
Editorial

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Biographical notes: Dr. B.S. Sahay is currently Director at Institute of Management and Technology, Ghazibad, India and Adjunct Professor at Queensland University of Technology, Australia. He has been Professor of Operations Management, Chairman of Graduate Programmes in Management, Chairman of Fellow Programme in Management, and Founder Chairman of Centre for Supply Chain Management at the Management Development Institute, Gurgaon, India. Professor Sahay has gained his masters and doctorate in Industrial Engineering from Indian Institute of Technology, Delhi. He has a wide experience in academics, consultancy and industry both in India and abroad. Over the last 23 years, he has published 135 papers in international/national journals and conferences. He has carried out 16 sponsored research projects, 35 consulting assignments and published seven books in the areas of operations management, supply chain management and business modelling. He is on the editorial board of several international and national journals.

Worldwide interest on supply chain management has increased steadily when organisations realised the benefits of collaborative relationships. However, increasing uncertainty of supply networks, globalisation of businesses, proliferation of product variety and shortening of product life cycles have forced organisations to look beyond their four walls for collaboration with supply chain partners. The popularity of supply chain partnerships and collaboration has exploded over the past few years. In the last quarter of the 20th century, there has been a noticeable increase in management literature of the importance of supply chain partnerships and collaboration. As global markets grow increasingly efficient, competition no longer takes place among individual businesses, but among entire supply chains. Collaboration and partnership will provide the competitive edge that enables all the business partners in a supply chain to prevail and grow. However, opportunities for collaboration among business partners will vary depending upon the perspective role of organisations in the supply chain. The relationship between the partners, instead of being restricted to coordination, should transform to a more collaborative one. Failing to collaborate would result in the distortion of information (bullwhip effect) as it moves through the supply chain, which, in turn, can lead to costly inefficiencies, excess inventories, slow responses and lost profits.

Aggressive globalisation, internationalisation, deregulation and rapidly advanced scientific and technical innovations are some of the factors that have led to the emergence of the relationship paradigm for creating long-term relationships among customers and

suppliers. The relationship paradigm refers to all activities directed toward establishing, developing and maintaining successful relational exchanges. Due to increased global competitiveness many companies have started focusing on their core business and outsource the sub-processes. This has led to a realisation of the importance for establishing and maintaining long-term partner relationships, which is contradictory to the traditional arm's length relationships. In the evolution of the customer-supplier dyad, there has been a significant change in the nature of the relationship between customers and supplier. The traditional approach of relationship was more in the nature of a confrontationist negotiation based relationship seeking competitive terms and conditions, as a part of the effort to build economic efficiencies through cost, quality and other such considerations. In the past customers relied upon their power to give business or to take it away in supplier relationships, often setting up a win-lose situation. Frequently, customers followed the practice of keeping multiple suppliers, with an efficiency parameter for continuing the relationship. The mindset of the customers is on keeping the suppliers competing and confronting them with the efficiency of others. Though even in these relationships, there is an extent of technology and funds transfer, but these exist with the same mindset. The relationship perseveres with a confrontation, not a collaborative mindset. The mutuality that enhances the value of the exchanges for both parties may be missing in such cases. The focus is more on getting quality at reduced costs than on creating greater value in the exchange through a full exploration of what each partner has to offer to the exchange and value creation process. As a result, an adversarial atmosphere frequently developed. Today, customers and manufacturers, distributors, retailers and a host of service organisations have discovered that, in order to survive, it is imperative for them to come together for mutually beneficial reasons based less on power play and more on value exchange. Relationships under the new paradigm enhance value in two ways. First, collaboration changes the working relationship in ways, which enhance the value derived from each other. Second, they also allow lower costs and risks, and synergies, so that the net value delivered through this value chain is much higher than others in the industry. Collaborative relationships require trust and commitment for long-term cooperation along with a willingness to share risks.

The objective of this special issue is to present a framework for customer-supplier collaboration to manage supply chains effectively and efficiently. The special issue on 'Supply chain collaboration' aims to bring together original contributions that provide theoretical insights, empirical observations and case studies into the supply chain collaboration and partnership of this rapidly growing complex and uncertain business environment. The special issue highlights research challenges and future research directions. The main intent is to make practitioners aware of the importance of supply collaboration, partnership and trust in making supply chains profitable among channel members in this rapidly growing digital economy.

Response to this special issue was overwhelming from different parts of the world. The special issue focuses on centralised and decentralised supply chain planning, emerging issues, supply chain practices, demand management, capacity planning and manufacturing issues, supplier selection, distribution strategy, collaboration and relationship management, managing constraints and supply chain measurement.

There are eight papers selected from a large number of papers received for the special issue. The first paper 'Centralised and decentralised supply chain planning' by Richard Pibernik and Eric Sucky focuses on the major task of supply chain planning. Both in the relevant literature and in commercial supply chain management systems, a

centralised approach to supply chain planning is frequently proposed. Due to the incongruence between incentives of the firms involved in the supply chain and overall supply chain objectives, a centralised supply chain planning will neither be accepted nor lead to system-wide effectiveness. For this reason, supply chain planning decisions are most commonly coordinated on a decentralised basis. In this paper, we analyse the implications and limitations of centralised and decentralised supply chain planning approaches. The results derived from this analysis establish the basis for introducing a generic, conceptual approach supporting the design of a decentralised supply chain planning.

The second article by Mohamad Y. Jaber, Ibrahim H. Osman, Alfred L. Guiffrida focuses on ‘Coordinating a three-level supply chain with quantity discounts, price dependent demand and profit sharing’. This paper proposes a three-level (supplier-manufacturer-retailer) supply chain model with a profit sharing mechanism to maximise the supply chain profit. In the model, all-unit price discounts scheme is used to coordinate the order quantities among the supply chain levels, and the demand at the retailer’s end is assumed to be price dependent. To enhance coordination in the supply chain, two profit sharing scenarios are investigated. The semi-liberal scenario is based on increasing the quantity discount in order to generate more demands with which the most powerful player in the chain will get the highest fraction of additional profits. However, a strict mechanism is suggested to rectify the first scenario by dividing coordination profits based on equal return on investments. Computational results are provided under different patterns of the players’ order/set-up costs along the chain. Furthermore, the results show that the strict mechanism is the best mechanism for profit sharing among the players in the supply chain.

The third paper ‘Optimal pricing strategy in a coordinated supply chain’ by Enrico Sulaiman and Wooseung Jang argues that faster product development, market globalisation and increased competition in industries are resulting in shorter and shorter product life cycles. This phenomenon forces companies to move from making decoupled decisions to making coordinated and integrated decisions. Therefore, a coordinated supply chain becomes an increasingly important issue. The objective of this research is to quantify the value of the joint coordination and to derive the pricing and ordering strategy that achieves partial or maximal coordination of the supply chain under information sharing. We consider two stage supply chain models consisting of one distributor and one manufacturer with linear and concave production costs, and we develop the optimal strategy for coordinated as well as uncoordinated supply chains. Our analysis suggests that while the value of coordination through information sharing can be quite high, the information can be taken advantage of by the manufacturer. We also show that the larger the supply chain the cheaper the optimal price inside the chain; hence, expanding the supply chain by adding new distributors is beneficial to all members of the chain.

Fierce global competitiveness and heightened expectations of customers are forcing companies to forge collaborative partnerships with third party logistics service providers. Most companies cite greater flexibility, operational efficiency, improved customer service levels, enhanced supply chain performance and better focus on their core businesses as part of the advantages of engaging the services of third party logistics providers. Despite the endless advantages of third party logistics and supply chain activities, a lot of relationships either fail or are dissolved. The article ‘Managing 3PL relationships’ by B.S. Sahay and Ramneesh Mohan attempts to analyse the management

of 3PL relationships and the impact on overall satisfaction of user organisations with the expected business performance and productivity of relationships. Research findings indicate that high-involvement in 3PL relationships that lead to collaborative partnerships has a positive impact on increased usage of 3PL services.

Recently, there has been an increased focus from both researchers and practitioners on supply chain collaboration efforts such as Vendor-Managed Inventory (VMI) initiatives. Often, supply chain partners have experienced gaps between desired and actual performance at some point in the journey toward a successful collaborative relationship. It is in this domain in which we focused our research efforts. Jennifer Blackhurst, Christopher W. Craighead and Robert B. Handfield in their article 'Towards supply chain collaboration: an operations audit of VMI initiatives in the electronics industry' analysed two VMI initiatives that have not yet produced the level of performance desired by the supply chain partners involved. In each case, an operations audit was performed to determine where characteristic and performance gaps existed. The output of this research effort is inherent in the operations audit process employed, the VMI initiative gaps discovered during the process as well as steps that could be undertaken to minimise or eliminate these gaps. The paper culminates in a framework that describes the operations audit in terms of an iterative, collaboration evaluation process. The framework and process is intended to serve as valuable mechanisms for understanding the evolution towards collaborative supply chain relationships.

In order to handle increased competition small and medium sized companies are collaborating in networks, strategic alliance, or partnership *etc.* Mike Danilovic and Mats Winroth in their article 'Corporate manufacturing network – from hierarchy to self-organising system' investigate how direction and accountability are handled in network settings. The authors have performed an extensive case study of one collocated network consisting of four independent companies. This networking has enabled companies to accept larger customer orders than no single company could handle on their own. It has also made them capable of reaching a high level of adaptation to customer demands regarding development, manufacturing, delivery and support of the complete product. The high level of inter-company integration has created conditions for the network to develop self-organising characteristics in terms of autopoietic and sympoietic systems. While the first focuses on the relations between companies within the network, the second focuses on relations between the network and the environment. This self-organising approach is based on strategic conversation between companies at all organisational levels and participation of managers as well as engineers in the design of inter- and intra-organisational structures and processes. In self-organising systems direction comes from closeness to customers and strategic dialogue between management and engineers, and accountability is a consequence of a high level of situational visibility and information exchange on all hierarchical levels among companies in this network.

Manoj Kumar, Prem Vrat and Ravi Shankar in their article 'An integrated approach using utility theory and chance-constrained programming for supplier quota allocation' developed a solution procedure based on utility theory and chance constrained programming to solve a supplier quota allocation problem. The objectives of the problem incorporate maximisation of sales revenue, quality and on-time delivery. Some realistic constraints such as buyers' demand, budget allocation to individual vendors, *etc.* are also modelled in this problem. The proposed approach allows us to handle random aspects of the input information. The effect of different level of uncertainties is also analysed to understand how quota allocation to the suppliers changes and how some of the suppliers

lose their quota in an uncertain environment. A case illustration of a real automobile manufacturer is provided which shows the effectiveness and application of the model to suppliers' quota allocation problem in a supply chain.

How can process industries cope with a changed need of information in product development? This paper focuses on examining if a changed development focus in process industry can be supported by an integration of supply chain information in product development. This is achieved by focusing on two theoretical perspectives, namely, technology management and supply chain management. The research is based on case studies and a survey addressing companies in various process industries. The article 'A change in supply chain information for Swedish process industries and its consequence on a changed development focus' by Diana Chronéer reveals that an analysis of the information that flows in the entire supply chain can help managers obtain a better understanding of what new competencies and knowledge are required in product development. The need for this new type of information can be further formalised by building networks that act like a support to product development. This can be one integration sector between the two theoretical perspectives: technology management and supply chain management.

The special issue of the *International Journal of Integrated Supply Chain Management* on 'Supply chain partnership and collaboration' provides the competitive edge that enables all the business partners in a supply chain to prevail and grow. However, opportunities for collaboration among business partners will vary depending upon the organisations' perspective role in the supply chain. The relationship between the partners, instead of being restricted to coordination only, should transform to a more collaborative one. Failing to collaborate would result in the distortion of information (bullwhip effect) as it moves through the supply chain, which, in turn, can lead to costly inefficiencies, excess inventories, slow response and lost profits. The objective of this special issue had been to present a framework for customer-supplier collaboration to manage supply chain effectively and efficiently. The special issue has been able to bring together original contributions that provide theoretical insights, empirical observations and case studies into the supply chain collaboration and partnership of this rapidly growing complex and uncertain business environment. It is anticipated that the special issue will highlight research challenges and future research directions. The main intent is to make practitioners aware of the importance of supply collaboration, partnership and trust in managing supply chain profitable between channel members in this rapidly growing digital economy.

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