



# Vendor development and control: its linkage with demand chain

Vendor  
development and  
control

A. Seetharaman, A. Ali Khatibi and Wu Swee Ting  
*Faculty of Management, Multimedia University, Cyber Jaya, Malaysia*

269

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**Abstract** *Explains the linkage of vendor development and control as an integral factor of value on demand chain logistics. Presents a comparison of the traditional purchasing function with vendor development in. Provides the missing link of value chain by demand chain. Describes the supplier integration approach as a competitive corporate strategy in a conceptual synthesis by linking demand chain with order management, marketing, sales, channel management, pricing, service, etc. Analyses the vendor development strategy from three key dimensions. Further discusses the advantages of vendor development in the short run, bottom line performance increase, and long run revenue enhancing the value of an organisation. Also discusses the impact on demand chain from the costing point of view with elaboration on cost and pricing activities involving total cost of ownership, understanding supplier costs and target costing with target pricing commensurate with expectations of customers. Concludes with an emphasis on the importance of providing e-learning and upgrading the skills of staff in order to expedite the adoption of vendor integration strategy in its demand chain logistics management.*

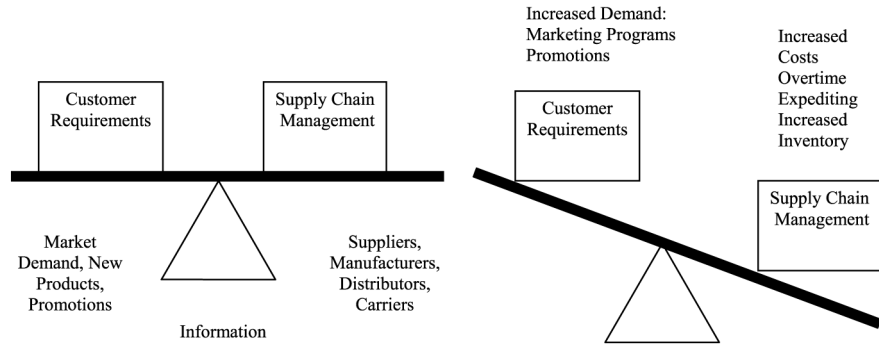
## Introduction

Vendor development is an evolution in supply chain management. There is a growing interest in generating approaches for meaningful development of suppliers so that business could snatch long-term strategic initiatives by developing effective partnerships with suppliers. During the last couple of years, concepts like network sourcing and concurrent purchasing have been proposed and effectiveness of mechanisms such as supplier associations, or *Kyoryoku Kai*, as they are called in Japan, have been studied (Hines and Rich, 1998). The current focus in logistics seems to be clearly on the value stream (Hines *et al.*, 2000). Vendor development places priority on vendor improvement through training, co-developing product, innovation, improving capacity, delivery lead-time and quality of product of their counterparts (D'Lima, 2001). Vendor rating and rationalisation based on technique, product conception, geographical proximity, commercial capability, contractual relationship, image and technical service, are important criteria for evaluation and selection for supplier alliances (Dzever *et al.*, 2001). A crucial characteristic of vendor development is the tiered and networked relationships with the demand chain. Figure 1 depicts limitations of supply chain while balancing vendor's capability with demand chain.

## Research problem

Implementation of a vendor development approach depends on the structure of an organisation, demand chain, financial considerations and personnel utilisation. Vendors should be chosen based on process capability, quality workmanship in meeting the requirements of customers and competitive pricing and compliance with state and local licensing. In the fast age of information technology (IT), vendor





**Figure 1.**  
Balancing supply chain  
capability with customers  
demands

**Source:** POM 320 Supply chain Strategy (2002) IOWA State University College of Engineering

development process also incorporates certain degree of IT risk and problems. Essentially, the research problems are summarised as below:

- lack of awareness and understanding of the mutual benefits earned from the implementation of vendor development approach in the supply-demand chain that is just another hype for exploitation of suppliers;
- lack of availability of internal expertise and consultants in the implementation of a vendor development programme in relation to meeting the requirements of demand chain; and
- the vendor rating and rationalisation may not be easy considering the peculiar nature of industry, or even organisation, has different requirements and expectation from the ultimate customers represented by the demand chain.

Thus, the ability to cope with consumer demand is one thing; the ability physically to respond to that demand in a timely manner is quite another. Which should drive materials movement – supply or demand? There is a need to redefine the roles of different supply chain partners consistent with fulfilment of the demand chain.

#### *Objectives of the research*

The objectives of the research are:

- to identify the strengths and weaknesses of vendor development strategy in the supply chain;
- to analyse the effect of demand chain on the capability of vendors with a focus on customer satisfaction;
- to assess the capability of vendors as an essential linkage to demand chain logistics; and
- to explore the impact of vendor development and control on demand chain to have a strategic fit with capability of vendors.

### *Scope of the study*

The evolution of purchasing from a materials acquisition function to supply chain management has different stages of development. This study focuses on the vendor development in supply chain management that requires a solid linkage to the demand chain. The strength of a chain is the strength of its weakest link, the same may be said in a system of the value chain consisting of a process of both the supply chain and the demand chain. The paradigm shifts to incorporating demand chain with strategic procurement, managing structure and culture of vendor relationship, and energising internal and external organisational teams through flexible structures and responsive information systems in the organisation to balance the supply chain capability with customer demands.

### **Survey of relevant literature**

Leenders *et al.* (1994) discussed the evolution of purchasing function from the traditional procurement service image becoming integrated into the supply chain through improving both internal and external interfaces. The benefits and problems of the service perspective were briefly mentioned. The authors further elaborated that the purchasing function will have to shed its service and operational perspective and take on the challenge of effective contribution to organisational goals and strategies. The article described how the development of team concept changed the responsibilities of the players. The authors had not highlighted the implication of integrated operations to add value to internal and external operations in an organisation. In addition, the article did not detail the steps of integration.

Fung (1999) presented the development of purchasing from a material acquisition function to supply chain management. He discussed the fact that the paradigm had shifted to recognising every purchase as a sale and that purchasing is more than buying. The limitations to the traditional approach to purchasing were highlighted and the author suggested an interactive external exchange relationship involving:

- incorporation of strategic procurement – aligning suppliers' performance with purchasers' business strategies;
- supplier-base management – managing the structure and culture of supplier relationship; and
- lean supply organisation – energising internal and external organisational teams through flexible structures and responsive information systems.

Fung had drawn a guiding framework for professional purchasing and supply chain management with task being differentiated at the operational, administrative and entrepreneurial levels. The limitation of this article is that the detail adoption plan was not emphasised. No mention was made about possible costs and problems of implementing a lean supply organisation that is capable of meeting the requirements of demand chain.

Auer (2000) discussed the issue of who pays for a software vendor's development environment usually surfaces in negotiations. He described that the development environment costs usually include additional charge for hardware, operating system software, network connections and services that are needed to build the software ordered. Joe advised that we should only be responsible for paying for unique software environment costs. A standard development environment is a vendor's cost of doing

business and should be included in its rates. If the development equipment is leased, it is advisable that the right to relocate and to allow the vendor to use it on its behalf is obtained. The article did not mention in detail the component of a standard development environment, hence leaving the puzzle unsolved for non-IT-based decision-makers. It did not measure the magnitude of differences in costing for the two environments.

Chakraborty and Philip (1996) proposed a new conceptual framework on vendor structures that consists of three primary dimensions:

- (1) Vendor structure scope.
- (2) Vendor structure relationship.
- (3) Vendor structure focus.

The concepts presented provide a theoretical base to consider the correlation between the various critical elements in vendor development namely structure, strategy, technology, relationships, tasks, etc. The authors further pointed that early experiences of adoption of this concept in a few firms do corroborate the usefulness of the three basic dimensions proposed here. However, full operational details are still to come to permit sharing of complete field trial experiences. The research to date had not examined the validity of the framework across various industries and environments. In addition, the authors did not elaborate on the aspects of how assessments of specific underlying characteristics should be identified and how to measure the primary structural dimensions of the framework.

Zsidisin and Ellram (2001) surveyed on support factors for supplier alliances in a purchasing and supply management (PSM). The factors tested for the relationship with supplier alliances include:

- accountability of purchasing to the management;
- the use of information technology for implementing the alliance;
- the perceived importance of the purchasing function; and
- the degree of participation in strategic purchasing activities.

The authors further illustrated how cost- and price-related activities associate with supplier alliances in respect of cost of ownership, understanding specific supplier costs, target costing, and market monitoring. The results from their survey indicated that significant relationship exist between support factors, cost and price activities, and supplier alliance involvement by the PSM function. The limitation of the survey is that it is unclear how the support factors affect the performance of both the supplier and the buying firms. It failed to identify the level of influence that each firm has on the other in order to achieve a long-term success.

Babbar and Prasad (1998) conducted a review on the most recent research publications to enhance a comprehensive awareness and understanding in the area of international supply chain management. The authors classified the review into three major areas:

- (1) International purchasing, relating to strategy, addressing issues related to variability in the international environment, country-specific and cross-country research, and the proposed conceptual models for integration, innovation and parallel sourcing.

- (2) International inventory management, viewed at macro and micro level. The macro perspective examined the relationship between inventory and aggregate output in an economy. The micro level studies pertained to just-in-time (JIT) systems, material requirement planning (MRP), optimised production technology (OPT) and manufacturing resources planning (MRPII).
- (3) International logistics, classified into strategy, technology, country-specific, regional and cross-country research involving models and decision-making tools.

The authors also discussed key research findings and provided an overall assessment of the research. The research only drew few samples from transition economies and developing nations that may offer better potential markets as compared to industrialised countries. No illustrations were given for the factors and barriers of successful sourcing strategies.

Brookshaw and Terziovski (1997) investigated on the impact of strategic purchasing and total quality management (TQM) on organisational performance with emphasis on the effect on customer satisfaction. The authors tested the strength of the relationship between strategic purchasing and customer satisfaction. The results, based on their hypothesis testing on manufacturing companies in Australia, revealed that strategic purchasing does play a role in ensuring customer satisfaction as compared with non-strategic purchasing. The limitation of the literature is that the processes were firmly rooted in TQM environment; a single case study treatment may require further empirical analysis to substantiate the interrelationship. Moreover, the benchmark for customer satisfaction varied by organisations with different level of emphasis placed on value adding, continuous improvement with timely communications and high level of service to meet the challenging requirements of the demand chain.

Sutphen (2001) commented on the new demands on the risk control factors for vendor development plans. The pre-trade risk filtering functions of the trading software had catered to the needs of risk managers in assessing the risk in electronic trading of futures and options. Sutphen highlighted four requirements of risk controls. First, risk calculations should be performed on the user's total position. The system should reflect trading positions for the day, previous days, as well as trading activity that took place outside the system, to be factored into the risk calculation. A second risk control requirement was that the risk calculations must accurately reflect the real risk of the order. Third, the calculation should not impede the speed of order entry into the trading host. Lastly, the software should enable easy monitoring of accounts and traders. The author further discussed some contradictory aspects of the requirements in the vendor development plans. The article focused on risk control factors for securities trading and may not apply to other industry. It did not assess whether the software vendors are able to meet the new demand of customer satisfaction in their vendor development plans.

Jenkins (2001) expressed the fact that firms had increasingly looked to third-party vendors for the appropriate IT systems/software that facilitate access to securities trading markets and manage the associated risk. The author illustrated a structured approach that outlined the key high-level steps for a successful outsourcing decision. The approach was summarised in its sequence as understanding:

- the business strategy;
- comprehensive and well-defined business requirements;
- supplier selection;
- contract completion with standard terms and conditions;
- implementation with a detailed transition plan; maintenance and relationship management during post-implementation period;
- benefits realisation and improvement by effective training and alignment of staff; termination or expiry of contract; and
- appropriate reporting lines and contingency arrangements to fulfil regulatory obligations.

The limitation is that each step was only mentioned briefly and was not given detail guidelines for actual application. It failed to comment on the effectiveness of the approach and failed to provide case study examples.

Fung and Wong (1998) presented an analysis of the TQM system and examined the management of critical success factors of a logistics service provider operating in a supply chain context. Analytical generalisation was made on TQM and supply chain management interface. The authors highlighted that in operation, logistics services are integrated with purchasing, operations and marketing with the end customer its prime focus in a business system. Issues related to TQM in the case were maximisation of customer satisfaction with a service strategy, facilitation of customised IT system, flexibility of organisation and personnel in energising teamwork and trust building, and continuous improvement through alliance leadership. The article did not focus on the interactive patterns of the TQM components of a firm operating in a supply chain management context. No discussion was made about the performance measurement system for supply chain management for logistics organisations.

Samuel and Hines (1999) detailed the approach taken by a food distribution company to develop a logical and time-phased supply chain improvement plan. The authors addressed the management of resistance of change through six approaches:

- (1) Education and communication.
- (2) Participation and people involvement.
- (3) Facilitation and support.
- (4) Negotiation and agreement.
- (5) Manipulation and co-option.
- (6) Coercion as the last resort.

The article also described the approach based on value stream analysis tool (VALSAT) method and time-phased improvement plan adopted for the supply chain operations of the company. Samuel and Hines concluded that the company was more customer-focused and able to align strategic and operational objectives. However, the process of implementation was time-consuming and highly dependent on people within the organisation. The limitation of the article is that the authors were only looking at the supply chain from the perspective of the organisation under research. The importance of supplier alliance to meet end customer satisfaction was not emphasised.

Mawson and Fearn (1997) examined the procurement policies adopted by chain restaurants in UK using the “buy-grid” model and presented the findings from six case studies. The authors found that restaurant chains adopted practices and policies introduced by the central procurement and looked for similar supplier characteristics – financial stability of the supplier; the ability to supply the required volume to consistent specifications; their technical competence; and the competitiveness of their pricing. They concluded that the “buy-grid” model was a good predictor of buyer behaviour among restaurant chains. The limitation of the article is that it only revolves around one model and does not offer alternatives for analysis. In addition, no assessment was made whether the “buy-grid” model is suitable for other industries.

Pusalkar discussed his opinion of setting up a vendor improvement team (VIT) with short-term focus, and vendor development programmes as ongoing imperatives for a project that he chaired (Pusalkar *et al.*, 2000). He suggested five changes for better implementation:

- (1) Explore the purchase profile.
- (2) Rationalise the vendor base.
- (3) Increase partnership with vendors.
- (4) Communicate new initiatives.
- (5) Monitor the mechanism.

Thomas Mathew, a director in the same project, emphasised synergising mutual strength and weakness in supplier alliance and improving resource utilisation (Pusalkar *et al.*, 2000). S. Shankarnarayanan, an Ernst & Young consultant, expressed that the essence of vendor development lies in mutual trust and respect between customer and supplier (Pusalkar *et al.*, 2000). The mutual trust would provide a solid bridge between customer and supplier. He highlighted other aspects like vendor financing, joint product development, and training and emphasised the importance of communication and participation of vendors. The limitation of the article is that it does not include the feedback of the task force to the recommendations. In addition, procedures to implement the VIT were not elaborated.

Kotzab (1999) explored the differences in efficient consumer response (ECR) approaches between the USA and Europe presented each by introducing their historical background, goal, scope and effects for the supply chain performance. The author discussed the existing ECR models by criticising their assumptions and results using value chain analysis and analysed the aspects of logistics costs, comparison with JIT-oriented logistics systems, and strategic partnerships in the distribution channels. Herbert concluded that ECR could help to increase productivity by stable sales volume especially in a highly competitive market and that the domination over logistics function would lead to improvements in the field of store assortment, promotion and new product introduction. The limitation of this article is that ECR focuses only in the grocery industry, the generality of the empirical findings are therefore dubious.

Carter and Ellram (1994) examined the inter-organisational alliance of a buyer and supplier with the expressed objective of improving the quality of existing purchased parts. Supplier quality improvement, as identified in their research, was viewed as two-dimensional: improvement owing to the modification of product designs or implementation of process analysis techniques such as statistical process control

(SPC). From the study, the authors concluded that improvement in quality was mainly attributable to improved product designs with early supplier involvement. The limitation of this survey is that it may be difficult to draw hard conclusions as improvements were measured in a single firm. Further, no attempt was made to consider other organisational and motivational factors that may improve quality in accordance with the expectation of customers.

Krause and Ellram (1997) presented the results of a survey on the success factors of supplier development. The analysis suggested that buying firm respondents who reported their firms' supplier development efforts to be satisfactory were significantly proactive and highly involved in suppliers' activities and performance, put more effort and resources into their supplier development efforts, and exhibited a greater willingness to share information. The shortcoming of this research effort is that it looked at only one side of the buyer-supplier dyad: buying firm respondents' perceptions. A dyadic study of buying firms and their suppliers would provide balance and insight into how suppliers perceive supplier development. The short coming of this literature is its absence to measure the investment cost involved and assess the effectiveness of buying firms' communication efforts to supplier development.

Rich and Hines (1997) developed the concept of time-based competitive strategies within the context of supply chain management and explored the role of supplier association in network sourcing approach. This approach, heavily influenced by the Japanese, provided a method whereby the advantages of vertical integration can be achieved without reducing the flexibility of product and material outsourcing. The authors stated the three dimensions of supplier association, or *Kyoryoku Kai*, mechanism that supported time-based competitive strategies. First, the strategy of long-term supplier collaboration; second, the responsiveness fostered by the supplier association structure; and third, new behavioural patterns and trust within supplier association. Despite the impressive presentation of network sourcing, the article did not quantify the mutual benefits achieved by the use of such supplier integration mechanisms. The limitation of this analysis is that the conflict of interest factor was not considered for direct competitor companies as members in the supplier association, which share or compete within a common marketplace.

Hines and Rich (1998) presented the key to outsourcing of competitive advantage through the working mechanisms of the supplier association process. The full benefits were illustrated using a case study on Toyota in Japan. A four-phased supplier association model was discussed in detail together with an illustration of each approach within a UK context. The authors explained a complete picture of how supplier associations developed and how they might be used to create and "outsource" significant competitive advantage. Various modifications were introduced to adopt the method in the western environment for effective development of world-class supply chain. However, the article did not highlight the problems of developing supply chain using the supplier association approach. It did not specify the types of industry nor organisations that are most suitable to adopt this approach to achieve a sustainable competitive advantage in its vendor development effort.

Hines *et al.* (2000) described a two- and, later, a three-dimensional view of supply chain dynamics within a theoretical framework derived from research carried out in the UK automotive industry. The three-dimensional view involved considerations on available capacity, dynamic variability, and funnelling and other buffers. The authors



concluded that application based on the waves analogy to a real-life setting suggested appropriate business strategies to achieve a lean value stream. The limitation to this article is that the supply chain was developed on theoretical integration; the implementation aspects were not discussed. It also failed to assess the effectiveness of lean thinking as an approach to supply chain management.

Dzever *et al.* (2001) analysed the important factors that determined the nature of purchase decision making and buyer-seller relationship development in the French food-processing industry. The authors investigated the criteria from three aspects: purchasing needs of the organisation, purchase decision process, and supplier relationship development. They confirmed the need for suppliers to understand in greater detail factors that buyers regard as decisive in their choice of a supplier as well as those that are pivotal in the development of long-term relationships. The limitation is that the study was done based on 30 firms across three food-processing activities in France, the result may be a robust basis for generalisation. The article did not categorise the data into countries of origin of suppliers in order to provide a better perspective of product acceptance by the customers and market entry strategies of suppliers on a global basis.

### Research methodology

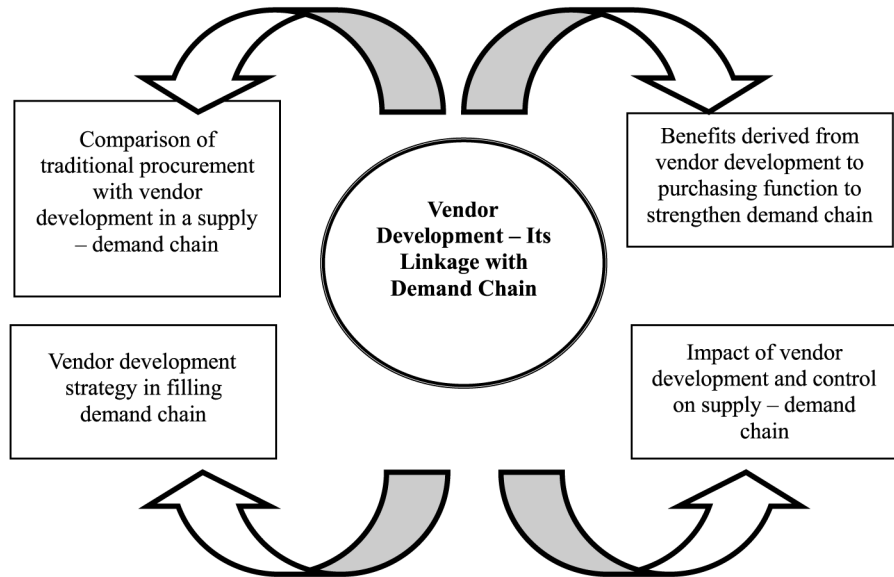
The information and data of the research project were gathered from various sources of secondary data. The Internet search engine like Google, Lycos, Altavista and ProQuest offered excellent searches for locating on-line articles. Sources of secondary data include journal articles published in magazines and downloaded from the Internet Web sites including Emerald-library, *Business Today*, and *Futures Industry Magazine*. References were also made on the research topic from various chapters of relevant books from the library of the university.

The research framework is developed in Figure 2.

### Discussion, analysis and findings

#### *Comparison of traditional procurement with vendor development in a supply-demand chain*

“The right goods and services of the right quality and in the right quantity at the right time and the right place with the right services and support at the right price” (Leenders *et al.*, 1994) is a service perspective that the traditional supply function is expected to meet. Historically, few people in the organisation cared how purchases were made as long as they received what they wanted and from whom they wanted it. The service perspective of purchasing has, however, been useful in the past, but has become secondary importance in supporting the organisation’s goals and strategies. Even the supply chain has its own limitations. The strength of the supply chain lies on its weakest link. Supply chain implies restrictions; it focuses on supply. Many companies did not see the supply chain coming. Advanced planning systems did not pick up the signs. Once recognised, the ability to react was lagging. In many companies, much progress has not been made. While the supply chain has limitations, the demand chain has lot of potential for its optimisation. Changing the relationship with suppliers require different type of internal and external relationship between supply and other functional areas most particularly marketing.



**Figure 2.**  
Research framework of  
vendor development and  
control – its linkage with  
demand chain

This conceptual re-definition of integrated purchasing gave rise to lean supply organisation that energises organisational teams for strategic procurement and supplier-base management through flexible structures and responsive information systems.

Vendor development focuses on mutual dependence of buyer-supplier with the objective of achieving long-term customer satisfaction as a result of demand aggregation in the demand chain. Hence, the criteria for supplier selection have to be considered and evaluated for developing relationships with suppliers due to nature of a business activity (Dzever *et al.*, 2001). The activities assessed include formal evaluation, feedback of evaluation results to suppliers, use of a supplier certification programme, site visits, supplier recognition, training and education of supplier's personnel, and investment in supplier's operation. Commerce has always been a mix of what companies want to sell versus what consumers want to buy. However, even a child knows that, "The customer is always right". Since demands originate with the consumer, it is important that the channels closest to the end buyer are primed to respond. Hence, the response of supply chain is to fill the needs of demand chain (Ericson, 2002).

Vendor development involves integration across applications both internal and external to the organisation. In this context, automation of transaction processing expedites the mechanism of information sharing and communication linkage in supplier alliances. Communication effort is characterised as timely, frequent, informal, and having greater number of contacts between the two firms and a propensity to share proprietary information (Krause and Ellram, 1997). With dual sourcing, risk control factors can also be mitigated (Sutphen, 2001).

There are several organisational issues that must be considered when forming a strategic alliance with a supplier to improve quality. Those issues entail structuring the nature of the buyer and supplier relationship (adversarial versus co-operative), the

organisational interface, and the efficient use of management resources. For example, both entities in the supplier integration are required to work closely through open communication on product design issues for quality improvement. Supply chain has many limitations. Planning in the supply chain/network is very complex. Forming sales plan and budgets off-line without considering operational supply chain limitations can be costly. Organisations that continue to plan sales in a vacuum will continue to undermine profitability and customer service. CAPS Supply Chain Coordinator (2002) raises following questions.

- (1) Does an organisation know what sale promises its chain is capable of keeping to its customers?
- (2) Can an organisation:
  - Determine operational feasibility of sales plan?
  - Respond to seasonal or cyclical changes in demand?
  - Assess impact of new product line(s) on existing supply chain?
  - “Stress test” supply chain to determine where and when inventory is needed to satisfy demand?
  - Identify supply planning bottlenecks (e.g. raw materials, vendor, production and distribution capability)?

The traditional procurement uses fact-based negotiation approach with suppliers. With tiered and networked relationships, a win-win strategy could be developed through common solution achieved in the alliance of supply chain and demand chain. In addition, both buyer-supplier entities can align the partnership to comply with demand chain management.

#### *Vendor development strategy in filling the demand chain*

Due consideration has to be given on the interrelationships between the various critical elements in vendor development and demand chain, i.e. structure, strategy, technology, relationships, and tasks. For an effective vendor development approach, a conceptual synthesis framework that links vendor structures with demand chain management. The total integration of customers into the supply chain yields to a demand chain. The three key dimensions being considered are the vendor structure scope, vendor structure relationship, and vendor structure focus on customer. For this purpose, IT networks is widely used by leading *Fortune* 100 companies to connect their sales chain to their supply chain. These visionary companies use IT solutions to determine changes (increases or decreases) in customer demand, determines new store location to support new growth and adjust supply planning strategies to align their vendors, warehouse and transportation providers with customers demand. IT systems help organisations:

- do allocate product to the most profitable customers during peak demand periods;
- to assess needed supply chain capability;
- to select the optimal sourcing strategy throughout the supply chain;
- to balance manufacturing, inventory and transportation trade of cost; and
- to identify supply chain bottlenecks.

*Assessment of benefits to strengthen logistics support to the demand chain*

The apparent benefits resulting from strategic supply chain-demand chain alliances are derived both in the short run and the long run. The immediate advantage is shown in the bottom line of the performance of an organisation. This is due to cost reduction in transaction processing as a result of training, shared resources and effective information exchange on product design, product development and exact requirement of customer. A lean organisation can better facilitate its control and coordination in its purchasing, production and marketing, hence gaining a competitive advantage in quality and pricing as well. With the introduction of strategic supply – demand chain alliance, an organisation is able to improve its capacity, product development and design, standards and quality to align its long-term competitive position in the market place. Most importantly, the workflow and speed of operations will increase, especially in the case of JIT implementation, with more effective decision making from the networked relationships in the value chain.

The revenue enhancing benefits include exploration of new channels to source its supply. Toyota in Japan utilised the networking structure in supplier association to achieve highly effective supplier integration that has enabled the excellence of their internal strategic management, cross-functional process-based management and Toyota production system to be shared directly with their direct suppliers (Hines and Rich, 1998). Strong management commitment to develop closer relationships with suppliers through strategic purchasing effort was found to contribute significantly higher customer satisfaction (Brookshaw and Terziovski, 1997). In addition, the mechanism for communication linkage and information exchange, which is a critical success factor in supply and demand integration, also offers potential for new services to both entities.

Optimisation of the collaboration between all supply-demand chain partners is achieved through real-time communications. Integration of end customer is possible in the value chain. Semi-automation of communication acts like requests or acknowledgements are possible through the application of intelligent agents or systems. Acceleration of crash management is also possible. Feedback-loops support is provided for early adjustment of the production. (Eschenbacher, 2000)

*Impact of vendor development and control on the supply-demand chain*

The supply-demand chain alliances have a major impact on the capabilities and profitability of its member firms in the alliance. Supply-demand chain activities affect the income statement, balance sheet and cost of capital (Mentzer, 2001).

Historically, each department carries out value-creating activities to design, produce, market, deliver, and support the firm's products independently. Logistics managers focus on inventory, facility location and design, and transportation matters while the finance managers strive to obtain the lowest cost of borrowing, make decisions on projects that offer the best returns, and ensure the liquidity of the company is not in jeopardy. Today, successful supply-demand chain organisations shift focus to establishment of supply chain partnerships, coordination of activities in all departments, cycle time compression, system-wide cost reduction, and improved value for end customers.

In 1995, Xerox created a position as “customer supply assurance manager” to look after the integrated decision making and integrated physical materials handling. The responsibility of the customer supply assurance manager includes matching supply to

demand in real time, satisfying customer demand by assuring product availability, interfacing with all points of supply chain on a daily basis and facilitating decisions on production schedules, introducing or terminating sales promotions (Hewitt, 2001).

The supply-demand chain integration approach provided significant opportunities for the competent members of the alliance to reduce expenses, generate better returns on invested capital, and improve cash flows due to higher customer satisfaction. Controlling the supply-demand chain expenses such as logistics costs, inventory carrying costs, warehouse costs and transportation costs, improves the profit margin. Decisions and expenditures associated with procurement, inbound transportation, production planning, materials management, distribution, sales promotion and customer service are directly related to the net profits of the firm. Typically organisations see significant benefits by adjusting supply chain capacity to meet seasonal periods of demand and as a result can reduce fixed and variable manufacturing, transportation and warehousing costs. A survey done on the expenditures of the US business logistics system from 1977 to 1998 showed that as a percentage of gross domestic product (GDP), logistics costs had declined from 13.7 per cent to 10.6 per cent between the periods under observation (Mentzer, 2001). This statistic reflects the materiality of logistics costs to organisations and economy as well as higher efficiency achieved through productivity gains in the reduction of relative inventory levels and lower transportation costs. In addition, reducing the level of assets in the purchase, production, marketing, and distribution functions by sharing resources between partners in the supply-demand chain alliance can improve return on assets. In effect, the continuing efforts to shorten the cycle times enhance the cash flows coupled with customer satisfaction. Combined supply-demand chain performance also produces the leverage and competitive advantage to increase revenues and the share of the market for both supplier and marketer.

The ability of the supply-demand alliance to perform financial analysis affecting the purchase and marketing decisions is critical in competing for funds and adding value to the firms. Three areas of financial focus that the alliance must demonstrate competency are expense control, capital budgeting, and cash flow generation due to higher customer satisfaction.

Expense control requires a deliberate and continuous search for more efficient ways of getting value-added work performed while eliminating non-value-added activities. In a supply-demand chain partnership, the costs of operating and installation of computers and other technologies to automate and speed up outdated business practices are shared by the member firms. In capital budgeting, supply-demand chain managers are expected to make decisions on capital investment regarding asset productivity. Many methods and techniques are used that consider the timing of cash flows, cost of capital, internal rate of return, payback period, and cost-benefit analysis as a result of customer satisfaction. Evidence indicates that the financial community prefers the net present value method of valuation as it provides more accurate and practical results for decision making.

A key to the notion of a cash cycle is to view the entire logistics, manufacturing, and sales process across the supply-demand chain with regards to what it means for cash flow generation. An effective cash flow strategy reduces the level of inventories and frees up cash committed to those assets throughout the supply-demand chain. This extra "turbo cash flow" is an opportunity to invest the money elsewhere. Cash flows are also being improved by the use of electronic data interchange (EDI). With the

advancement of e-commerce, transfer of funds between the buyer's and seller's banks can be transacted via the Internet. Shippers receive discounts from carriers in exchange for fast payment, thereby improving cash flows of the buyer. This practice reinforces the "partnering" relationship between the parties in the supply-demand chain. Other factors achieved through consensus in the supply-demand alliance that could improve the cash flows include credit terms, terms of sale, cash forwarding and lead-time reductions.

Another approach to supply-demand chain cost management is with regard to control in cost and price activities. These activities require strong involvement and participation of the supplier and marketer alliance. Three of the activities that are total cost of ownership, understanding supplier costs, and target costing (Zsidisin and Ellram, 2001).

Total cost of ownership (TCO) is a purchasing tool and philosophy aimed at understanding the relevant cost of buying a particular good or service from a particular supplier (Ellram, 1995). TCO is an important tool for supporting strategic cost management. It is a complex approach that requires the buying firm to assess and measure the costs that are most relevant or significant in the acquisition, possession, use and subsequent disposition of a good or service fill the demand chain. It may include analysing processes as well as making the make-or-buy decision. TCO analysis is conducted at the interface of the buyer and supplier firms (Ellram, 1995). The goal of proactive TCO analysis is to encourage both the PSM function and supplier to share information on product design that drives out cost. The high level of effort and information sharing frequently warrants a close relationship, such as an alliance, between supplier and marketer.

Specific activities that support better understanding of supplier costs include performing breakdowns of supplier cost structures, encouraging suppliers to share cost data, and developing a database of estimated supplier cost structures. Performing breakdowns of supplier cost structures literally entails "tearing apart" the competitors' products to see how they are made in order to promote innovation and ultimate customer satisfaction. Encouraging suppliers to share cost data requires that the suppliers reveal their books to the buying organisations to help identify cost drivers and high cost areas, and then work together to reduce costs. This approach is feasible only in situations where the organisations have mutual commitment to improvement and relatively high level of trust between supply and demand chain partners.

Target costing involves integration, communication, and achievement of a certain level of costs for a product or service with a given functionality. In supplier alliance relationships, each organisation affects the others' profitability. The target cost for an item is its estimated selling price less the desired profit. Target costing is a technique whereby the organisation determines the price the market will bear and backs out desired profit; the amount remaining is the cost for which the firm can afford to make or otherwise procure the item. The target cost becomes the overall allowable cost for the product or service. It focuses the purchasing firm on developing and producing only those items it can sell at a reasonable profit. It takes into consideration the minimisation of total logistic costs that involve transport cost, capital-carrying cost, safety stock holding cost and delivery cost. Buyers and suppliers truly need to work with a great deal of cooperation for target costing to be successful, and that level of support may only be found in supplier and marketer alliances. In many cases target costing is worked out on the basis of target pricing which in turn based on customer expectation in the demand chain.

### *Limitations*

Given the short research period, one of the shortcomings of this effort is that it failed to assess the effectiveness of communication effort to supplier-marketer integration. The various problems and difficulties of creating a supplier-marketer alliance were also not explored. The investigation of financial issues in supply-demand chain management has also evoked questions for further research. To what degree is supply chain or demand chain managers involved in financial decisions of the firms? What training is called for, and how should it be implemented? Under what condition does asset reduction improve the financial performance and market value of the firm? What are the operational and managerial implications to partnering, strategic alliances and outsourcing? In addition, the question of how much resource an organisation should devote to supply-demand chain management in order to achieve synergy operationally remained unanswered.

### **Conclusion**

The traditional control-through-ownership strategies in purchasing function are being replaced by control through relationship management strategies in supply-demand chain management that emphasise more on the overall performance of local and extended supply-demand chains. Vendor development put forth a more intense effort by organisation to create a competitive edge over its rivals in the market place. The supplier-marketer alliance requires greater emphasis on vendor rating and selection, communication and information exchange, higher levels of involvement in vendor improvement activities, and establishment of networked relationships for a significantly longer time period.

For an effective vendor development approach, a conceptual synthesis framework that links vendor structures to demand chain management is introduced. These strategies recommend different emphasis on the critical elements of vendor development such as structure, strategy, technology, relationships, and tasks. The three key dimensions being considered are the vendor structure scope, vendor structure-demand chain relationship, and vendor structure focus on demand chain.

Strong management commitment to develop closer relationships with suppliers through strategic purchasing effort is found to contribute significantly to higher customer satisfaction. The results revealed that both entities in the integration experienced excellent increase in performance and quality of the value chain.

Supply-demand chain activities affect the income statement, balance sheet and cost of capital. The development of an appropriate vendor structure involves resource commitments that are irrevocable for non-trivial periods of time. The supplier-marketer integration approach has significant financial implications on cost management, reduction of expenses, generation of better returns on capital, increase customer satisfaction and improvement in cash flows. These benefits are achievable through cycle time compression, system-wide cost reduction, and improved value for end customers in the implementation of supply-demand chain integration through a well-organised and well-developed value chain logistics.

The supply chain managers have different roles than do traditional internal operation managers. With the technology improvements in computers and telecommunications, training is essential for employees in a lean supply organisation to adapt to the process automation. Competency in managing the electronic business environment becomes a critical requirement of decision-makers.

E-learning and upgrading of skills of the employees are crucial to ensure successful participation in the supply-demand chain development which is a value and means of value to a value chain.

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