, companies are struggling with supply chain alignment. Increasingly, they are required to align their business functions, and supply chains are required to align their constituent companies, to become more customer oriented and deliver increased levels of customer value. The identified enablers and proposed hypotheses have the potential to provide practical guidance on how to improve both shareholder and customer alignment. They could be used to assess the current state of existing enablers in the company, and wider supply chain, in order to identify practices that need improvement. They could be further used by practitioners to benchmark supply chain alignment practices in a particular supply chain.

As with any study there are limitations to this paper. Customer and shareholder alignment is emphasised, because a supply chain should always aim to be aligned with final customers' needs and shareholders objectives, as discussed in the introduction. Alignment with suppliers is not considered to the same extent, although every member of a supply chain, practises customer relational behaviour, therefore supplier relations are included indirectly. Further, information sharing covers sharing of information with internal functions, customers and suppliers. On a separate point, the hypotheses suggest causal relationships between the enablers, alignment (shareholder and customer) and value (shareholder and customer). However, these relationships were rarely made explicit in the literature and there is a lack of empirical evidence. Moreover, we focus on the role of enablers in customer and shareholder alignment but there may be many other inhibitors. Inhibitors can be real or imaginary, utility or psychic, and not all managers are conscious of their own perceptions of the inhibitors or enablers (Groth, 1994). Finally, the interactions between the enablers are only briefly discussed, and could be an area for further research. Thus, the further testing of the hypotheses established in this paper should take this into account during data collection.

References

- Akkermans, H., Bogerd, P. and Vos, B. (1999), "Virtuous and vicious cycles on the road towards international supply chain management", *International Journal of Operations & Production Management*, Vol. 19 Nos 5/6, pp. 565-82.
- Aldrich, H. and Herker, D. (1977), "Boundary spanning roles and organization structure", *The Academy of Management Review*, Vol. 2 No. 2, pp. 217-30.
- Anderson, J.C. and Narus, J.A. (1990), "A model of distribution firm and manufacturer firm working partnerships", *Journal of Marketing*, Vol. 54 No. 1, pp. 42-58.
- Auramo, J., Tanskanen, K. and Smaros, J. (2004), "Increasing operational efficiency through improved customer service: process maintenance case", *International Journal of Logistics: Research and Applications*, Vol. 7 No. 3, pp. 167-80.
- Bagchi, P.K. and Skjoett-Larsen, T. (2003), "Integration of information technology and organizations in a supply chain", *International Journal of Logistics Management*, Vol. 14 No. 1, pp. 89-108.
- Baier, C., Hartman, E. and Moser, R. (2008), "Strategic alignment and purchasing efficacy: an exploratory analysis of their impact on financial performance", *Journal of Supply Chain Management*, Vol. 44 No. 4, pp. 36-52.
- Barratt, M. (2003), "Positioning the role of collaborative planning in grocery supply chains", *International Journal of Logistics Management*, Vol. 14 No. 2, pp. 53-66.
- Barratt, M. and Oliveira, A. (2001), "Exploring the experiences of collaborative planning initiatives", *International Journal of Physical Distribution & Logistics Management*, Vol. 31 No. 4, pp. 266-89.
- Bessant, J., Caffyn, S., Gilbert, J., Harding, R. and Webb, S. (1994), "Rediscovering continuous improvement", *Technovation*, Vol. 14 No. 1, pp. 17-29.
- Beth, S., Burt, D.N., Capacino, W., Gopal, C., Lee, H.L., Lynch, R.P. and Morris, S. (2003), "Supply chain challenges: building relationships", *Harvard Business Review*, Vol. 81 No. 7, pp. 64-73.
- Brown, C.V. and Magill, S.L. (1994), "Alignment of the IS functions with the enterprise: toward a model of antecedents", *MIS Quarterly*, Vol. 18 No. 4, pp. 371-403.
- Brown, S., Squire, B. and Blackmon, K. (2007), "The contribution of manufacturing strategy involvement and alignment to world class manufacturing performance", *International Journal of Operations Management & Production Management*, Vol. 27 No. 3, pp. 282-302.
- Bourguignon, A. (2005), "Management accounting and value creation: the profit and loss of reification", *Critical Perspectives on Accounting*, Vol. 16 No. 4, pp. 353-89.
- Bourland, K.E., Powell, S.G. and Pyke, D.F. (1996), "Exploiting timely demand information to reduce inventories", *European Journal of Operational Research*, Vol. 92 No. 2, pp. 239-53.
- Bowersox, D.J. and Daugherty, P.J. (1995), "Logistics paradigms: the impact of information technology", *Journal of Business Logistics*, Vol. 16 No. 1, pp. 65-80.
- Buhner, R. (1997), "Increasing shareholder value through human asset management", *Long Range Planning*, Vol. 30 No. 5, p. 710.
- Burgelman, R.A. and Doz, Y.L. (2001), "The power of strategic integration", *MIT Sloan Management Review*, Vol. 42 No. 3, pp. 28-38.
- Buyukozkan, G. (2004), "An organizational information network for corporate responsiveness and enhanced performance", *Journal of Manufacturing Technology Management*, Vol. 15 No. 1, p. 57.

- Cachon, G.P. and Lariviere, M.A. (2005), "Supply chain coordination with revenue-sharing contracts, strengths and limitations", *Management Science*, Vol. 51 No. 1, pp. 30–44.
- Campbell, A.J. (1998), "Cooperation in international value chains: comparing an exporter's supplier versus customer relationships", *The Journal of Business & Industrial Marketing*, Vol. 13 No. 1, p. 22.
- Campbell, J. and Sankaran, J. (2005), "An inductive framework for enhancing supply chain integration", *International Journal of Production Research*, Vol. 43 No. 16, p. 3321.
- Carrillat, F., Jaramillo, F. and Locander, W. (2004), "Market-driving organisations: a framework", *Academy of Marketing Science Review*, Vol. 39 No. 5, pp. 1–14.
- Chan, F.T.S., Qi, H.J., Chan, H.K., Lau, H.C.W. and Ip, R.W.L. (2003), "A conceptual model of performance measurement for supply chains", *Management Decision*, Vol. 41 No. 7, p. 635.
- Chen, I.J., Paulraj, A. and Lado, A.A. (2004), "Strategic purchasing, supply management and firm performance", *Journal of Operations Management*, Vol. 22 No. 5, pp. 505–23.
- Chenhall, R.H. (2005), "Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: an exploratory study", *Accounting, Organizations and Society*, Vol. 30 No. 5, p. 395.
- Childerhouse, P., Aitken, J. and Towill, D.R. (2002), "Analysis and design of focused demand chains", *Journal of Operations Management*, Vol. 20 No. 6, p. 675.
- Christopher, M. (1998), *Logistics and Supply Chain Management: Strategies for Reducing Cost and Improving Service*, 2nd ed., Pearson, Harlow.
- Christopher, M. and Gattorna, J. (2005), "Supply chain cost management and value-based pricing", *Industrial Marketing Management*, Vol. 34 No. 2, p. 115.
- Christopher, M. and Ryals, L. (1999), "Supply chain strategy: its impact on shareholder value", *International Journal of Logistics Management*, Vol. 10 No. 1, pp. 1–10.
- Christopher, M., Lowson, R. and Peck, H. (2004), "Creating agile supply chains in the fashion industry", *International Journal of Retail & Distribution Management*, Vol. 31 No. 4, p. 235.
- Chung, W.W.C. and Leung, S.W.F. (2005), "Collaborative planning, forecasting and replenishment: a case study in copper clad laminate industry", *Production Planning & Control*, Vol. 16 No. 6, pp. 563–74.
- Clark, T.H., Croson, D.C. and Schiano, W.T. (2001), "A hierarchical model of supply-chain integration: information sharing and operational interdependence in the US grocery channel", *Information Technology and Management*, Vol. 2 No. 3, pp. 261–88.
- Cleland, A.S. and Bruno, A.V. (1997), "Building customer and shareholder value", *Strategy & Leadership*, Vol. 25 No. 3, pp. 22–8.
- Clemons, E.K. and Weber, B.W. (1994), "Segmentation, differentiation, and flexible pricing: experiences with information technology and segment-tailored strategies", *Journal of Management Information Systems*, Vol. 11 No. 2, pp. 9–36.
- Copulsky, W. (1991), "Balancing the needs of customers and shareholders", *Journal of Business Strategy*, Vol. 12 No. 6, pp. 44–5.
- Cornelius, I. and Davies, M. (1997), *Shareholder Value*, FT Financial Publishing, London.
- Danese, P. and Romano, P. (2004), "Improving inter-functional coordination to face high product variety and frequent modifications", *International Journal of Operations Management*, Vol. 24 Nos 9/10, pp. 863–85.
- Davenport, T.H. (1993), *Process Innovation: Reengineering Work Through Information Technology*, Harvard Business School Press, Boston, MA.
- Day, G.S. (1994), "The capabilities of market-driven organizations", *Journal of Marketing*, Vol. 58 No. 4, pp. 37–52.
- Day, G.S. and Fahey, L. (1990), "Putting strategy into shareholder value analysis", *Harvard Business Review*, Vol. 68 No. 2, p. 156.
- De Toni, A. and Tonchia, S. (1996), "Lean organization, management by process and performance measurement", *International Journal of Operations & Production Management*, Vol. 16 No. 2, pp. 221–36.
- Denyer, D. and Tranfield, T. (2009), "Producing a systematic review", in Buchanan, D.A. and Bryman, A. (Eds), *The Sage Handbook of Organizational Research Methods*, Sage, London.
- Doyle, P. (1994), *Marketing Management and Strategy*, Prentice Hall, Hemel Hempstead.
- Drucker, P.F. (2001), "What is our business?", *Executive Excellence*, Vol. 18 No. 6, p. 3.
- Earl, M. (2002), "The new and the old of business process redesign", *The Journal of Strategic Information Systems*, Vol. 3 No. 1, pp. 5–22.
- Ellinger, E. (2000), "Improving marketing/logistics cross-functional collaborations in the supply chain", *Industrial Marketing Management*, Vol. 29 No. 1, p. 85.
- Eng, T.-Y. (2006), "An investigation into the mediating role of cross-functional coordination on the linkage between organizational norms and SCM performance", *Industrial Marketing Management*, Vol. 35 No. 6, pp. 762–73.
- Esper, T.L., Ellinger, A.E., Stank, T.P., Flint, D.J. and Moon, M. (2010), "Demand and supply integration: a conceptual framework of value creation through knowledge management", *Academy of Marketing Science Journal*, Vol. 38 No. 1, pp. 5–18.
- Ettlie, J.E. and Reza, E.M. (1992), "Organizational integration and process innovation", *Academy of Management Journal*, Vol. 35 No. 4, pp. 795–827.
- Fassoula, E.D. (2006), "Transforming the supply chain", *Journal of Manufacturing Technology Management*, Vol. 17 No. 6, pp. 848–60.
- Fawcett, S.E. and Cooper, M.B. (2001), "Process integration for competitive success: benchmarking barriers and bridges", *Benchmarking*, Vol. 8 No. 5, p. 396.
- Fawcett, S.E. and Magnan, G.M. (2002), "The rhetoric and reality of supply chain integration", *International Journal of Physical Distribution & Logistics Management*, Vol. 32 No. 5, pp. 339–61.
- Fawcett, S.E., Odgen, J.A., Magnan, G.M. and Cooper, M.B. (2006), "Organizational commitment and governance for supply chain success", *International Journal of Physical Distribution & Logistics Management*, Vol. 36 No. 1, pp. 22–35.
- Feurer, R. and Chaharbaghi, K. (1994), "Defining competitiveness: a holistic approach", *Management Decision*, Vol. 32 No. 2, pp. 49–58.

- Flynn, B.B., Huo, B. and Zhao, X. (2010), "The impact of supply chain integration on performance: a contingency and configuration approach", *Journal of Operations Management*, Vol. 28 No. 1, pp. 58-71.
- Franco-Santos, M., Marr, B., Martinez, V., Gray, D., Adams, C., Micheli, P., Bourne, M., Kennerley, M., Mason, S. and Neely, A. (2004), "Towards a definition of a business performance measurement system", paper presented at PMA 2004 Conference "Performance Measurement and Management Public and Private", Edinburgh International Conference Centre, Edinburgh, 27-30 July.
- Frohlich, M.T. (2002), "E-integration in the supply chain: barriers and performance", *Decision Sciences*, Vol. 33 No. 4, pp. 537-56.
- Frohlich, M.T. and Westbrook, R. (2002), "Arcs of integration: an international study of supply chain strategies", *Journal of Operations Management*, Vol. 19 No. 2, pp. 185-200.
- Gattorna, J.L. (1998), *Strategic Supply Chain Alignment*, Gower, Aldershot.
- Gattorna, J.L. (2009), *Dynamic Supply Chain Alignment*, Gower, Aldershot.
- Gattorna, J.L. and Walters, D.W. (1996), *Managing the Supply Chain: A Strategic Perspective*, Palgrave, Basingstoke.
- Gattorna, J.L., Chorn, N.H. and Day, A. (1991), "Pathways to customers: reducing complexity in the logistics pipeline", *International Journal of Physical Distribution & Logistics Management*, Vol. 21 No. 8, pp. 5-11.
- George, M., Freeling, A. and Court, D. (1994), "Reinventing the marketing organization", *The McKinsey Quarterly*, No. 4, pp. 43-62.
- Gerbing, D.W., Hamilton, J.G. and Freeman, E.B. (1994), "A large-scale second-order structural equation model of the influence of management participation on organizational planning benefits", *Journal of Management*, Vol. 20 No. 4, pp. 859-85.
- Godsell, J., Juttner, J. and Christopher, M. (2005), "Demand chain management: the missing link", paper presented at the 10th International Symposium on Logistics, Lisbon.
- Godsell, J., Harrison, A., Emberson, C. and Storey, J. (2006), "Customer responsive supply chain strategy: an unnatural act?", *International Journal of Logistics: Research and Applications*, Vol. 9 No. 1, pp. 47-56.
- Groth, J.C. (1994), "Managing action inhibitors to increase sales", *Marketing Intelligence & Planning*, Vol. 12 No. 4, pp. 4-10.
- Gunasekaran, A., Patel, C. and Tirtiroglu, E. (2001), "Performance measures and metrics in a supply chain environment", *International Journal of Operations & Production Management*, Vol. 21 Nos 1/2, pp. 71-87.
- Halldórsson, A., Larson, P.D. and Poist, R.F. (2008), "Supply chain management: a comparison of Scandinavian and American perspectives", *International Journal of Physical Distribution & Logistics Management*, Vol. 38 No. 2, pp. 126-42.
- Hamel, G. and Prahalad, C. (1989), "Strategic intent: to revitalise corporate performance we need a whole new model of strategy", *Harvard Business Review*, Vol. 67 No. 3, p. 63.
- Hammer, M. and Champy, J. (1993), *Reengineering the Corporation: A Manifesto for Business Revolution*, Collins Business Essentials, New York, NY.
- Harrison, A. (1998), "Investigating business processes: does process simplification always work?", *Business Process Management Journal*, Vol. 4 No. 2, pp. 137-53.
- Hartley, J.L. (2000), "Collaborative value analysis: experiences from the automotive industry", *Journal of Supply Chain Management*, Vol. 36 No. 4, pp. 27-33.
- Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser, W.E. Jr and Schlesinger, L.A. (1994), "Putting the service-profit chain to work", *Harvard Business Review*, Vol. 72 No. 2, pp. 164-70.
- Hill, C.A. and Scudder, G.D. (2002), "The use of electronic data interchange for supply chain coordination in the food industry", *Journal of Operations Management*, Vol. 20 No. 4, pp. 375-97.
- Hoffman, N.P. (2000), "An examination of the 'sustainable competitive advantage' concept: past, present, and future", *Academy of Marketing Science Review*, No. 4, p. 1, available at: www.amsreview.org/articles/hoffman04-2000.pdf
- Holmberg, S. (2000), "A systems perspective on supply chain measurements", *International Journal of Physical Distribution & Logistics Management*, Vol. 30 No. 10, pp. 847-68.
- Holweg, M. (2005), "An investigation into supplier responsiveness: empirical evidence from the automotive industry", *International Journal of Logistics Management*, Vol. 16 No. 1, pp. 96-119.
- Houlihan, J.B. (1985), "International supply chain management", *International Journal of Physical Distribution and Materials Management*, Vol. 15 No. 1, pp. 22-38.
- Huang, G.Q., Lau, J.S.K. and Mak, K.L. (2003), "The impacts of sharing production information on supply chain dynamics: a review of the literature", *International Journal of Production Research*, Vol. 41 No. 7, pp. 1483-517.
- Jaworski, B.J. and Kohli, A.K. (1993), "Market orientation: antecedents and consequences", *Journal of Marketing*, Vol. 57 No. 3, pp. 53-70.
- Jeong, J.S. and Hong, P. (2007), "Customer orientation and performance outcomes in supply chain management", *Journal of Enterprise Information Management*, Vol. 20 No. 5, pp. 578-94.
- Johnson, G. and Scholes, K. (1999), *Exploring Corporate Strategy: Text and Cases*, 5th ed., Prentice Hall, Hemel Hempstead.
- Jones, T.C. and Riley, D.W. (1985), "Using inventory for competitive advantage through supply chain management", *International Journal of Physical Distribution & Materials Management*, Vol. 15 No. 5, pp. 16-26.
- Kahn, K.B. and Mentzer, J.T. (1996), "Logistics and interdepartment integration", *International Journal of Physical Distribution & Logistics Management*, Vol. 26 No. 9, pp. 6-14.
- Kalchschmidt, M., Zotteri, G. and Verganti, R. (2003), "Inventory management in a multi-echelon spare parts supply chain", *International Journal of Production Economics*, Vol. 81/82, pp. 397-413.
- Kannan, V.R. and Tan, K.C. (2010), "Supply chain integration: cluster analysis of the impact of span of integration", *Supply Chain Management: An International Journal*, Vol. 15 No. 3, pp. 207-15.
- Kaplan, R.S. and Norton, D.P. (2004), "The strategy map: guide to aligning intangible assets", *Strategy & Leadership*, Vol. 32 No. 5, pp. 10-17.

- Karapetrovic, S. and Willborn, W. (2002), "Self-audit of process performance", *The International Journal of Quality & Reliability Management*, Vol. 19 No. 1, pp. 24-45.
- Kathuria, R., Joshi, M.P. and Porth, S.J. (2007), "Organizational alignment and performance: past, present and future", *Management Decision*, Vol. 45 No. 3, pp. 503-17.
- Kauremaa, J., Kärkkäinen, M. and Ala-Risku, T. (2009), "Customer initiated interorganizational information systems: the operational impacts and obstacles for small and medium sized suppliers", *International Journal of Production Economics*, Vol. 119 No. 2, pp. 228-39.
- Kelley, H.H. and Thibaut, J.W. (1954), "Experimental studies of group problem solving and process", in Lindzey, G. (Ed.), *Handbook of Social Psychology*, Vol. 2, Addison-Wesley, Cambridge, MA.
- Kim, S.W. (2006), "The effect of supply chain integration on the alignment between corporate competitive capability and supply chain operational capability", *International Journal of Operations Management*, Vol. 26 No. 10, pp. 1084-107.
- Laitamaki, J. and Kordupleski, R. (1997), "Building and deploying profitable growth strategies based on the waterfall of customer value added", *European Management Journal*, Vol. 15 No. 2, pp. 158-66.
- Lambert, D.M., Cooper, M.C. and Pagh, J.D. (1998), "Supply chain management: implementation issues and research opportunities", *International Journal of Logistics Management*, Vol. 9 No. 2, pp. 1-13.
- Lambert, D.M., Garcia-Dastugue, S.J. and Croxton, K.L. (2005), "An evaluation of process-oriented supply chain management frameworks", *Journal of Business Logistics*, Vol. 26 No. 1, pp. 25-51.
- Lawrence, P. and Lorsch, J. (1967), *Organization and Environment: Managing Differentiation and Integration*, Irwin, Homewood, IL.
- Lee, H. (2004), "The Triple-A supply chain", *Harvard Business Review*, Vol. 82 No. 10, pp. 102-12.
- Lee, H. and Whang, S. (2000), "Information sharing in supply chain", *International Journal of Technology Management*, Vol. 20 Nos 3/4, pp. 373-87.
- Lee, H.L., Padmanabham, V. and Whang, S. (1997), "The bullwhip effect in supply chains", *Sloan Management Review*, Vol. 38 No. 3, pp. 93-102.
- Lehtonen, J., Småros, J. and Holmström, J. (2005), "The effect of demand visibility in product introductions", *International Journal of Physical Distribution & Logistics Management*, Vol. 35 No. 2, pp. 101-15.
- Lewis, M. and Slack, N. (2003), *Operations Management: Critical Perspectives on Business Management*, Routledge, London.
- Li, S. and Lin, B. (2006), "Assessing information sharing and information quality in supply chain management", *Decision Support Systems*, Vol. 42 No. 3, pp. 1641-56.
- Luftman, J. (1998), "Enablers and inhibitors", *Information Week*, 14 September, pp. 283-6.
- Luftman, J. and Brier, T. (1999), "Achieving and sustaining business-IT alignment", *California Management Review*, Vol. 42 No. 1, pp. 109-22.
- Lummus, R.R. and Vokurka, R.J. (1999), "Managing the demand chain through managing the information flow: capturing 'moments of information'", *Production and Inventory Management Journal*, Vol. 40 No. 1, pp. 16-20.
- McAdam, R. and Brown, L. (2001), "Strategic alignment and the supply chain for the steel stockholder sector: an exploratory case study analysis", *Supply Chain Management: An International Journal*, Vol. 6 No. 2, pp. 83-94.
- Maku, T.C., Collins, T.R. and Beruvides, M.G. (2005), "The impact of human interaction on supply chain management practices", *Performance Improvement*, Vol. 44 No. 7, pp. 26-33.
- Marquez, A.C. and Blanchar, C. (2006), "A decision support system for evaluating operations investments in high-technology business", *Decision Support Systems*, Vol. 41 No. 2, pp. 472-87.
- Maskell, B.H. (1991), *Performance Measurement for World Class Manufacturing*, Productivity Press, Cambridge, MA.
- Matthyssens, P. and Vandenbempt, K. (2008), "Moving from basic offerings to value-added solutions: strategies, barriers and alignment", *Industrial Marketing Management*, Vol. 37 No. 3, pp. 316-28.
- Melnik, S.A., Stewart, D.M. and Swink, M. (2004), "Metrics and performance measurement in operations management: dealing with the metrics maze", *Journal of Operations Management*, Vol. 22 No. 3, pp. 209-18.
- Miles, M.B. and Huberman, M.A. (1994), *Qualitative Data Analysis*, Sage, Thousand Oaks, CA.
- Monczka, R.M., Handfield, R.B., Giuipero, L.C. and Patterson, J.L. (2009), *Purchasing and Supply Chain Management*, South Western, Cincinnati, OH.
- Morash, E.A. and Clinton, S.R. (1998), "Supply chain integration: customer value through collaborate closeness versus operational excellence", *Journal of Marketing Theory & Practice*, Vol. 6 No. 4, pp. 104-20.
- Morash, E.A., Droge, C.L.M. and Vickery, S.K. (1996), "Boundary spanning interfaces between logistics, production, marketing and new product development", *International Journal of Physical Distribution & Logistics Management*, Vol. 26 No. 8, pp. 43-62.
- Morgan, C. (2004), "Structure, speed and salience: performance measurement in the supply chain", *Business Process Management Journal*, Vol. 10 No. 5, pp. 522-36.
- Muratoglu, K. (2008), "Performance measurement of supply chain via balanced scorecard: the case of a brewing group", *The Business Review*, Vol. 10 No. 1, pp. 330-7.
- Nadler, D. and Tushman, M. (1988), *Strategic Organization Design: Concepts, Tools and Processes*, Scott, Foresman, Glenview, IL.
- Neely, A. (Ed.) (2002), *Business Performance Measurement: Theory and Practice*, Cambridge University Press, Cambridge.
- Nichol, R.L. (1992), "Get middle managers involved in the planning process", *The Journal of Business Strategy*, Vol. 13 No. 3, pp. 26-32.
- O'Leary-Kelly, S.W.O. and Flores, B.E. (2002), "The integration of manufacturing and marketing/sales decisions: impact on organizational performance", *Journal of Operations Management*, Vol. 20 No. 3, pp. 221-40.
- O'Mara, C.E., Hyland, P.W. and Chapman, R.L. (1998), "Performance measurement and strategic change", *Managing Service Quality*, Vol. 8 No. 3, pp. 178-82.
- Osterlund, J. and Loven, E. (2005), "Information versus inertia: a model for product change with low inertia", *Systems Research and Behavioral Science*, Vol. 22 No. 6, pp. 547-60.

- Othman, R. and Ghani, R.A. (2008), "Supply chain management and suppliers' HRM practice", *Supply Chain Management: An International Journal*, Vol. 13 No. 4, pp. 259–62.
- Pagell, M. (2004), "Understanding the factors that enable and inhibit the integration of operations and logistics", *Journal of Operations Management*, Vol. 22 No. 5, p. 459.
- Petersen, K.J., Handfield, R.B. and Ragatz, G.L. (2005), "Supplier integration into new product development: coordinating product, process and supply chain design", *Journal of Operations Management*, Vol. 23 Nos 3/4, pp. 371–88.
- Pollalis, Y.A. (2003), "Patterns of co-alignment in information-intensive organizations: business performance through integration strategies", *International Journal of Information Management*, Vol. 23 No. 6, pp. 469–92.
- Porter, M.E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, a division of Macmillan Inc., New York, NY.
- Powell, T.C. (1992), "Organizational alignment as competitive advantage", *Strategic Management Journal*, Vol. 13 No. 2, pp. 119–34.
- Powers, V. (1996), "Benchmarking study illustrates how best-in-class achieve alignment, communicate change", *Communication World*, Vol. 14 No. 1, p. 30.
- Rappaport, A. (1987), "Linking competitive strategy and shareholder value analysis", *Journal of Business Strategy*, Vol. 7 No. 4, pp. 58–67.
- Reichhart, A. and Holweg, M. (2007), "Creating the customer-responsive supply chain: a reconciliation of concepts", *International Journal of Operations & Production Management*, Vol. 27 No. 11, pp. 1144–72.
- Rich, N. and Hines, P. (1997), "Supply-chain management and time-based competition: the role of the supplier association", *International Journal of Physical Distribution & Logistics Management*, Vol. 27 Nos 3/4, p. 210.
- Robertson, T.S. and Barich, H. (1992), "A successful approach to segmenting industrial markets", *Planning Review*, Vol. 20 No. 6, pp. 4–11.
- Robson, I. (2004), "From process measurement to performance improvement", *Business Process Management Journal*, Vol. 10 No. 5, pp. 510–21.
- Rodrigues, A.M., Stank, T.P. and Lynch, D.F. (2004), "Linking strategy, structure, process, and performance in integrated logistics", *Journal of Business Logistics*, Vol. 25 No. 2, pp. 65–94.
- Sabath, R. and Whipple, J.M. (2004), "Using the customer/product action matrix to enhance internal collaboration", *Journal of Business Logistics*, Vol. 25 No. 2, pp. 1–19.
- Sahay, B.S. (2003), "Understanding trust in supply chain relationships", *Industrial Management & Data Systems*, Vol. 103 Nos 8/9, pp. 553–63.
- Sahin, F. and Robinson, E.P. (2002), "Flow coordination and information sharing in supply chains: review, implications, and directions for future research", *Decision Sciences*, Vol. 33 No. 4, pp. 505–36.
- Sandberg, E. (2007), "Logistics collaboration in supply chains: practice vs theory", *International Journal of Logistics Management*, Vol. 18 No. 2, pp. 274–93.
- Schmenner, R.W. and Vollmann, T.E. (1994), "Performance measures: gaps, false alarms and the 'usual suspects'", *International Journal of Operations & Production Management*, Vol. 14 No. 12, pp. 58–69.
- Scott, C. and Westbrook, R. (1991), "New strategic tools for supply chain management", *International Journal of Physical Distribution & Logistics Management*, Vol. 21 No. 1, pp. 23–33.
- Sha, D.Y., Chen, P.K. and Chen, Y.H. (2008), "The strategic fit of supply chain integration in the TFT-LCD industry", *Supply Chain Management: an International Journal*, Vol. 13 No. 5, pp. 339–42.
- Simatupang, T.M. and Sridharan, R. (2004), "Benchmarking supply chain collaboration: an empirical study", *Benchmarking*, Vol. 11 No. 5, pp. 484–503.
- Skinner, W. (1969), "Manufacturing: missing link in corporate strategy", *Harvard Business Review*, Vol. 47, May–June, pp. 136–45.
- Slater, S.F. and Narver, J.C. (1994), "Market orientation, customer value, and superior performance", *Business Horizons*, Vol. 37 No. 2, pp. 22–8.
- Soosay, C.A., Hyland, P.W. and Ferrer, M. (2008), "Supply chain collaboration: capabilities for continuous innovation", *Supply Chain Management: An International Journal*, Vol. 13 No. 2, pp. 160–9.
- Srivastava, R.K., Shervani, T.A. and Fahey, L. (1999), "Marketing, business processes, and shareholder value: an organizationally embedded view of marketing activities and the discipline of marketing", *Journal of Marketing*, Vol. 63, October, special issue, pp. 168–79.
- Starbuck, W.H. (2006), *The Production of Knowledge*, Oxford University Press, Oxford.
- Storbacka, K. and Nenonen, S. (2009), "Customer relationships and the heterogeneity of firm performance", *The Journal of Business & Industrial Marketing*, Vol. 24 Nos 5/6, pp. 360–72.
- Storey, J., Emberson, C. and Reade, D. (2005), "The barriers to customer responsive supply chain management", *International Journal of Operations & Production Management*, Vol. 25 Nos 3/4, p. 242.
- Susman, G.I. and Dean, J.W. Jr (1992), "Development of a model for predicting design for manufacturability effectiveness", in Susman, G.I. (Ed.), *Integrating Design and Manufacturing for Competitive Advantage*, Oxford University Press, New York, NY, pp. 207–27.
- Tamas, M. (2000), "Mismatched strategies: the weak link in the supply chain?", *Supply Chain Management: An International Journal*, Vol. 5 No. 4, pp. 171–5.
- Tarn, J.M., Yen, D.C. and Beaumont, M. (2002), "Exploring the rationales for ERP and SCM integration", *Industrial Management & Data Systems*, Vol. 102 Nos 1/2, pp. 26–34.
- Thompson, J. (1967), *Organizations in Action*, McGraw-Hill, New York, NY.
- Tracey, M., Lim, J. and Vonderembse, M.A. (2005), "The impact of supply-chain management capabilities on business performance", *Supply Chain Management*, Vol. 10 Nos 3/4, pp. 179–91.
- Tranfield, D., Denyer, D. and Smart, P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal of Management*, Vol. 14 No. 3, pp. 207–22.
- Tsinopoulos, C. and Bell, K. (2010), "Supply chain integration systems by small engineering to order companies: the challenge of implementation", *Journal of Manufacturing Technology Management*, Vol. 21 No. 1, pp. 50–62.

- Van Hoek, R.I. and Mitchell, A.J. (2006), "The challenge of internal misalignment", *International Journal of Logistics: Research and Applications*, Vol. 9 No. 3, pp. 269–81.
- Venkatraman, N. (1989), "The concept of fit in strategy research: toward verbal and statistical correspondence", *The Academy of Management Review*, Vol. 14 No. 3, pp. 423–44.
- Waggoner, D.B., Neely, A.D. and Kennerley, M.P. (1999), "The forces that shape organisational performance measurement systems: an interdisciplinary review", *International Journal of Production Economics*, Vol. 60–61, pp. 53–60.
- Wheelwright, S.C. (1984), "Manufacturing strategy: defining the missing link", *Strategy Management Journal*, Vol. 5 No. 1, pp. 77–91.
- Wheelwright, S.C. and Clark, K.B. (1992), *Revolutionising Product Development*, Free Press, New York, NY.
- Wilcox, M. and Bourne, M. (2003), "Predicting performance", *Management Decision*, Vol. 41 No. 8, pp. 806–16.
- Woodruff, R.B. (1997), "Customer value: the next source for competitive advantage", *Academy of Marketing Science Journal*, Vol. 25 No. 2, pp. 139–53.
- Yasin, M.M., Bayes, P.E. and Czuchry, A.J. (2005), "The changing role of accounting in supporting the quality and customer goals of organizations: an open system perspective", *International Journal of Management*, Vol. 22 No. 3, pp. 323–32.

Further reading

- Quinn, J. (1993), *The Intelligent Enterprise*, The Free Press, New York, NY.

About the authors

Chee Wong joined University of Hull Business School and Logistics Institute in 2007. He graduated from Aalborg University in Denmark with a PhD in Logistics and Supply Chain Management in 2005. On completion of his PhD, he joined Cranfield University School of Management as a research fellow before moving to Hull. He is currently the Programme Leader for the Hull Business School's MSc in Logistics and Supply Chain Management Programme. He teaches international logistics, logistics and supply chain management, and operations management at undergraduate, MSc, MBA and PhD levels. He has more than nine years of working experience in the areas of operations, purchasing, production, inventory and distribution management and supply chain design with several multinational companies specialised in beverage, retail, consumer goods, toys, engineering, metal production, and polymers. His research

interests include supply chain strategy, sustainable logistics, third-party logistics, global logistics, and operations strategy. He has published more than 50 academic and practitioner articles.

Heather Skipworth joined Cranfield University School of Management faculty in 2004 following the completion of her doctorate at Cranfield addressing how form postponement is applied in manufacturing industry. She now works on a variety of research projects in the Supply Chain Research Centre, most notably a project entitled Aligning Supply Strategy with Demand to Deliver Customer Responsiveness funded by Cranfield Innovative Manufacturing Research Centre. While primarily a researcher she also delivers lectures on supply chain core concepts on the MSc programme. Prior to her academic career she worked in industry for a number of years, including as an internal operations consultant for BICC. Heather Skipworth is the corresponding author and can be contacted at: heather.skipworth@cranfield.ac.uk

Janet Godsell joined the Cranfield faculty in 2001, having completed her Executive MBA there. Prior to this she was at Dyson Ltd where she undertook a number of operational and process improvement roles in functions spanning the breadth of the supply chain, including R&D, customer logistics, purchasing and manufacturing. Her origins are in engineering and she spent her early career working for ICI and Zeneca Pharmaceuticals. She is a chartered mechanical engineer and a member of the Institution of Mechanical Engineers. She also speaks Japanese having studied and worked in Japan. Her main research and teaching interests are in exploiting the links between marketing and supply chain strategy, to develop market-led or customer driven supply chains. She has particular interest in sales and operations planning (S&OP) as this is a key enabler of a customer driven supply chain strategy.

Nemile Achimugu was a Research Fellow at Cranfield University from 2004 to 2007 where she also completed her doctorate at Cranfield on formulating a strategic response process that will support businesses in maximising shareholder value and customer value through a performance model. She has subsequently put aspects of her research into practice by working independently with various organisations in the telecoms, automotive, pharmaceutical, health care, government and public sectors as well as in the consulting industry for a big four firm. She is currently working as Strategy Director for a textile group and also works in an advisory capacity on an *ad hoc* basis as a means to grow in her area of research interest. Prior to her academic career she worked for a number of years in the automotive and fmcg industries as an internal consultant and in senior management.