Value Chain Relationship - A Strategy Matrix

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The mode of integration in the value chain can impact a business organization in multiple ways and affect the sustainability of its competitive advantage. Several studies on benefits of Value Chain integration have focused on comparing the ICM ratios (i.e. the cycle time for flow of Information, Cost and Material). Past studies have demonstrated that integration of the members of the Value Chain results in the improvement in productivity and profitability of organizations. However, such integration is operational in nature and results in incremental/differential improvement. But the fundamental success of the value chain would depend on the mode of relationship between the members. The mode of relationship is fundamental to the design of the value chain. The objective of this article is to identify appropriate factors, which would indicate the mode of relationship between value chain partners and develop a “Decision Support Strategy Matrix” to facilitate appropriate choice of relationship. Value chain integration takes place over a period of time and to varying degrees based on the relative size, scope, ownership, and stakeholders’ interest. The value chain partnership mode decision matrix has been applied to develop the strategy of south Asia’s largest steel company. Finally, the implications for practices and scope of future research are identified in this paper. This research article is a blend of theoretical framework and practical application for managers.

Introduction

The primary objective of value chain management is integration of the value chain partners leading to improvement in efficiencies and resulting in value creation to the stakeholders. In general the decisions in any organization can be classified into - Strategic, Operational and Tactical (SOT) (Ilyas et al, 2005). Supply chain management decisions are often said to belong to one of three levels; the strategic, the tactical, or the operational level (Teigen and Barbeceanu, 1997). Since there is no well defined and unified use of these terms, this section describes how they are used in this article. Figure 1 shows the three levels of decisions as a pyramid shaped hierarchy. The decisions on a higher level in the pyramid will set the conditions under which lower level decisions are made.

On the strategic level long term decisions are made. These are related to the supply chain design including modes of integration and are determined by long term decisions like - location, production capacity, inventory and transportation (Ganeshan and Harrison, 2004). Decisions made on the strategic level are interrelated and have a bearing on the competitiveness of the organization. They essentially dwell on the design of the value chain. The value chain design decisions include the mode, degree of integration among the partners and mode of functional relationship among the partners. Modeling and simulation are frequently used for analyzing these interrelations, and the impact of making strategic level changes in the supply chain. On the tactical level, medium term decisions are made, such as weekly demand forecasts, distribution and
transport planning, production planning and materials requirement planning. The operational level of supply chain management is concerned with the very short term decisions made from day to day. The border between the tactical and operational levels is vague.

Value chain integration decisions also should be made according to the value chain decision hierarchy i.e. at Strategic, Tactical and Operational levels. Integration at the strategic level is through the different modes of relationships like ownership, joint ventures, long-term buying etc, which are achieved by incorporation, takeovers, mergers, acquisition, etc. Tactical and operational integration occurs by measures like Information Integration (II), Vendor Managed Inventory (VMI), Collaborative Planning Forecasting and Replenishment (CPFR), Co-managed materials management (CMM), Just in Time (JIT), centralized database etc. Tactical integration is reflected by measures to reduce the cycle time for flow of Information, Material and Cost.

Tactical and operations interventions for value chain integration lead to enhancement of efficiency and effectiveness of the value chain. However, the strategic decision on the mode of the integration/relationship between the value chain partners can strongly influence the success of the Value Chain itself. Erroneous decisions on the choice of mode of relationship between the partners could result in critical disruptions and will rapidly erode the value of stakeholders. The above proposition can be illustrated by study of the following case study.

A case study highlighting the importance of right selection of mode of value chain relationship.

Steel Authority of India Limited (SAIL) is South Asia’s largest steel company and the 16th largest steel company in the world with annual capacity of over 12 metric tons (MT) of crude steel in 2005. It enjoys domestic market leadership in India and has a multi-location diversified product profile. With a turnover of over 7 billion USD, it is one of the largest and most profitable companies in India. The company is highly integrated and owns and operates sources of most of its critical inputs and utilities. However, it is dependent on external partners for supply of coking coal, the key driver of production costs. SAIL had traditionally used a blend of indigenous and imported coking coal. With declining quality and availability of indigenous coal and with a view to improve its production economics, it started importing low ash hard coking coal primarily from Australia. Gradually the imported coal in the blend grew to a level of about 70% by 2003. The total coal imports of the company were about 9 MT in 2003. Considering its large requirement and perceived stable international markets, SAIL adopted the model of long term contracts for supply of coking coal with companies/consortiums selected on the basis of a bidding mechanism.

During the down cycle of the international steel cycle from 1996 to 2002, the system was very stable and the functioning of the relationship was ideal. SAIL had realized a reduction in coking coal cost in real terms during the period. Australian coal was the preferred input and SAIL’s production systems had stabilized with usage of Australian coking coal, to the extent that Australian coking coal became the primary standard of SAIL’s coal specification. As many times in previous years, in 2002 also SAIL entered into long-term supply contract (bi-annual) with a consortium of Australian mining companies, for supplies covering the period 2003-2005.

In 2002, there was revival of the global steel market pushing up the demand for input materials. The upsurge, propelled by the demand from China, led to the prices of coking coal increasing by about 300%, well beyond the price escalation clause of any long-term agreement (Sethuraman, 2004). The Australian mining companies started defaulting on the supplies by invoking the force majeure clause of supply. This resulted in a sudden disruption in supplies. Production in SAIL plants was affected resulting in a marginal decrease in production in 2003-04, against a stable annual growth trend of about 5% that it had achieved year after year. This affected SAIL financial performance, more so as this coincided with the peak of the commodity cycle and SAIL was handicapped. Having developed...
production systems based on imported coal, SAIL was unable to switch quickly. Further, having based its specification on the Australian coal the cost of procurement from the spot market, coal of the stringent specification was prohibitive. To stabilize its production system inspite of throttling, SAIL was forced to procure from spot markets and enter into supply contracts at higher rates with other Australian and New Zealand based coal companies. Having missed out on the trough of the commodity cycle, SAIL efforts in buying/acquiring coal properties abroad have not materialized (summarized from articles from "Business Line" and "Economic Times", and SAIL Corporate Website)

Case analysis

The above case highlights that the choice of value chain relationship mode, i.e. long term contract in this case for a critical input, was erroneous. The case demonstrates that stable long-term relationships and contracts of supply could not survive a phase shift in the business cycle and that the degree of integration had little bearing in sustaining the supply chain itself.

Therefore there is a need to develop a suitable decision support system to facilitate choice of appropriate mode of relationship between the value chain partners. Primary to development of such a strategy matrix would be identification of the critical variables which determine the choice of mode of relationship.

The ensuing research article is an attempt to:
- Identify the critical variables which determine the mode of relationship between the value chain partners
- Develop a conceptual model for decision-making on the mode of strategic relationship between the value chain partners
- Demonstrate the practical application of the model to draw the alliance strategy for SAIL, the company in study.

Literature Review

A selected review of literature on Value Chain Management (VCM) and Supply Chain Management (SCM), effectiveness of supply chain relationships and integration of supply chain partners was carried out to study the various definitions and interventions proposed by researchers to facilitate improvement in value chain relationships. The ensuing section captures a glimpse of research in the area.

Literature on value chain management and supply chain management

Value has been defined in many ways based on the dimension of study. In this article, however, we shall restrict ourselves to the common definition of value in management-related literature. Value is the amount buyers are willing to pay for what a firm provides them. Value is measured by total revenue, a reflection of the price a firm’s product commands and the units it can sell. A firm is profitable if the value it commands exceeds the costs involved in creating the product (Porter, 1985). Value is any activity that increases the market form or function of the product or service; and in today's business climate, there is a need to maximise the value of every process in a business (Jacoby, 2005).

The origin of the word supply chain management (SCM) can be traced to the work of Jay Forrester in the 1950s. However, the term itself has gained popularity in the last 20 years representing the concept of managing an organization with regard to the activities, resources and strategies of other organizations upon which it must rely in order to develop, produce and market goods and services (Dubois et al., 2004). Supply Chain Management (SCM) is a process-oriented approach that oversees materials, finances and also information as each move in a process, such as from supplier to manufacturer to wholesaler to retailer to consumer. It involves coordinating and integrating these flows both within and among companies (Monczka et al., 1998). Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies (CSCMP, 2005). The ultimate goal of any effective supply chain management system is to optimise the deployment of assets to maximise fulfillment of demand (or customer service). The objective is to balance the two (Aitken, 1999).

Supply Chain Management (SCM) has evolved over the past 20 years. SCM in its initial days had an intra-organizational focus (Faisal, 2005). In this phase business enterprises were 'islands of automation', where each department operated as though it existed in a vertical silo. It was moderately efficient, but didn’t optimize the organization. Managers were grappling with a system, which had incongruence in objective, and could not overcome the traditional barriers between functions and members of the Chain (Industry Week’s The Value Chain, 2004). Then arrived the integrated supply chain in the boom years of the 1990s. Companies that implemented an integrated solution achieved significant business improvement. The most recent phase has been the networked or adaptive supply chain, in which all the participants are able to interact with each other. This allows companies to contract out everything; including manufacturing, to the point where sales and marketing are the only core functions within some global brands. The next stage of supply chain development is seen to be the 'snap-on' supply chain, where an infinitely expandable network of
suppliers and buyers can collaborate with each other and strive collectively for ever-greater efficiencies. This is the on-demand supply chain, where no integration is needed. (Chen and Paulraj, 2004). SCM is recognized as a contemporary concept that leads in achieving benefits of both operational and strategic nature (Al-Mudimigh, 2004). There are various definitions of SCM in literature (Houlihan, 1985). It has become an umbrella term, covering a set of practices for ensuring the cost-effective flow and inventory of material and finished products throughout the value chain from point-of-origin to point-of-consumption. (Li et al., 2006).

Effective supply chain management can drive clear business improvement in three primary areas: cost reduction, innovation and risk management. Each of these areas in turn has its own value creation levers. Cost reduction can be achieved by cutting procurement costs on goods and services; slashing infrastructure costs on warehousing and equipment; and reducing inventory, in both work-in-progress and finished goods. The innovation levers are price management, unit or volume increase and new product introduction. The risk management levers are - reduction in obsolete inventory and improvement in risk profile through a reduction in risk exposure.

The term 'value chain' was proposed in 1985 by Michael Porter, and he defined a company's value chain as a system of independent activities which are connected by linkages. Linkages exist when the way in which one activity is performed affects the cost or effectiveness of other activities (Porter, 1985). Every firm is a collection of activities that are performed to design, produce, market, deliver and support its product. All these activities can be represented using a value chain. The value chain displays total value and consists of value activities and margin. Value activities are physically and technologically distinct activities a firm performs. These are the building blocks by which a firm creates a product valuable to its buyers (Porter, 1985).

A modern value chain is a business system that creates end-user satisfaction and realises the objectives of other member stakeholders (Walters and Lancaster, 2000). A value system is a connected series of organizations, resources, and knowledge streams involved in the creation and delivery of value to end customers (Handfield and Nichols, 1999). The value chain concept can analyse and describe a company's source of competitive advantage. Horizontally interdependent activities produce added value for the consumer. The costs of these activities and how these activities produce the profit margin for the company are examined in a value chain analysis. The value chain is divided into primary activities that are involved in the physical creation, sale, transfer of goods and services to the customer, and support activities which provide technology, personnel and purchased inputs and which coordinate the primary activities. So to generate added value, the company has to know how to add value to a customer's value chain and how to control costs. Cost management is based on the effectiveness of the business process and on limiting the bargaining power of the suppliers (Porter, 1998). The value chain requires a comparison of all the skills and resources the firm uses to perform each activity. It is most useful for comparing relative cost position (Porter, 2001). The primary objective of VCM is integration of the value chain partners leading to improvement in efficiencies and resulting in value creation to the stakeholders. Companies worldwide use multiple mechanisms to reap differentiated competitive advantage (Ling et al, 2004).

There is a temptation to use 'value chain' and 'supply chain' interchangeably, but there really is a difference in the concepts. The supply chain model focuses on activities that get raw materials and sub-assemblies into a manufacturing operation smoothly and economically. Value chain management (VCM) focuses at every step, from raw materials (including those that suppliers' suppliers use) to customers and the eventual end user, right down to disposing of the packaging after use. The goal is to deliver maximum value to the end user at the least possible total cost. This makes supply chain management a subset of the value chain analysis (Baker, 2004). The value chain notion has a different focus, and a larger scope. VCM is much more than just optimising each step in the supply chain. For example, say we switch to a less-expensive package. It might save money, but it may cost the customer or the end user more to dispose of it and it might make the product look 'cheap', both of which would detract from the overall value of our product. Alternatively, we may try reducing warehousing costs by consolidating inventories. However, if that action increases delivery time, it may force customers to inventory more items on site, increasing their costs and reducing the value of the products to them (Pil and Holweg, 2006).

Value systems integrate supply chain activities, from determination of customer needs through product/service development, production/operations and distribution, including (as appropriate) first, second, and third-tier suppliers. The objective of value systems is to position organizations in the supply chain to achieve the highest levels of customer satisfaction and value while effectively exploiting the competencies of all organizations in the supply chain (Handfield and Nichols, 2002). Supply chains create value by being reliable and responsive in matching demand and supply. Effective supply chain leads to efficient value chain (Hendricks and Singhal, 2003). The goals of SCM are to reduce uncertainty and risks in supply chain, thereby positively affecting the inventory levels, cycle time, processes and ultimately, end-
customers service levels (Guiffrida and Nagi, 2006). This creates a sustainable and competitive value chain, delivering superior value proposition to the consumer.

In a value chain business arrangement, each actor in the chain must make a mental shift from simply “What is best for my firm and my firm now?” to “What can I do in my firm to maximize the economic, environmental and community benefit to all the members of this value chain?” A significant change often comes in the form of information sharing. In a value chain members need to share a great deal more business information with one another so that all can make better decisions that affect the group. (Hult et al., 2006)

There are many definitions of supply chains and value chains, however, from the goals and objective perspective, both aim at the same “optimization”. While supply chain focuses at operational interventions, value encompassing optimisation of operations, goes beyond to deliver superior value for the consumer and creating sustainable value chains (Middendorp, 2005). The associated cross-functional and cross-company collaboration across the chain raises customer value and profitability of entities of the chain and sustainability of the chain (Lejeune and Yakova, 2005). A structure of supply chains is composed from potential supplier, producers, distributors, retailers, customers etc. The units are interconnected by material, financial, information and decisional flows (Fiala, 2005). The focus of SCM is optimisation, focus of VCM is competitiveness and sustainability. In essence optimisation focus of SCM is a subset of long-term competitiveness of the chain, which VCM aims to achieve. Many researchers, however, have a different interpretation of SCM and VCM, and many consider SCM is the primary focus of an organisation.

**Literature on need and effectiveness of Supply Chain Partnership**

In today’s fast-changing competitive environment, strategy is no longer a matter of positioning a fixed set of activities along that old industrial model, the value chain. Successful companies increasingly do not just add value, they reinvent it. The key strategic task is to reconfigure roles and relationships among a constellation of actors—suppliers, partners, customers—in order to mobilize the creation of value by new combinations of players. It breaks down the distinction between products and services and combines them into activity-based “offerings” from which customers can create value for themselves. But as potential offerings grow more complex, so do the relationships necessary to create them. As a result, a company's strategic task becomes the ongoing reconfiguration and integration of its competencies and customers (Normann and Ramirez, 1993).

There has been, over the last several years, a profound change in understanding the dynamics of competitive advantage. A firm’s success is tied, in part, to the strength of its weakest supply chain partner. Only through close collaborative linkages through the entire supply chain, can one fully achieve the benefits of cost reduction and revenue enhancing behaviors (Spekman et al, 1998). Effective supply chain management (SCM) has become a potentially valuable way of securing competitive advantage and improving organizational performance since competition is no longer between organizations, but among supply chains. Higher levels of SCM practice can lead to enhanced competitive advantage and improved organizational performance. Competitive advantage can have a direct, positive impact on organizational performance (Suhong et al, 2006). Integration of business partners, suppliers, and customers is essential in this global competitive market environment (Ip et al, 2006). Many executives are developing supply chain partnerships in an attempt to reduce costs, improve service and gain competitive advantage. While partnerships can be beneficial, they are not appropriate in all situations (Lambert et al, 1996). An increased focus on operational performance and the reliance on fewer suppliers by industrial customers call for a higher quality of buyer-seller relationships. Therefore, the focus is on economic value generated partnerships and such partnerships have distinctive qualities from ordinary customer relationships (Ploetner and Ehret, 2006). Theoretically, within a supply chain partnership, traditional competitive barriers between supply chain members are mitigated to create mutually beneficial relationships, thus leading to increased information flows, reduced uncertainty, and a more profitable supply chain (Maloni and Benton, 1997).

In today’s environment, businesses are increasingly dependent on the relationships they have with their suppliers and are demanding that they adhere to high standards. It is increasingly important that buyers have strong relationships with their suppliers to stay ahead of competition. The establishment, development, and maintenance of relationships between exchange partners are crucial to achieving success (Parsons, 2002). There are many advantages for firms that enter into productive relationships with their suppliers such as lower risk, access to technology, more cooperation, increased knowledge, and information sharing (Parsons, 2002).

The effectiveness of the Supply Chain depends on the integration, mutual commitment and long-term common perception of the Supply Chain Partners. In the traditional business models, the “Supply Contract or Purchase Contract” defines the relationship between the supply chain partners. However, such contracts don’t necessarily lead to integration, generally limit the relationship to the transaction level, and may be based on mutual mistrust and
maximizing the individual firm’s profit. Even in long-term contracts, research indicates that formal contracts have important limitations (Taylor and Plambeck, 2003). It may be difficult to foresee all the contingencies that might occur and contractually specify how the firms should behave in every possible contingency. Even if it were possible to write complete contracts, enforcement may be difficult or costly. In such cases, the value of formal contracts may be limited. However, long-term relationships between firms may be valuable in discouraging opportunistic behavior. Repeated, ongoing interaction can facilitate the development of trust and cooperation between firms. Indeed, while the importance of long-term, cooperative relationships is widely reported in practice, the supply chain literature has devoted comparatively, little effort in formally modeling this phenomenon. When firms are engaged in a long-term relationship, a buyer can credibly promise to purchase, when formal contracting to do so is impossible.

Better supplier relationships help organizations to strengthen the supply chain by making it more responsive, agile, lean and customer focused. One potential path for achieving performance improvements while maintaining production quality and cost goals at the plant level, is through long-term partnerships with suppliers (Geffen and Rothenberg, 2000). Recent evidence shows that using a knowledge-based approach to strategic alliances with suppliers is more effective. Companies that have longer alliance experience seem to enjoy higher success rates. This implies that companies should learn from their past and institutionalize their knowledge rather than take an ad hoc approach to alliances (Parise and Sasson, 2002).

Another business model for achieving inter-organization integration is “collaboration”. The traditional school of “collaboration” has advocated five types of alliances (Bleek and Ernst, 1995) - collisions between competitors, alliances of the weak, disguised sales, evolutions to a sale, and alliances of complementary equals. However, such alliances have a “Life Cycle” and eventually get phased out (Dyer et al, 2001).

Compatibility (unified strategy, alliance record, strategic vision, differences in corporate culture, structures, differences in technology, finances, accounting systems, policies on ethics), capability (complementary strengths, stability, capability scrutiny, visible vs. invisible competence) and commitment (core activity, exit cost and changes), are the cornerstones of collaborative advantage (Kanter, 1994). Collaboration between organizations is highly subjective to the firms involved, their culture, business traditions, organizational goals, integrity, individuals and, more importantly, the contribution of the partners to the shared competitive advantage (Ohame, 1989).

Supply chain models predominantly utilize two different groups of performance measures - cost and a combination of cost and customer responsiveness. (Beamon, 1999). Key elements/ attributes, by which a supply chain system is evaluated and classified are efficiency oriented, effectiveness oriented and response oriented measures (Chopra and Meindl, 2003).

**Literature on integration of Supply Chain Partners**

The ensuing section captures a glimpse of research literature on interventions for effectiveness of a supply chain. Actions to improve supply chain performance (both product and process) call for multiple interventions in suppliers’ performance enhancement, manufacturing flexibility and customer demand mapping (Lee and Billington, 1992). Companies, in spite of globally integrated Value Chains, should retain a significant level of advanced management technology to compete successfully (Panchak, 2001). Each type of supply chain integration activity has unique benefits and challenges. The strategic integration depends on integration policies and associated resource deployment by the members (Swink et al, 2007). The ideal business model for achieving inter-organization integration is “collaboration” (Kopczak et al, 2003). Limited visibility into supplier contracts and performance exposes enterprises to inflated costs, diminished negotiation leverage, missed rebates and saving opportunities, overcharging by suppliers, low compliance rates; greater risk of supply, policy and regulatory violations (Enslow, 2006). The desired features of an idealistic Supply chain and Value Chain, which would effectively fulfill the objectives of optimization across the chain are: Ability to Manage Resource Allocation, Material Fluidity, Information Fluidity, Utilization of Cost Management, Ability to Sustain Profit Margin, Ability to Sustain Value Margin, Adaptability to External Changes, Utilization of Information Technology, Networking Capability, Utilization of Internet and Accessibility to Virtual Company Structure, (Vanharanta and Breite, 2003). Effectiveness of the Supply Chain depends on the integration, mutual commitment and long-term common perception of the Supply Chain Partners (Taylor and Plambeck, 2003). Leveraging knowledge capabilities is critical for strategic outsourcing decisions. Information and communication technology is the backbone of knowledge accumulation, assimilation and transfer (Quinn, 1999). Using a knowledge-based approach to strategic alliances with suppliers is more effective. Companies that have longer alliance experience seem to enjoy higher success rates. Formation of strategic alliances is an effective method for collaborative strategy (More and McGrath 2001). Better supplier relationships help organizations to strengthen the supply chain by making it more responsive, agile, lean and customer focused (Vandermerwe, 2000). There is an increasing trend
for firms to use a portfolio approach to govern their business processes using multiple sourcing mechanisms involving multiple firms and geographic sites. Managers need guidance and frameworks to select the right sourcing mechanisms for different business processes (Ling et al., 2004).

**Literature on Supply Chain collaboration**

In buyer-seller relationships, the focus has moved beyond individual firms to value-creating networks formed by key firms in the value chain that deliver value to the end consumer. Value-creating networks have three core building blocks: superior customer value, core competencies, and relationships. Competition in the future will shift to the network level from the firm level (Kothandaraman and Wilson, 2001). The strength of inter firm buyer-seller ties is vital to understanding the formation of commitment. The buyer firm’s commitment to the selling firm depends on three identified properties of tie strength (reciprocal services, mutual confiding and emotional intensity). The strongest relationship is found to be between emotional intensity and commitment - an understudied dimension of buyer-seller relationships (Stanko et al., 2006).

As global markets grow increasingly efficient, competition no longer takes place between individual businesses, but between entire value chains. Collaboration through intelligent networks will provide the competitive edge that enables all the participants in a value chain to prevail and grow. Collaboration requires individual participants to adopt simplified and standardized exchange nodes (Horvath, 2001). Collaboration has been recognized as a significant process that holds the value creation opportunity in supply chain management. The supply-side collaboration has the ability to improve the supply chain performance in terms of better stabilizing effect and service level (Yonghui and Piplani, 2004).

A netchain is a set of networks comprised of horizontal ties between firms within a particular industry or group, which are sequentially arranged based on vertical ties between firms in different layers. Netchain analysis interprets supply chain and network perspectives on inter-organizational collaboration with particular emphasis on the value creating and coordination mechanism sources. Sources of value and coordination mechanisms correspond to particular and distinct types of interdependencies: pooled, sequential, and reciprocal. Recognition and accounting of these simultaneous interdependencies is crucial for a more advanced understanding of complex inter-organizational relations (Lazzarini et al, 2001).

Many managers attempt to develop collaborative alliances with other organizations. Such strategies are difficult to implement: they are as likely to fail as to succeed. Implementing and managing an alliance is harder than deciding to collaborate (Boddy et al, 2000). Mutuality (a reciprocal relation between interdependent entities) in business network relationships is critical in developing inter-firm systems of workflow interdependence that promote the creation of value. Through their interaction in business network relationships, firms in business markets organize and share an unbounded structure of interdependent activities, enabling them to achieve greater value than would be the case if they did not engage in relationship development (Holm et al, 2005). Buyers and sellers in mature industrial markets can turn single transactions into long-term beneficial relationships by a deeper understanding of the complex connection between the two firms. A "must-do" for the sellers, in particular, is to understand patterns of investment and reward, and effectively manage the process that defines the dynamics of buyer-seller evolution (Das and Kasturi, 2004). The highest-level buyer/seller relationship is - Complementary. This level is where true integral partnering takes place. At this level the visions and values of each overlap with one another. There is a true alignment of values in place. Each understands the needs of their alliance partner and works hard to help their partner get what they need while likewise serving their own organization (Rigsbee, 2006). Transaction costs in value chains do not necessarily increase with an increase in relation-specific investments. Transactors can simultaneously achieve the twin benefits of high asset specificity and low transaction costs as the different safeguards which can be employed to control opportunism have different set-up costs and result in different transaction costs over different time horizons (Dyer, 1998).

As global markets grow increasingly efficient, competition no longer takes place between individual businesses, but between entire supply chains. Collaboration can provide the competitive edge that enables all the business partners in a supply chain to prevail and grow. The level of involvement of customers and suppliers differs across different supply chain processes and also across different sectors. While the involvement of customers is high in demand management and product development, the involvement of suppliers is high in transportation and inventory management processes (Sahay, 2003). In international Buyer-seller relationships, functional conflict is related positively to exporter cultural sensitivity and asset specificity and negatively to exporter opportunism. More importantly, importers’ future purchase intentions are associated negatively with opportunism and positively with asset specificity and functional conflict (Skarmeas, 2006). The power-affect buyer-supplier relationship was found to have a significant positive effect on both performance and satisfaction. The paths between performance and satisfaction, however, were consistently found to be non-
significant (Benton and Maloni, 2005).

Recent advances in inter-enterprise software and communication technologies, along with a growing use of strategic partnering and outsourcing relationships, has resulted in a confusing assortment of alternative information systems approaches for supporting collaborative SCM. While analyzing the expected costs and benefits of each type of system, not only the total cost of ownership of the system, but also the partnership opportunity cost - the cost of being tied to a partner due to system inflexibility - should be considered (McLaren et al, 2002). Electronic commerce is radically re-shaping traditional supply chain structures in many industries and reducing the costs of closely integrating buyers and suppliers. However, electronic commerce has yet to achieve its full potential in creating a transparent network of supply chain members. A culture change is required in order to establish real partnerships between buyers and suppliers in which information can be exchanged on a regular basis in an environment of trust (McIvor, 2003).

Conclusion from literature review and identification of research gap

There are four main deficiencies in much of the existing buyer-supplier literature. Firstly, collaborative buyer-supplier theories fail to discriminate sufficiently between individual and firm-level buyer-supplier decision-making. Secondly, the stage models of relationship development are challenged. Thirdly, the interdependencies between buyer-supplier relations and other, competing organizational priorities are highlighted. Fourthly, the monolithic constructs of organizational ‘commitment’ and ‘trust’ underpins much existing relationship-marketing literature. Collaborative relationship practices are susceptible to failure due to wider organizational and behavioral issues (Emerson and Storey, 2006).

Research in the past has been focused on interventions and models to improve value chain integration at tactical and operational levels. Empirical studies have been carried out on effectiveness of various models and interventions to improve the value chain efficiency. Though there has been substantial research on relationships between value chain partners, this research article proposes a decision framework on the selection of mode of relationship among value chain partners based on identified strategic parameters.

Modes of strategic relationship among Value Chain Partners

The different modes of interaction among the value chain partners can be classified based on ownership as - equity based and non-equity based. Further there are different mechanisms under the above broad classification, and some of them are as given below -

Acquisitions (ownership based collaboration) and alliances (Non-ownership based collaboration) are two pillars of growth strategy. The two strategies differ in many ways: Acquisition deals are competitive, based on market prices, and risky; alliances are cooperative, negotiated, and not so risky. Dyer et al’s (2004), has provided a framework to help organizations systematically decide between acquisition and alliance by analyzing three sets of factors: the resources and synergies they desire, the marketplace they compete in, and their competencies at collaborating.

Dyer et al’s research suggests that several factors must be considered before companies make the decision to ally themselves with another company or acquire it. The broad strategic choice for an organization is to decide whether to form an operational alliance or go for an equity based alliance with the value chain partner. Alliances and acquisitions are alternative strategies - the decision to do one implies not doing the other. It is a very critical choice and can have a dramatic effect on achieving and sustaining competitive advantage. When pursuing collaboration as the value chain integration strategy, managers must carefully analyze several factors before deciding whether to form an alliance or going for stake holding. Key factors, which may determine the choice of collaboration mode, are:

I. Synergies during alliance

The type of synergy aimed for will determine the relationship model. In general when two organizations come together there could be three types of synergies - (i) Modular synergy i.e. the two organization/businesses are standalone and the business interdependency is limited. (ii). Sequential synergy i.e. the business are in sequence and the entities are partners in the supply/ value chain. (iii). Reciprocal synergies i.e. the business are mutually interdependent

II. Nature of resource benefit

Whether the real value of the asset is in terms of software i.e. people related knowledge systems or in terms of physical/financial assets processed by the entity.

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<th>Types of relationship</th>
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<th>Non-equity based</th>
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<td>Joint Venture</td>
<td>Buyer-Seller relationship</td>
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<td></td>
<td>Minority stake holding</td>
<td>Long Term Contract</td>
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<td></td>
<td>Cross stock holding</td>
<td>Build Own and Operate</td>
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<td>Merger</td>
<td>Build Operate Lease or Transfer</td>
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<td>Acquisition/Takeover</td>
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<td>Majority Stake Holding</td>
<td>Manufacturing Outsourcing</td>
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III. Extent of redundant resources
The degree to which certain resources of the combined entity would be rendered surplus or redundant i.e. the resource released by avoiding duplication of efforts/activities.

IV. Degree of market uncertainty
The degree of perceived market uncertainty of the allying entity in terms of business, product, technology, redundancy, financial and geo-political risks etc.

V. Level of competition
the number of competing entities who would like to ally with the proposed partner.

All the above factors are to be considered while deciding the mode of collaboration i.e. whether to go for acquisition or alliance and the degree of participation in the alliance. The decision of the mode of participation is dependent on a combination of the above factors and can be summed-up as given in the Table 1 (Dyer et al, 2004).

The model of the Five Competitive Forces is an important tool for analyzing an organizations industry structure in strategic processes (Porter, 1985). Porter’s model is based on the insight that a corporate strategy should meet the opportunities and threats in the organizations external environment. Especially, competitive strategy should be based on and understanding of industry structures and the way they change.

Porter (1985) has identified five competitive forces that shape every industry and every market. These forces contribute to the intensity of competition and hence the profitability and attractiveness of an industry. The objective of corporate strategy should be to modify these competitive forces in a way that improves the position of the organization. Porter’s model supports analysis of the driving forces in an industry. Based on the information derived from the Five Forces Analysis, management can decide how to influence or to exploit particular characteristics of their industry. The Five Competitive Forces are typically described as follows:

(a) Bargaining Power of Suppliers
(b) Bargaining Power of Customers
(c) Threat of New Entrants
(d) Threat of Substitutes
(e) Competitive Rivalry between Existing Players

After the analysis of current and potential future states of the five competitive forces, managers can search for options to influence these forces in their organization’s interest. Although industry-specific business models will limit options, the own strategy can change the impact of competitive forces on the organization. The objective is to reduce the power of competitive forces.

The general strategy adopted by an organization to balance the competitive forces is as given in Table 2 (Porter, 1991).

Translating the above strategy into the mode of collaboration to balance the competitive strategy, the force balancing strategy matrix is as given in Table 3.

The factors, which indicate the choice of mode of collaboration identified by Dyer et al (2004) and the strategy to balance the five competitive forces proposed by Porter (1991) are complementary.

| Table 1 |
| Modes of Collaboration Strategy |

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of synergies</td>
<td></td>
</tr>
<tr>
<td>Modular</td>
<td>Non equity alliance</td>
</tr>
<tr>
<td>Sequential</td>
<td>Equity alliance</td>
</tr>
<tr>
<td>Reciprocal</td>
<td>Acquisition</td>
</tr>
<tr>
<td>Nature of resources (relative value of soft resource – human, knowledge etc. vs. hard resources – physical assets)</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Non equity alliance</td>
</tr>
<tr>
<td>Medium</td>
<td>Acquisition</td>
</tr>
<tr>
<td>High</td>
<td>Equity alliance</td>
</tr>
<tr>
<td>Extent of resources that will be rendered redundant by the synergy</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Non equity alliance</td>
</tr>
<tr>
<td>Medium</td>
<td>Equity alliance</td>
</tr>
<tr>
<td>High</td>
<td>Acquisition</td>
</tr>
<tr>
<td>Degree of market uncertainty</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Non equity alliance</td>
</tr>
<tr>
<td>Medium</td>
<td>Acquisition</td>
</tr>
<tr>
<td>High</td>
<td>Equity alliance</td>
</tr>
<tr>
<td>Level of competition, i.e. the degree of competition for resources</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Non equity alliance</td>
</tr>
<tr>
<td>Medium</td>
<td>Equity alliance</td>
</tr>
<tr>
<td>High</td>
<td>Acquisition</td>
</tr>
</tbody>
</table>

(Dyer et al, 2004)
Table 2
Strategy to Balance Competitive Forces

<table>
<thead>
<tr>
<th>Reducing the Bargaining Power of Suppliers</th>
<th>Reducing the Bargaining Power of Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Partnering</td>
<td>➢ Partnering</td>
</tr>
<tr>
<td>➢ Supply chain management</td>
<td>➢ Supply chain management</td>
</tr>
<tr>
<td>➢ Supply chain training</td>
<td>➢ Increase loyalty</td>
</tr>
<tr>
<td>➢ Increase dependency</td>
<td>➢ Increase incentives and value added</td>
</tr>
<tr>
<td>➢ Build knowledge of supplier costs and methods</td>
<td>➢ Move purchase decision away from price</td>
</tr>
<tr>
<td>➢ Take over a supplier</td>
<td>➢ Cut out powerful intermediaries (go directly to customer)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reducing the Treat of New Entrants</th>
<th>Reducing the Threat of Substitutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Increase minimum efficient scales of operations</td>
<td>➢ Legal actions</td>
</tr>
<tr>
<td>➢ Create a marketing / brand image (loyalty as a barrier)</td>
<td>➢ Increase switching costs</td>
</tr>
<tr>
<td>➢ Patents, protection of intellectual property</td>
<td>➢ Alliances</td>
</tr>
<tr>
<td>➢ Alliances with linked products / services</td>
<td>➢ Customer surveys to learn about their preferences</td>
</tr>
<tr>
<td>➢ Tie up with suppliers</td>
<td>➢ Enter substitute market and influence from within</td>
</tr>
<tr>
<td>➢ Tie up with distributors</td>
<td>➢ Accentuate differences (real or perceived)</td>
</tr>
<tr>
<td>➢ Retaliating tactics</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reducing the Competitive Rivalry between Existing Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Avoid price competition</td>
</tr>
<tr>
<td>➢ Differentiate your product</td>
</tr>
<tr>
<td>➢ Buy out competition</td>
</tr>
<tr>
<td>➢ Reduce industry over-capacity</td>
</tr>
<tr>
<td>➢ Focus on different segments</td>
</tr>
<tr>
<td>➢ Communicate with competitors</td>
</tr>
</tbody>
</table>


Table 3
Competitive Force Balancing Collaboration Strategy

<table>
<thead>
<tr>
<th></th>
<th>Non-equity alliance</th>
<th>Acquisition</th>
<th>Equity based alliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bargaining Power of Supplier</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Bargaining Power of Customer</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Threat of new entrants</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Threat of substitutes</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Competition among players</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
</tbody>
</table>

and can be combined to develop a strategy matrix to select the appropriate mode of value chain relationship by contextual analysis or classification of the product or service that is proposed to be exchanged between the partners. The choice of integration mode that can be adopted by organization focuses on facilitating achievement of the strategic objectives of value chain partners.

Collating the decision variables of alliance choice identified by Dyer et al (2004) and the competitive forces identified by Porter (1985) a value chain relationship strategy matrix has been developed. The matrix can facilitate the determination of the mode of value chain relationship leading to more stable integration.

To evaluate the effectiveness of the model, the value chain relationship strategy matrix may be applied to two recent cases of international alliance. In Feb 2001, Coca-Cola and Procter & Gamble (P&G) formed a joint venture that would manage about 40 brands. Coca-cola transferred about 18 brands and P&G the balance primarily in the Food and Beverages segment. The joint Venture was to enhance value by leveraging competencies of both of the organizations to create value for the customer. The plan was to leverage P&Gs brand management capabilities and Coca-Colas
The alliance failed and was terminated in July 2001.

Applying the value chain relationship strategy matrix, the key considerations for the relationship were - there were plenty of redundant resources, reciprocal synergy for physical infrastructure and raw materials, there was low market uncertainty. Further, the bargaining power of the customer was high, the alliance would have reduced the bargaining power of the supplier and the competition was high among the players. Under these factors the suggested strategy should have been acquisition of the business by one of Coca-Cola and P&G for an JV, it however failed in little more than an year since its formation.

<table>
<thead>
<tr>
<th>Alliance Factor</th>
<th>Non-equity alliance</th>
<th>Acquisition</th>
<th>Equity based alliance</th>
<th>Competition Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of synergies aimed for (or gained from the integration) and gained by (whom)</td>
<td>Modular</td>
<td>Sequential</td>
<td>Reciprocal</td>
<td>Threat of substitutes</td>
</tr>
<tr>
<td>Acquired</td>
<td>Acquirer</td>
<td>Both</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature of resource benefit</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Bargaining Power of Customer</td>
</tr>
<tr>
<td>Extent of redundant resources</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Bargaining Power of Supplier</td>
</tr>
<tr>
<td>Degree of market uncertainty</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Competition among players</td>
</tr>
<tr>
<td>Level of competition</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Threat of new entrants</td>
</tr>
</tbody>
</table>

Note: The "Alliance Factor" and "Competition Intensity" do not have one-to-one correspondence. Rather, it is to be read in context as illustrated below -

In the case when "the bargaining power of the customer is high" and "resource benefit is high by the alliance (i.e. the partner has a premium for owning the resource)" acquisition is the ideal mode.

In the case when "there is high competition among players" and "there is high market uncertainty", consolidation of players i.e. acquisition by one player is the ideal mode.

In the Coca-Cola and Procter & Gamble (P&G) case, the JV was to enhance value by leveraging competencies of both of the organizations to create value for the customer. The plan was to leverage P&Gs brand management capabilities and Coca-Colas international distribution system. Applying the value chain relationship strategy matrix, the key considerations for the relationship were - there were plenty of redundant resources, reciprocal synergy for physical infrastructure and raw materials, there was low market uncertainty. Further, the bargaining power of the customer was high, the alliance would have reduced the bargaining power of the supplier and the competition was high among the players. Under these factors the suggested strategy should have been acquisition of the business by one of Coca-Cola and P&G for an JV, it however failed in little more than an year since its formation.

Contextual application of the value chain relationship strategy matrix in SAIL

SAIL is India’s largest steel plant and has drawn ambitious growth plan to increase its production from about 12 MT to about 20 MT. Critical to successful growth and competitiveness of SAIL would be the enhancement of participation and integration with value chain partners. SAIL’s growth will not be possible without synergic growth with partners. This would mean to choose the appropriate mode/methodology for its relationship with partners for growing efficiently. Inappropriate decisions on the mode of relationship (i.e. Joint venture, acquisitions, alliances, long term contract, Build Own Operate) will lead to failure as has been amply demonstrated by worldwide experience.

The consensus view emerged by the SAIL top management that as part of its growth plans, the international distribution system. The alliance failed and was terminated in July 2001.

Applying the value chain relationship strategy matrix, the key considerations for the relationship were - there were plenty of redundant resources, reciprocal synergy for physical infrastructure and raw materials, there was low market uncertainty. Further, the bargaining power of the customer was high, the alliance would have reduced the bargaining power of the supplier and the competition was high among the players. Under these factors the suggested strategy should have been acquisition of the business by one of the two players. Ideally Coca-Cola should have acquired the business of P&G. This case has been analyzed by Dyer et al (2001). (A brief write-up narrating this case is also available on the site http://www.answers.com/topic/procter-gamble).
following areas require enhanced integration with chain partners (i.e. for alliances, acquisition and Joint Venture) -

- **Critical inputs - Coal/ Coke or coast based coke oven batteries**

Coking Coal is the reducing agent in production of steel by the Blast Furnace route of production. Blast Furnace route is the primary production process and about 75% of global production is based on it. The Coking coal is converted into coke (by anaerobic oxidation), thereby increasing the carbon percentage and reducing the volatile material. This process is carried out in coke oven batteries. Coke form the biggest component in the cost of production of steel. High quality coking coal deposits are mostly found in Australia, New Zealand, Canada, Indonesia, Brazil, Russia, etc. Most of the steel producers in India import coking coal. SAIL imports about 80% of its coal requirement from Australia and New Zealand, as its production systems have stabilized on grades of coca form these countries. As explained earlier in this article, sourcing of coal has become difficult and critical for success and profitability of SAIL. All the integrated steel plants of SAIL are located inland and have coke oven batteries. In the future to economize on logistics cost, imported coal could be converted into coke at the coast and then the coke be transported to the steel plants. Therefore, acquiring coking coal properties or acquiring coast based standalone coke ovens with long-term contract or joint venture for coal supplies is critical for the long term profitability and growth of SAIL.

- **Other key resources like alloying metals/ fluxes etc**

Based on the specific application, steel is alloyed with other metals to impart specific engineering and physical properties (e.g. manganese, vanadium, chromium, nickel, copper etc). Fluxes like Silico manganese, Ferro silicon are added to liquid steel to facilitate reduction of ferrous oxide, the ore. Owning or having strategic tie-up for supplies of these metals can lead to a more effective and stable supply chain.

- **Service centers**

The integrated steel plants are volume producers; they produce steel products of standard sizes. However, the consumer may have diverse needs and may require products cut or shaped to his need. But these quantities don't justify production systems at the steel plants itself. Therefore, steel service centers are set up to serve the customer with specific services like, cutting, shearing, cropping, straiteining, de-coiling etc. SAIL would like to form joint ventures with companies which have specific expertise in these engineering processes.

- **Rolling mills**

SAIL’s major competitive advantage is in its production of low cost steel. Therefore, it makes much of its value chain margin at the “semis” stage itself. Semis are undefined products (e.g. slabs, blooms, billets, ingots etc) which need to be further rolled or formed into marketable industrial products like coils, sheets, rods, bars etc. SAIL produces large quantities of semis. SAIL would like to focus its investments in high volume steel making and high volume rolling only. Therefore, it could tie-up with rolling mills which could use SAIL’s semis and produce marketable products.

- **Vertical integration of facilities**

SAIL’s value chain extends from mining of iron ore to producing of saleable steel products, both long and flats. Integration, both forward (using semis to produce specific products or value added products like coating, piping, treatments etc) or backward (mining development, coal mines, alloying and flux mines etc) are highly desirable as this will reduce the value chain fluctuations and will greatly aid integrated growth and profitability.

- **Utilities like oxygen and power**

Key utilities used for steel production are Power and oxygen. In the past all power and oxygen sources were within SAIL. However, its rapid growth plans require huge investments in these utilities facilities. SAIL would like to rationalize its investments in the core areas of steel production. However, it would not like to depend on “pure buying” relationships for such critical inputs. Therefore, joint ventures with specialists in these utilities would be a win-win proposition.

- **Technology tie-up especially for emerging/ sunrise technology**

SAIL has been following a conservative technology strategy. Its plants are based on very proven and stable technologies. However, the newer steel producers have taken to sunrise and emerging technologies to build their cost advantage, e.g., thin slab casting, continuous strip casting, corex process, finex etc. SAIL would, however, like to keep tabs on these technologies, but without making huge investments. Therefore, it would like to tie-up with technology partners, mostly large equipment suppliers or process developers.

- **Consultancy activities**

To leverage its vast engineering pool and knowledge base, SAIL has been providing engineering and project consultancy through its consultancy arm. This facilitates utilization of engineering skills, international exposure to various technologies for its manpower and strategic business intelligence gathering. Considering the global growth and consolidation in the steel industry, SAIL would like to expand its consultancy activities. Considering the resource and variety of services, it would like to form joint ventures with complimentary service providers, thereby providing complete bouquet of services to clients. Considering the nature of the above...
ventures and based on the proposed value chain relationship strategy matrix, the mode of alliances for the above ventures shall be as given in Table 5.

SAIL, as part of its expansion efforts must ally with/acquire value chain partners, in order to ensure accesses to critical resource - material, knowledge, technology, market etc. The model of such alliances can be based on the value chain relationship strategy model. One of the authors, as part of his professional assignment, has applied the above framework for deciding the relationship strategy to be adopted with the value chain partner. Accordingly in case of coal or coke facilities, SAIL has been seeking to acquire overseas companies/ assets (refer to news articles from www.thehinduonline.com and www.economictimes.indiatimes.com). In the case of alloying metals and fluxes the company is in the process of establishing long-term running contracts. In the case of service centers to customize the products for end application, SAIL has entered into a non-equity based alliance and has appointed exclusive service center agents. It has been exploring the possibility of acquiring finishing facilities in India and abroad and some of these efforts are in advanced stages. In the case of access to technology, it has tied up with international technology partners for project commissioning and continuous support. To enhance their knowledge base, the firm has expanded into consultancy and to add value is proposing to enter in Joint Ventures with international equipment suppliers.

As can be seen from the case of application in SAIL, the model is an effective qualitative decision support tool.

### Discussion and conclusion

The value chain relationship strategy matrix developed in the research article can be an effective decision support model, in deciding the modes of relationship among the value chain partners. 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.

Despite the fact that the matrix developed in this research is for the parameters prominently seen in the

<table>
<thead>
<tr>
<th>Proposed areas for Value Chain alliance</th>
<th>Types of synergies</th>
<th>Nature of resources</th>
<th>Extent of resources that will be rendered redundant</th>
<th>Degree of market uncertainty</th>
<th>Level of competition</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical inputs – Coal/ Coke or coast based coke oven batteries</td>
<td>Reciprocal Both</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Acquisition</td>
</tr>
<tr>
<td>Key resources like alloying metals etc</td>
<td>Sequential Acquirer</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Non-equity alliance</td>
</tr>
<tr>
<td>Service centers</td>
<td>Sequential Acquirer</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Non-equity alliance</td>
</tr>
<tr>
<td>Rolling mills</td>
<td>Sequential Acquirer</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Acquisition</td>
</tr>
<tr>
<td>Vertical integration of facilities</td>
<td>Sequential Acquirer</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Equity alliance</td>
</tr>
<tr>
<td>Utilities – Power &amp; Oxygen</td>
<td>Reciprocal Both</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Non-equity alliance</td>
</tr>
<tr>
<td>Technology tie-up especially for emerging/sunrise technology</td>
<td>Modular Acquired</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Non-equity alliance</td>
</tr>
<tr>
<td>Consultancy activities</td>
<td>Reciprocal Both</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Equity Alliance</td>
</tr>
<tr>
<td>Threat of substitutes</td>
<td>Bargaining Power of Customer</td>
<td>Bargaining Power of Supplier</td>
<td>Competition among players</td>
<td>Threat of new entrants</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Competitive Forces**
manufacturing sector, some generalization of results is still possible. The corporate environment necessitates multiple modes of relationships for transfer of material, especially on the supply side of the value chain. The choice of mode of relationship among the value chain partners is critical in the value chain’s efficiency and has to be focused on for reaping strategic benefits for the organization. The mode of relationship would depend on the relative position of the partners and the balance of forces identified in the value chain relationship strategy matrix. The matrix can aid top management in deciding the priority so that it can proactively intervene.

Thus, the model proposed in this paper for decision-making provides an important tool and can provide the decision maker a more realistic representation of the problem in the course of managing the value chain and choice of mode of establishing relationships. The major contributions of this research lies in the identification of some of key decision parameters in selecting the mode of relationship between the value chain partners, re-emphasis on the importance of strategic decisions on value chain effectiveness, especially in testing times like cyclic business environments, and the development of the value chain relationship strategy matrix. Further, by contextual application in developing the strategy of a major Indian steel company applying matrix, it has been inferred that a long-term relationship and appropriate mode of relationship among partners leads to a more effective and stable value chain.

The utility of the proposed value chain relationship strategy matrix as a decision support system in deciding direction of the complexity of relationships among elements of a system can provide considerable value to the decision makers.

At the end, we examine the scope of further research. In this research, the value chain relationship strategy matrix developed is based on the study of factors affecting the choice of mode of relationship between value chain organizations and has been further refined in conjunction with Porter’s five force model. The matrix has been applied to develop the alliance strategy for SAIL. To broaden the base of the model, it may be applied on past successful and failure cases of various modes of relationship among value chain partner in a wider gamut of sectors and industries. Further, systematic case analysis of the ‘value chain mode decision’ by organizations would facilitate generalization and identifying more value chain relationship decision variables.

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