Supply chain alignment: A Thematic Bibliography

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Abstract

Purpose - This paper provides a thematic-bibliography of selected published journal articles pertaining to the concept of Supply Chain Alignment (SCA).

Design/methodology/approach – A thematic-bibliography was used with searches conducted on the EBSCO Host, ProQuest, and Google Scholar databases to identify papers that had examined or otherwise incorporated the strategic alignment model in their research. Four research dimensions emerged from the analysis: strategy, process, technology and people/incentives dimension. Based on the categorisation of the paper by the authors/publishers, the analysis further distinguishes whether the article contributes to theory and concept development, whether it discusses case applications, and whether it provides empirical substantiation of the concept.

Implications – This analysis provides indications for the level of maturity of the SCA concept, as it points to gaps in the body of research and to weaknesses in the application of the concept in practice. It thus aims to provide guidance for future research and application.

Keywords: Supply chain; alignment; coordination; resources; capabilities; thematic-bibliography.

JEL Classifications: M11
PsycINFO Classifications: 3660
FoR Codes: 1503
Introduction

Supply chain management is concerned with the coordination of resources and capabilities within a firm and across a network of vertical and horizontal business partners. In the context of globalisation, rapid technology evolution, shortening product lifecycles, and changing management philosophies, the management of supply chains has become increasingly complex. Supply Chain Alignment (SCA) provides an approach to respond to these challenges.

Based on the theory of the resource-based view of the firm (RBV)(Grant, 1991; Wernerfelt, 1995; Barney et al., 2001), we define SCA as a concept that explains the efficient and effective allocation of supply chain resources and related capabilities to better serve customers and markets, improve the coordination of product, process, and information flows, and to create value for shareholders and stakeholders. Initially, studies have focused on the alignment of resources within a single firm. More recently, with the advent of new management approaches and enabled by emerging technologies, supply chain management has been extended beyond the boundaries of the single firm to include vertical partnerships with suppliers and customers, as well as horizontal partnerships with transport, logistics and supply chain services providers. This created the need for coordination of capabilities across company boundaries.

As a result, supply chain management has recently been labeled as the ‘nervous system’ of a network of business partners (Gattorna, 2009). It is a structure that allows the formation of networked supply chain capabilities, which in turn leads to better supply network performance and value creation. We posit that alignment of capability describes the extent to which partners within a supply chain network have access to, or share, capabilities which they consider to be critical, or useful, for their operations and which they consider will contribute to achieving desired performance outcomes. Thus, a supply chain capability is determined by the combination and intensity of sharing strategies, information, process knowledge, skills, and incentives across the supply chain. We assume for the purpose of this research that successful supply chain capability alignment will provide external linkages with corresponding capabilities of network partners, which in turn will generate a performance advantage. Figure 1 exhibits a conceptual diagram about the posited causal relationship between the antecedents of supply chain alignment, supply chain alignment and the resulting impact on performance.

**Figure 1:**

*SCA conceptual diagram*
This, and the realisation that research related to supply chain management is still in the early stages (Walker, 2005; Zhang and Gregory, 2011), forms the point of departure for the following thematic bibliography and seeks to identify and categorize the contributions made by academics to theories, concepts and related phenomena in networked supply chains.

Methodology

This thematic-bibliography follows the approach established by Perrin and Laing (2012) and exemplified by Volkov (2012). In keeping with the method as espoused by Perrin and Laing (2012) the thematic-bibliography involved a literature search of the term “supply chain alignment” in databases ProQuest, EBSCOHost, and Google Scholar. The analysis is restricted to published, peer-reviewed journal articles.

The analysis resulted in 44 papers being selected. The contributions were divided into four categories, each one relating to the predominant focus of the research. The first category includes articles that focus on strategic supply chain alignment issues, e.g. the fit of supply chain strategies, corporate strategy, financial and shareholder performance. The second includes process alignment issues, e.g. consideration of issues related to product and process design within and across companies. The third relates to information alignment, e.g. streamlining and integration of information flows. And the last is a focus on people and incentive system alignment. A summary of these categories is provided in Table 1. This thematic-bibliography method provides the references and relevant details of the contribution of the papers, and the number of citations. The citations were current as at 15th March 2014.

Table 1: Categorisation of contributions

<table>
<thead>
<tr>
<th>Research category</th>
<th>Number of journal articles</th>
<th>Number of citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Alignment</td>
<td>15</td>
<td>3655</td>
</tr>
<tr>
<td>Process Alignment</td>
<td>11</td>
<td>921</td>
</tr>
<tr>
<td>Information Alignment</td>
<td>10</td>
<td>3394</td>
</tr>
<tr>
<td>People &amp; Incentive Alignment</td>
<td>8</td>
<td>2456</td>
</tr>
</tbody>
</table>

The following sections present the results of the thematic-bibliography categorized by research dimension and type of contribution, sorted chronologically.

Thematic Analysis

Strategic Alignment

Strategic Alignment in supply chain networks relates to the inter-organisational linkages in a network consisting of customers, suppliers, and regulators. Such conceptualisation includes a range of relationships and related coordination tasks of managing the shared capabilities. Our review highlights three determinants for strategic alignment in supply chain networks: type of network structure (internal, dyadic, or network), type of relationships between network partners (formal vs informal), and the type of performance and value contribution of the product or service (primary activities vs
secondary/support activities). We also find that networks structures are dynamic and may change, which poses a challenge for decision-making and supply chain development.

Wu, T., Jim Wu, Y.-C., Chen, Y. J. and Goh, M. 2014. Aligning supply chain strategy with corporate environmental strategy: A contingency approach. International Journal of Production Economics, 147, 220-229. **Contribution:** Empirically examines the complex links between four supply chain strategies and four corporate environmental strategies on 172 manufacturing firms in Taiwan and establishes a link to firm performance. **Citations:** 1

Ashby, A., Leat, M. and Hudson-Smith, M. 2012. Making connections: a review of supply chain management and sustainability literature. Supply Chain Management: An International Journal, 17, 497-516. **Contributions:** Identifies the integration of sustainability into supply chains as a significant and evolving field. Investigates a range of relevant dimensions, e.g. the environmental dimension, the social dimension. **Citations:** 17

Green, K. W., Whitten, D. and Inman, R. A. 2012. Aligning marketing strategies throughout the supply chain to enhance performance. Industrial Marketing Management, 41, 1008-1018. **Contributions:** Presents a model that incorporates marketing strategy alignment, supply chain performance, and organisational performance constructs. Findings indicate that alignment of the marketing strategies by the partners throughout the supply chain is positively associated with supply chain performance. **Citations:** 12


Wong, C., Skipworth, H., Godsell, J. and Achimugu, N. 2012. Towards a theory of supply chain alignment enablers: a systematic literature review. Supply Chain Management, 17, 419-437. **Contributions:** 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. **Citations:** 7

Camerinelli, E. 2009. Supply chain finance. Journal of Payments Strategy & Systems, 3, 114-128. **Contributions:** Identifies supply chains as sources of possible internal financing by aligning the operational flow with the financial flow. The supply chain is a network of participants who trade goods, services and information in front of purchase and sales orders. **Citations:** 11

Vachon, S., Halley, A. and Beaulieu, M. 2009. Aligning competitive priorities in the supply chain: the role of interactions with suppliers. International Journal of Operations & Production Management, 29, 322-340. **Contributions:** Examines linkages between strategic alignment in the supply chain, based on traditional competitive priorities (i.e. cost, quality, flexibility and delivery), and the type of interactions with suppliers. Strategic alignment is measured by the difference between customer’s requirements and the emphasis that the organisation puts on these same requirements in dealing with its suppliers. **Citations:** 43
Contribution: Reports and reviews various perspectives on supply chain coordination. Discusses various mechanisms available for coordination and identifies the gaps existing in the literature.
Citations: 324

Contribution: This article seeks to investigate supplier and customer integration strategies by comparing US and East Asian companies. Analyses how different strategies affect performance.
Citations: 138

Contribution: Discusses the Triple-A Supply Chain comprised of agility, adaptability, and alignment and proposed how to build these qualities into supply chains. Provides case study.
Citations: 957

This paper estimates the shareholder wealth affects of supply chain glitches that resulted in production or shipment delays.
Citations: 451

Contribution: Studies four supply chain dimensions in an Indian industry context. Recommends that the Indian industry should align supply chain strategy with business strategy, streamline processes for supply chain integration, form partnerships for minimizing inventory and focus on infrastructure and technology deployment.
Citations: 108

Contribution: Examines the fit between an organisation's enterprise logistics integration capabilities and its supply chain structure.
Citations: 349

Develops argument that only through close collaborative linkages through the entire supply chain, can one fully achieve the benefits of cost reduction and revenue enhancing behaviours in the network.
Citations: 900

**Process Alignment**

Our findings show that because of process alignment there is better coordination of physical movements within the supply chain; better coordination of decisions along the product life cycle; better price coordination and margin management; and better asset utilisation. The review also highlights that a systemic view is necessary to achieve process alignment. In line with our literature review, we define process alignment as the market-driven coordination of supply chain activities related to the movement, conversion and storage of products and services to achieve performance advantages. The following list of selected articles highlights the major characteristics of process alignment.

Investigates the impact of improved inventory management alignment on operational performance.
Citations: 10
Contributions: Analyses a firm’s optimal supply chain portfolio as a function of its product portfolio. Finds that supply chain and product portfolio alignment holds potential for cost savings. Citations: 5

Contribution: Demonstrates that brands unite both the supply and demand sides of the value chain. Stresses the sociotechnical qualities of the supply chain and argues that the brand is the only common element to the entire demand chain. Citations: 8

Contributions: Researches the opportunity to leverage supply chain in new product development, for greater market impact and revenue growth. Citations: 38

Contribution: Discusses the relationship between demand chain alignment and PLC management. Based on the findings, a model integrating demand chain alignment and PLC management is proposed. Citations: 49

Contribution: Presents a coordination framework to align the inventory decisions in decentralized supply chains. The framework rests on three pillars - multi-agent technology, coordination theory, and optimisation technology. Citations: 35

Contribution: Presents a conceptual model identifying the key factors that determine the responsiveness of a supply chain system. Applies model to three case studies from the automotive and electronics industry. Citations: 115

Contribution: Report that customers and consumers are increasingly value driven and consequently less brand or supplier loyal. Recommends alignment of pricing strategies with effective supply chain management to achieve cost reduction and increased profits. Citations: 105

Contribution: Highlights four different modes of coordination: logistics synchronisation, information sharing, incentive alignment, and collective learning, which together positively impact supply chain performance. Citations: 285

Contribution: Uses supply chain modelling methods to captures complexity of supply chains from the views of scenario, interdependency, process and information. Citations: 49

Introduces supply-chain operations reference model (SCOR) for evaluating and improving enterprise-wide supply-chain performance and management. Citations: 242
Information Alignment

The use of technology in the supply chain has received considerable attention to explain inter-organisational information sharing. Information integration has been a predominant theme in the supply chain literature since the emergence of electronic data interchange (EDI) in the 1980ies. As is evident from our analysis, other integration technologies and related software solutions evolved and technology has since played a major enabling role in supply chain initiatives such as Enterprise Resource Planning (ERP), vendor managed inventory (VMI), efficient consumer response (ECR) and collaborative planning forecasting and replenishment (CPFR).

In line with our literature review findings, we define information alignment as the market-driven coordination of information flows related to supply chain activities to achieve performance advantages. The following articles support our definition.


Ivanov, D. 2010. An adaptive framework for aligning (re)planning decisions on supply chain strategy, design, tactics, and operations. International Journal of Production Research, 48, 3999-4017. Contributions: Highlights that decisions on supply chain strategy, design, tactics, and operations are interlinked and dispersed over different supply chain structures (functional, organisational, informational, financial, etc.). Develops a framework to increase the efficiency, consistency, implacability, and sustainability of decisions on how to design, plan, and run supply chains. Applies mathematical modelling. Citations: 30


Sanders, N. R. 2005. IT Alignment in Supply Chain Relationships: A Study of Supplier Benefits. Journal of Supply Chain Management, 41, 4-13. Contribution: Evaluates the benefits gained by suppliers when investing in interorganisational IT that is aligned with their primary buyer or network leader. Shows that IT alignment between supplier and buyer has a direct positive impact on both strategic and operational performance measures of the supplier. Citations: 79


Contributions: Investigates the relationship between ERP implementation practices and a firm's competitive strategy. Proposes that ERP implementation should be aligned with competitive strategy and presents guidelines for achieving alignment. Citations: 118


Frohlich, M. T. and Westbrook, R. 2001. Arcs of integration: an international study of supply chain strategies. Journal of Operations Management, 19, 185-200. This paper investigated supplier and customer integration strategies in a global sample of 322 manufacturers. There was consistent evidence that the widest degree of arc of integration with both suppliers and customers had the strongest association with performance improvement. Citations: 1216

People and Incentive Alignment

With the importance of intangible assets increasing (e.g. skills and knowledge), the alignment of relationships and related incentive systems has become increasingly important in supply chain networks. Such tacit capability is tied to employees and it follows that it is mostly shared through interpersonal relational networks. Our review suggests that relational alignment is related to the alignment of performance measurement and incentive systems. The following contributions highlight the issue.

Brindley, C. and Oxborrow, L. 2014. Aligning the sustainable supply chain to green marketing needs: A case study. Industrial Marketing Management, 43, 45-55. The research explores the challenges facing organisations in aligning sustainable procurement requirements and marketing needs with supply chain management practices. The findings emphasise the importance of intermediaries and relationships in its fulfilment. Citations: 10


Contribution: This paper proposes and tests an instrument to measure the extent of collaboration in a supply chain. Model incorporates collaborative practices in information sharing, decision synchronisation and incentive alignment. A collaboration index is introduced to measure the level of collaborative practices. Citations: 205


Ba, S., Stallaert, J. and Whinston, A. B. 2001. Research commentary: Introducing a third dimension in information systems design - the case for incentive alignment. Information Systems Research, 12, 225-239. Contribution: This paper outlines why incentives are important for supply chain coordination and specifies requirements for designing incentive aligned information systems. Citations: 240

Summary

The SCA concept aims to describe the factors that lead to efficient and effective coordination of resources within and between different functions and business partners in a supply chain network.

Strategic supply chain alignment includes the alignment of supply chain activities with non-operational activities such as marketing, and sales by managing the trade-offs between policies, economic and financial objectives and corporate strategies and decisions, often in the context of uncertainty, complexity, risk, and sustainability. We find that supply chain network researchers have not yet identified a unifying concept for strategic supply chain alignment.

Many contributors argue, that as a result of process alignment there has been better coordination of physical movements within the supply chain; better coordination of decision making; better price coordination; increased responsiveness; improved inventory holding polices, and less waste. While process alignment appears to be the well established, there remains scope for further research into the effect of process alignment on emerging themes, such as sustainability.

Technology alignment has resulted in sophisticated intra- and inter-organisational information integration and has been attributed with enabling supply chain performance. For example the introduction of EDI, RFID, ERP and Advanced Planning and Scheduling systems led to better information exchange, tighter integration of information flows and improved supply chain network visibility. This in turn led to step-change performance improvements in operational and financial performance. While many researchers acknowledge the fact that technology is continuously changing, we observe a lack of research about the effects of such continuous evolution of technologies relevant to supply chain networks on supply chain performance.

Human resource alignment includes human resource strategies and incentive systems, as well as relational aspects that impact supply chain performance. While the literature review identified research relating to collaboration in the supply chain, the foci have been narrow in scope (e.g. collaboration in a dyad, integrating information flows for
better collaboration, joint incentive systems) and present a rich area for further research. In particular, there appears to be an opportunity to study the impact of network relationships (i.e. how do 3 or more supply chain partners simultaneously coordinate their activities) on network performance. Table 2 summarises different themes that emerged during this analysis.

Table 2: Supply chain alignment themes

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<tbody>
<tr>
<td>Strategy</td>
<td>Internal</td>
<td>Temporal/transient</td>
<td>Competitive advantage</td>
<td>Upstream</td>
<td>Industry</td>
</tr>
<tr>
<td>Process</td>
<td>Dyadic</td>
<td>Tactical</td>
<td>Efficiency</td>
<td>Downstream</td>
<td>Region</td>
</tr>
<tr>
<td>Information</td>
<td>Network</td>
<td>Strategic/long-term</td>
<td>Effectiveness</td>
<td>Horizontal</td>
<td>Culture</td>
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<tr>
<td>People</td>
<td></td>
<td></td>
<td>Shareholder Value</td>
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Conclusion

This thematic bibliography provides a selective overview about the current academic research in relation to supply chain alignment. It presents a starting point for identifying critical knowledge gaps and for supporting the identification of areas for future academic research.

While we do not claim to have identified an exhaustive list of all contributions about supply chain alignment here, we are able to highlight significant shortcomings and gaps of current SCA research and application. We have not been able to find a unifying framework for supply chain alignment based on solid theoretical foundation and tested empirically. This is of significant concern, as we find supply chain alignment research outcomes that potentially lack validity.

We have not been able to uncover any studies relating to supply chain alignment and small and medium sized enterprises (SMEs). SME’s play an important part in global supply chains across many industries and contribute a large portion of resources, capabilities and resulting value creation.

Our findings also suggest that SCA analysis does not distinguish between industries, countries and geographical regions, cultures, and varying company size. These factors may be important factors for explaining the effectiveness of the concept and supply chain performance. Instead, extant research tends to examine the phenomenon too generically, ignoring the idiosyncrasies of various situations and contexts.

Thus, SCA offers significant areas for future research within the broad dimensions presented here. It offers an opportunity to develop a robust concept in the context of new and emerging supply chain business models, i.e. the alignment of resources in networks of businesses. Once subjected scholarly scrutiny that would determine the concepts validity future research could produce meaningful academic research that can effectively help supply chain practitioners.
Reference List


