

**STUDY OF SELECT STRATEGIC ISSUES IN
VALUE CHAIN MANAGEMENT OF
MANUFACTURING SECTOR**

By

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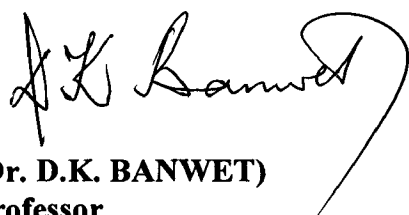
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CERTIFICATE

This is to certify that the thesis titled “ **Study Of Select Strategic Issues in Value Chain Management Of Manufacturing Sector**” being submitted by **R Mohammed Ilyas** to the Indian Institute of Technology, Delhi for the award of the degree of **Doctor of Philosophy** is a bonafide record of original research work carried out by him. He has worked under our guidance and supervision, and has fulfilled the requirements for the submission of the thesis, which has reached the requisite standard.

The results contained in this thesis have not been submitted, in part or full, to any other University or Institute for the award of any degree or diploma.



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ABSTRACT

The importance of strategic issues and its mitigation in context of manufacturing value chains is receiving attention from both the academicians and the practitioners as these issues have fundamental impact on the competitiveness and sustainability of the value chain. The select strategic issues, which are focus of this research, pertain to *characteristic, competitiveness, design, relationship, integration, externalization, virtualization, Performance management and Paradigm shifts* in manufacturing value chain. Each of the research issue was analyzed with the aid of structured research tools and model frameworks like ISM, DEA, GP, SAP-LAP and Questionnaire survey. Some of the key findings from this research are as follows.

The comparative evaluation of the value chain strategy adopted by different steel company using DEA and analysis of results indicates that the mode of relationship between the value chain partners plays a key role in the efficiency and effectiveness of the value chain. The traditional perception that the cost advantage would be higher with a greater span of ownership of the value chain is not true. The integration mode of the value chain, with a mutually beneficial flow of information, materials and finances and sustenance of the partners, is the ideal form of relationship.

Study of factors in selecting a value chain partners and development of the dual phase model indicates that the selection process of value chain network partner should be multi-level and comprehensive. The primary level of selection should be operational efficiency criteria and the secondary level of selection should be on strategic compatibility criteria.

The ISM based study of variables which affect the integration of value chain members indicates that the ability to sustain profit and value margin, and adaptability to external changes are the strategic considerations in value chain integration.

Case analysis of the value chain strategy adopted by the two major Indian steel company using the SAP-LAP model, indicates that the strategy to focus on the domestic market and resources for sustaining competitiveness is a regressive value chain strategy. The domestic market and resources, over a period of time, will move to the more competitive and value delivering entity. Creation of a competitive advantage in multiple markets reduces business risks. Case analysis to study the most appropriate mode of relationship under identified factors, indicates that the decision of

the mode relationship between the value chain partners is strategic in nature and has the primary bearing on the success of the value chain, especially during business phase shifts. The mode of relationship depends on the relative position of the partners and the balance of competitive forces.

The analysis of factors of competitive manufacturing value chain indicates that manufacturing organization in order to increase competitiveness and deliver value to its customers have adopted combinational supply chain systems like Flex-agile and Le-agile supply chains. However, there exist certain contradiction in creating a Flexible-Lean-Agile chain; favorable factors in one system process may aggravate certain factors in the other. Outsourcing is a tool for achieving flexibility, leanness and agility in supply chains. By outsourcing certain segments for value chain, the contradictory factors are externalized and are optimized as part of different sub-system. ISM analysis of the factors for outsourcing indicates that - high degree of coupling with partners, ease of governance and vendors willingness to take more chain responsibility are the main considerations in an outsourcing process.

The questionnaire survey results, confirmed by statistical testing, indicate that optimization of cost and information flow drives value chain collaboration decision. Synergic gain and relative bargaining power drives value chain mode decision. Cost, quality and time are the benchmark parameters of value chain performance. Cost, capex and market consideration are the main decision factors in outsourcing decision. Strategic imperatives, operational stability and ability to implement are the main enablers of outsourcing. Competitiveness and rationalization of resources, cost, time and efficiency are the main benefits of outsourcing. Stability of relationship is the main consideration of top management in the outsourcing decision.

The Indian manufacturing industry perceives that the benchmark of value chain performance varies between the industry clusters. The performance parameters vary widely based on ownership of the organization. The value chains of the Indian manufacturing clusters are “production-driven” but are in transition, with more intangible value activities being added. The chain power of the primary agent in the manufacturing value chain depends on the relative span of sales control, profit margin, bargaining power and creation of chain identity.

The findings of this research contribute to the body of knowledge on VCM. From a practical perspective, the analysis reveals that organizations need to have greater

focus on the strategic issues in managing their value chain and there is an urgent need to address these issues among value chain partners to improve their competitiveness and sustainability. The research emphasizes that Competitiveness, Relationship, Integration, Design, Externalization, Structure and Characterization issues in management of value chains needs to get a primary focus and be a part of overall competitive strategy of an organization.

Keywords : Value chain management, supply chain management, strategic issues, manufacturing sector, outsourcing, interpretive structural modeling, data envelopment analysis, goal programming, SAP-LAP.

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