

Key Strategies for a Competitive Supply Chain

Ajay Verma, Nitin Seth

Abstract—In this era of competitiveness, there is a growing need for supply chains also to become competitive enough to handle pressures like varying customer's expectations, low cost high quality products to be delivered at the minimum time and the most important is throat cutting competition at world wide scale. In the recent years, supply chain competitiveness has been, therefore, accepted as one of the most important philosophies in the supply chain literature and researchers have tried to identify variables of supply chain competitiveness. This paper highlights some of the concepts of supply chain competitiveness and tries to identify select variables on the basis of literature review. Further, the paper tries to highlight the importance of the identified variables in the achievement of supply chain competitiveness. The aim is to explore the concept and to motivate researchers to further investigate the unexplored areas of this important subject domain.

Keywords—Supply Chain Competitiveness, Demand Management, Integration, Inventory Management, Flexibility, Information Technology.

I. INTRODUCTION

THE complexity and competition in present day market is led by product variety, innovations, varying customers' demands and globalization [1]. In such a competitive environment, companies have to change from their orthodox manners of working to flexible new approaches which lead to their success [2]. The concept of competitiveness has been appraised by the practitioners in the recent years to survive in the global marketplace by fulfilling requirements of the customers for high quality and low cost products [3]. These forces make the survival of Indian manufacturing industries more difficult than ever.

Manufacturing sector in India has grown at a robust rate over the past ten years and has been one among the best performing manufacturing economy. As shown in Table I, the growth rate of the manufacturing sector is the highest in the segment which draws attention of the researchers and economists to consider the manufacturing sector as one of the key sectors for the national growth. At the same time, manufacturing industries are among the most important sectors contributing highest to the GDP growth of India and hence a necessary part of economic growth for India [4].

TABLE I

SECTORWISE GDP GROWTH RATE OF INDIA (2010-2012) [4]

Sector	GDP growth rate (in percentage)	SectGig.or
Manufacturing	9.8	Manufacturing
Farming	4.4	Farming
Construction	8.8	Construction
Mining	8	Mining
Service	9.8	Service

Supply Chain Competitiveness (SCC) has been emerged as an approach where the cost, quality and delivery requirements of the manufacturing organizations are the objectives shared by every stakeholder in the chain. In recent years, several changes in the market place, such as increasing diversity and competition, have stimulated theory and practices in supply chain competitiveness [5].

Manufacturing firms mainly operate in a dynamic supply chain consisting of a network of companies with interdependent entities. These business entities may have manufacturing plants or facilities which span beyond the national boundaries encompassing several countries around the globe.

II. SUPPLY CHAIN COMPETITIVENESS

Competitiveness can be defined as the ability of firm to design, produce and or market products superior to those offered by competitors, considering the price and non-price qualities [6], [7]. The word competitiveness is originated from the Latin word, *competere*, which means involvement in a business rivalry for markets. It has become common to describe economic strength of an entity with respect to its competitors in the global market economy in which goods, services, people, skills, and ideas move freely across geographical borders [8]. Supply Chain Competitiveness (SCC) refers, in general way, to gain competitive advantages by one supply chain on the other [9]. Supply chain competitiveness comprised of competitiveness of the elements of supply chain viz. supplier's competitiveness, manufacturer's competitiveness and distributor's competitiveness as shown in Fig. 1 [10].

Ajay Verma is with the National Institute of Technology, Bhopal (M.P.), India (corresponding author: Phone 07554051633, Fax 07554051000; email-avmanit@gmail.com).

Dr. Nitin Seth is with Indian Institute of Foreign Trade, New Delhi, India. (e-mail: nitinseth@iift.ac.in).

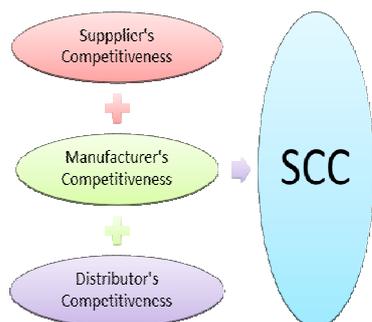


Fig. 1 Components of Supply Chain Competitiveness [10]

Supply Chain Competitiveness has been described as a multidimensional and relative concept. The significance of different criteria of competitiveness changes with time and context. Theories and frameworks must be flexible enough to integrate the change with key strategic management processes if their utility is sustained in practice. Thus, organizations need to manage their resources and processes more efficiently than their competitors [11]. In the subsequent sections, various important strategies for supply chain competitiveness are identified and described.

III. STRATEGIES TO ACHIEVE SUPPLY CHAIN COMPETITIVENESS

Based on the literature review and consultation with eminent practitioners, academicians and researchers, various strategies have been identified. But the most important select strategies are shown in the Table II.

TABLE II
STRATEGIES TO ACHIEVE SUPPLY CHAIN COMPETITIVENESS

S.No.	Strategies for SCC	Author (year)
1	Demand of Product Management	[12]-[16], [3]
2	Integration of Key Elements	[12], [17]-[20]
3	Inventory Management	[3], [21]-[25]
4	Flexibility	[22], [26]-[28]
5	Information Technology Capabilities	[3], [24], [27], [29], [30]

These strategies are further described in the following section.

A. Demand of Product Management

Demand management encompasses the traditional functions of marketing along with coordination of the marketing activities with other functions in the company and the supply chain [13]-[15]. Demand comes from the customers and according to that demand the company decides what to make and of what quality. Thus demand of products must be managed so as to get competitive advantages [3], [12]-[14], [16].

B. Integration of Key Elements

A well-coordinated, informative and integrated structure of supply chain makes it competitive enough to deliver better performances and services to the customers [12], [17], [18].

The key elements of supply chain are supplier's suppliers, suppliers, manufacturers, distributors, retailers, customers and customer's customers [19], [20]. Their integration is a very necessary activity for SCC [20].

C. Inventory Management

Inventory is one of the most important aspects of supply chain to take competitive advantages over the rivals [21]. Inventory may result in high costs if not managed [22]. The importance of inventory management and the need for coordination of the inventory decisions and transportation policies has been evident for a long time [23], [24]. Demands cannot be met with poor inventory management and the lead time and average time to fulfill customer's requirement go on increasing due to lack of inventory management [3], [24], [25].

D. Flexibility

Being flexible means having the capability to provide products/services that meet the individual demands of customers. Many researchers have advocated flexibility as one of the critical notion for the competitive advantage in supply chain [22], [26]. Flexibility can be achieved through logistics flexibility, delivery flexibility and flexibility at the [manufacturer's end [27], [28].

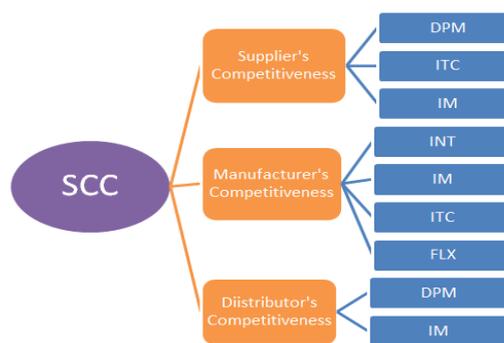


Fig. 2 Building Blocks of SCC

E. Information Technology (IT) Capabilities

SCM decisions should be based on exchange of substantial quantities of information among the buyer, supplier, and carrier to increase the efficiency and effectiveness of the supply chain [3], [24], [27]. Information and communication can be effectively and efficiently possible with the use of modern IT capabilities like Internet, EDI, ERP software, SCM software etc [29], [30].

These variables are the essential ingredients of supply chain competitiveness. Fig. 2 represents building blocks of supply chain competitiveness based on the review.

IV. CONCLUSION

Supply chain competitiveness has been considered nowadays as one of the prime issues in supply chain literature. In this paper, variables to achieve supply chain competitiveness have been comprehensively identified using an integrated approach of literature review and exploratory

interviews with experts in the subject area from industries and academia. Further, these variables are described in an elaborative manner so as to emphasize their importance in supply chain competitiveness. An interpretation of the variables of SCC in terms of their meaning and importance is carried out. Five variables have been identified for the description but there are many more which could have been selected. This paper provides insights regarding actions to be taken by the managers and practitioners of supply chain for the achievement of SCC. In a manner, the paper has twofold objectives i.e. identification of the variables of supply chain competitiveness and a comprehensive description of these variables through review to better understand the rarely explored area of supply chain competitiveness.

REFERENCES

- [1] Mentzer, J.T. (2008) "Supply Chain Management", Response Books, New Delhi.
- [2] Rajagopal, A. (2010), Impact of quality programs on supply chain performance, *Global Management Review*, 4(3), 1-14.
- [3] India Economy Profile, 2012
- [4] FICCI Quarterly survey on Indian Manufacturing Sector, 2011
- [5] Shang, K.H., Zhou, S.X. and Houtum, G.V. (2010), Improving Supply Chain Performance: Real-Time Demand Information and Flexible Deliveries, *Manufacturing and Service Operations Management*, 12(3), 430-448.
- [6] Sahay, B.S., Gupta, J.N.D., and Mohan, R. (2006), "Managing supply chains for competitiveness: the Indian scenario", *Supply Chain Management: An International Journal*, Vol. 11 No. 1, pp. 15-24.
- [7] Mohanty, R.P., and Deshmukh, S.G. (2012), "Supply chain management: theories and practices", Biztantra Publication, Delhi.
- [8] Verma, A. and Seth, N. (2011), "A conceptual framework of supply chain competitiveness", *International Journal of Human and Social Sciences*, Vol. 6, Issue 1, pp. 5-10.
- [9] Pace, R.W. and Stephan, E.G. (1996), "Paradigms of competitiveness", *Competitiveness Review*, Vol. 6 No. 1, pp. 8-13.
- [10] Bravo, B. Cortes, K., Aguilar, M. Granados, S. and Amaya-Leal J. (2007), Competitiveness in the supply chain management: An overview in an oils and greases manufacturer, *Ingeniería and Desarrollo. Universidad del Norte*. 22, 38-53.
- [11] Murths, T.P. (1998) "Country Capabilities and the Strategic State: How National Political Institutions Affect MNC Strategies", *Strategic Management Journal*, Vol. 15, pp 113-129.
- [12] Lambert, D.M. and Cooper, M.C. (2000), "Issues in Supply Chain Management", *Industrial Marketing Management*, Vol. 29, 45-56.
- [13] Verma, A. and Seth, N. (2010). "Achieving supply chain competitiveness: Some critical issues". *International Journal of Science Engineering and Technology*, Vol. 2 No. 11, pp. 6209-6213.
- [14] Christopher, M., (2012), "Logistics and Supply Chain Management-Strategies for Reducing Cost and Improving Services", Second Edition, Pearson Education Ltd., New D Alvarado, U. Y. and Kotzab, H. (2001), *Supply Chain Management: The Integration of Logistics in Marketing*, *Industrial Marketing Management*, 30(2), 183-98.
- [15] Mentzer, J. T., DeWitt, W., Keebler, J. S., Soonhoong M., Nix, N. W., Smith, C. D. and Zacharia, Z. G. (2001), Defining Supply Chain Management, *Journal of Business Logistics*, 22(2), 1-25.
- [16] Williams, B. (1999), *Advanced Supplier Partnerships*, Seminar organized by the Institute of Operation and Management (IOM) and the University of Huddersfield, Huddersfield, UK, July 1999.
- [17] Bagchi, P.K., and Ha, B.C. (2005), Supply chain integration: a European survey, *The International Journal of Logistics Management*, 16(2), 275-294.
- [18] So, S. and Sun, H. (2010), Supplier integration strategy for lean manufacturing adoption in electronic-enabled supply chains, *Supply Chain Management: An International Journal*, 15(6), 474-487.
- [19] Altekar, R. V., (2008), *Supply chain management: concepts and cases*, Sixth Edition, PHI Learning Private Ltd., New Delhi, India.
- [20] Cohen, M. A. and Lee, H.L. (1989), *Sikstrategic Analysis of Integrated Production-Distribution Systems: Models and Methods*, *Operations Research*, 36(2), 216-228.
- [21] Vogt, J. J., Pienaar, W. J. and DeWit, P. W. C. (2005), *Business logistics management: Theory and practice*, Oxford: Oxford University Press.
- [22] Chen, I. J. and Paulraj, A. (2004), Towards A Theory of Supply Chain Management: The Constructs and Measurements, *Journal of Operations Management*, 22(2), 119- 50.
- [23] Koh, S.C.L. and Simpson, M. (2007), Could enterprise resource planning create a competitive advantage for small businesses?, *Benchmarking: An International Journal*, 14(1), 59-76.
- [24] Levi D.S., Kamansky P., Levi E.S. (2005), "Designing and Managing the Supply Chain-Concepts, strategies and case studies", Tata McGraw-Hill publishing company Ltd. Second edition.
- [25] Verma, A., Seth, N. and Singhal, N. (2011), "Enablers of supply chain competitiveness: an Interpretive Structural Modelling approach", *International Journal of Value chain Management*, 5(3/4), 212-231.
- [26] Mesquita L.Z., Lazzarini S.G., Cronin P. (2007), "Determinants of firm competitiveness in Latin American emerging economies: Evidence from Brazil's auto-parts industry", *International Journal of Operations & Production Management*, 27(5), 501-523
- [27] Singh R.K., Garg S.K. and Deshmukh S.G., "Strategy development for competitiveness: a study on Indian auto component sector", *International Journal of Productivity and Performance Management* 56(4), 285-304.
- [28] Porter K., 1996, "Supply chain partnerships: Opportunities for operations research", *European Journal of Operational Research*, 101, 419-429.
- [29] Stevens G.C. (1989), "Integrating the Supply Chains", *International Journal of Physical Distribution and Materials Management*, 8(8), 3-8.
- [30] Thomas D.J. and Griffin P.M. (1996) "Coordinated Supply Chain Management", *European Journal of Operational Research*, 94(1), 1-15.



Ajay Verma is an Assistant Professor in the Department of Mechanical Engineering in Maulana Azad National Institute of Technology NIT Bhopal, Bhopal (M.P.), India. He has first class degree in B.E. and honors in M.E. He is pursuing his Ph.D. in the area of supply chain management from Institute of Engineering and Technology, Devi Ahilya University, Indore (M.P.), India. He has guided many M.Tech. thesis and published more than fifteen research papers in national/international journals/conferences to his credit. He has more than twelve years of teaching experience and his specialization includes supply chain management and operations management along with manufacturing technology.



Dr. Nitin Seth is an Associate Professor in Indian Institute of Foreign Trade, New Delhi, India. He has doctoral degree (PhD) in the area of supply chain management from Indian Institute of Technology Delhi (IIT Delhi) and Post-Doctoral Experience (+6 Months), at GIZ/DIE Germany and Ecole Des Mines, Saint Etienne France (Programme Sponsored by Federal Ministry of Economic Cooperation and Development, Germany). He has many research papers and articles to his credit. He is actively involved in the research on supply chain, total quality management, service quality and other related areas. He has about 18 years of experience in teaching and consultancy which includes three years of industry experience at middle level. He has delivered invited talks on several issues spanning SCM, operations management etc at National and International level,