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SUPPLIER SELECTION AND OUTSOURCING STRATEGIES IN SUPPLY CHAIN MANAGEMENT

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ABSTRACT:
The global purchasing in Supply Chain Management (SCM) has become more risky, visible and productive position within many organizations. As companies implement just-in-time and operations improvement strategies, the importance of developing and managing the suppliers emerges as critical outsourcing strategies in SCM. In addition, competitive business processes and shorter product life cycles have caused executive management to recognize the significant leverage potential that exists within the purchasing organization on the company's cash flow and profitability position. The objective of outsourcing strategies is to implement procurement and vendor operating policies that streamline material and/or service flows, reduce manufacturer and supplier costs, improve quality and customer service performances, and create long-term buyer/seller partnerships.

Keywords: *supply chain, outsourcing strategies, supplier selection*

TEDARİK ZİNCİRİ YÖNETİMİNDE TEDARİKÇİ FİRMA SEÇİMİ VE DIŞKAYNAK KULLANIM STRATEJİLERİ

ÖZET:
Tedarik Zinciri Yönetimi kapsamında küresel satınalma çoğu organizasyonlar için daha riskli, daha açık ve verimli duruma gelmiştir. Firmalar, "tam zamanında" yaklaşımını ve faaliyet geliştirme stratejilerini uygulamaya koyarken Tedarik Zinciri Yönetimi içerisinde tedarikçilerin geliştirilmesine ve yönetilmesine verilen önem dışkaynak kullanımı stratejilerinin kritikliğini ortaya çıkarmaktadır. Ayrıca, rekabetçi iş süreçleri ve daha kısa ürün ömrü çevrimlerine bağlı olarak tepe yöneticileri satınalma organizasyonunun firmalarındaki nakit akışını ve karlılık durumunu anlamlı derecede etkilediğinin farkına varmışlardır. Dışkaynak kullanım stratejilerinin amacı tedarik ve tedarikçi firmaların çalışmalarına ilişkin politikalara zemin oluşturmak, malzeme ve/veya hizmet akışlarını düzgün kılmak, imalatçı ve tedarikçi maliyetlerini azaltmak, kalite ve müşteri hizmet performansını geliştirmek ve uzun dönemli alıcı/satıcı ilişkileri oluşturmaktır.

Anahtar Kelimeler: *tedarik zinciri, dışkaynak kullanım stratejileri, tedarikçi seçimi*

1. INTRODUCTION

Many companies have redefined their position in the supply chain in an effort to face the consequences of the ongoing globalization of competition. Decisions to expand in certain parts of the chain and to subcontract other activities are increasingly taken in a global perspective [1]. Global purchasing can be the result of a reactive, opportunistic decision to decrease the purchasing cost of one item but can also be a strategic and coordinated effort to pro-actively enhance the competitive position of the company. It includes all phases of the purchasing process, from before the definition of the specification list, over supplier selection and buying to the follow-up and evaluation phase [2]. Zeng proposes to theorize on the globalization process of purchasing in the context and on the level of the supply chain to which it belongs [3]. The global purchasing is more risky, visible, productive within a supply chain. As companies implement various strategies such as just-in-time (JIT) and operations improvement, the importance of developing and managing the supplier base emerges as critical outsourcing strategies in SCM. In addition, increasing competitive pressures and shorter product

life cycles have caused top managers to recognize the significant leverage potential that exists within the purchasing organization on the company's cash flow and profitability position.

The objective of outsourcing is to implement procurement and vendor operating strategies that streamline material/service flows, reduce manufacturer and supplier costs, improve quality and customer service, and create long-term buyer/seller partnerships [4]. There are some outstanding advantages of strategic outsourcing for the manufacturers:

• Suppliers play a significant role in the production, delivery, and service of competitive quality products. Purchased materials and services represent up to 80% of total product costs in most high-technology industries.

• Former procurement practices have focused on obtaining the lowest unit prices; the trade-offs of poor quality, erratic delivery performance, and the other problems have been buffered by inventory cushions, quality control personnel, and multiple vendors with short-term interests.

• Unlike efforts to reduce labor and general overhead costs, reductions in raw material costs result in financial transactions that improve a company's profits and cash position.

Because of these factors, a significant cost reduction opportunity exists in both the direct material and material and service overhead categories (i.e., purchasing and material planning administration, freight, receiving, incoming inspection, material handling, warehousing, inventory variances, packaging, etc.).

2. BACKGROUND

There are some trends that net price, delivery, and quality have received the greatest amount of attention in the last years. These criteria were discussed more than any other criteria [2, 4]. On the other hand, several criteria have received little attention in the last years. During the last years some citations could be found for warranties and claim policies, communication system, impression, labor relations record, amount of past business, and reciprocal agreements; the some others was found for bidding procedural compliance, desire for business, operating controls, packaging ability, training aids; and only a limited number of citations were found for performance history, financial position, and reputation and position in industry. The traditional purchasing scenario has contributed to short-sighted relationships between manufacturers and their suppliers [4, 5]:

• *Multiple vendors* may provide insurance against late deliveries, poor raw material/service quality, and rising unit prices. However, this kind of relationships also prevents suppliers from realizing scale economies from long-term relationships and a larger share of the manufacturer's business.

• *Competitive bidding* practices tend to play vendors against each other to obtain the lowest unit prices; as a result, suppliers postpone investing in capital equipment to improve their long-term quality and cost-reduction efforts.

• *Adversarial negotiating* tactics have resulted in a lack of cooperation, with each party striving for the largest short-term gain.

• *Poor vendor quality* is compensated by tightening the specifications and by employing a variety of sophisticated acceptance sampling techniques, test equipment, and a large incoming inspection staff.

• *Erratic delivery performance* results from buying to a schedule that is no longer valid in the plant because schedules may be changed every hour. Since the customer is always considered to be right, suppliers react by expediting throughout their factory floor, carrying excess buffer inventories, working overtime, and changing their suppliers' priorities.

• *Obsolete performance metrics* such as purchase price variance promote activities that undermine JIT purchasing practices.

• *Materials management* resources in both the manufacturer and supplier organizations must be increased.

When a company migrates to JIT as an overall business strategy, these procurement practices must be challenged into outsourcing policies continually.

3. JUST-IN-TIME PURCHASING

The recommended implementation approach for JIT is to start at the distribution end of the business, improving the planning processes associated with forecasts, order entry, inventory strategies and capacity to produce a more stable, predictable, and reliable master production schedule [6]. Next, the manufacturing operations can be improved by reducing lot sizes and setup times, creating manufacturing cells or pass-along lines, improving quality, implementing pull scheduling and Kanban replenishment techniques, and managing bottleneck operations. Finally, outsourcing and procurement

activities can be improved and integrated into the overall JIT strategy.

One should view this implementation approach as an iterative process in the short term, moving up and down the manufacturing stream for specific JIT projects but always moving from the distribution end of a company upstream to the suppliers in the longer term. In other words, JIT does *not* start in a company's purchasing department, and JIT does *not* mean that a customer holds zero inventory and expects all suppliers to hold inventory and then deliver on an hourly basis. What it does mean, however, is the development of efficient in-house manufacturing operations, valid schedules, and close cooperative partnerships with key suppliers that minimize inventory buffers and other non-value-added waste [5].

Typically, the characteristics of an effective JIT manufacturer/supplier relationship include:

▪ Fewer, more capable suppliers located as close to the manufacturer's plant as possible

▪ Frequent deliveries in smaller lot sizes, in exact quantities, and packaged in a format that is compatible with the manufacturer's replenishment scheme to the floor

▪ Stable, synchronized schedules between manufacturers and suppliers, with tight delivery windows

▪ Minimal purchase order paperwork processing due to long-term contracts, electronic data interchange, and bar-coding applications

▪ Vendor certification and ship-to-stock programs because of outstanding vendor quality achievements (the parts-per-million philosophy)

▪ Continuous improvement programs such as value analysis, quality improvements, and cost reductions conducted jointly by manufacturers and supplier personnel

▪ Extension of JIT manufacturing techniques upstream into suppliers' operations and their raw material sources.

Manufacturers and suppliers that have challenged established procedures and successfully implemented outsourcing programs are deriving tremendous benefits.

4. STRATEGIC ELEMENTS OF OUTSOURCING

The most successful manufacturers have developed sourcing strategies with their vendors that produce shared opportunities. They have created formal strategic alliances bound by homogeneous goals, investment, obligation, and mutual trust [6]. The most common strategic elements of outsourcing are as follows:

Global Strategies That Impact Outsourcing: In an outsourcing program, management must understand the global strategic issues and the external and internal drivers that impact sourcing decisions. On the external side, it is particularly important to understand the industry structure, there are some definitions about the suppliers such as defining the suppliers in the industry, analyzing the supplier's bargaining power, selecting the emerging technologies and substitute products, forecasting the new entrants may enter the market, analyzing the customers' bargaining power.

On the internal side, it is important to understand the company's strategic direction and the tactical actions that are being pursued in the areas of technology development, engineering, materials management, manufacturing, distribution, and field service.

An outsourcing program should be designed around a company's overall corporate strategy so that products can be brought to the marketplace at the right time, at a competitive quality and price, and with a reliable level of performance.

Procurement Specifications: Procurement objectives should be developed around considerations such as facility locations and focus, vertical integration, technology life cycles, and other related elements of the total manufacturing infrastructure. In addition, the metrics of competitive performance must also be considered as part of a JIT purchasing program. For example, competing on the basis of cost, delivery, quality, flexibility, or innovation may have a major impact on procurement objectives and the subsequent daily activities of buyers.

Supplier Management Plan: During this task the best sources are determined and the vendor base is consolidated. Manufacturer/supplier relationships are established and the purchasing objectives are communicated and agreed upon [7]. The vendors chosen are integrated into the manufacturing process through:

• Joint training and education activities aimed at learning each other's products, manufacturing processes, and customer service issues (within security limitations of the industry)

• Long-term contracts and blanket orders with multiple release dates

• Joint involvement in product/process design, value analysis, quality improvements, and cost reductions

• Open exchange of information such as schedules, design data, quality results, and cost structures

• Formal vendor evaluation that incorporates in-process controls, multiple measurements, continuous feedback, and joint corrective action.

Quality Commitment: The objective of quality commitment is to push incoming inspection activities back to the supplier where it is controllable and correctable. Several companies have mandated that their vendors implement statistical process control and encourage joint problem-solving teams to improve quality. Ultimately, manufacturers evolve to formal vendor certification and ship-to-stock programs which are designed to eliminate the costs associated with producing, handling, reworking, and/or returning substandard materials.

Schedule Stability: The impact of schedule changes increases as you move upstream from the ultimate customer. In other words, a moderate schedule change within a manufacturer's plant can be dramatic to a supplier, particularly if he is small and approaching capacity. The impact of schedule changes and the total supply chain vulnerability are illustrated in Figure 1 [5].

Predictable delivery schedule allows suppliers to implement JIT techniques in their own processes and eliminates costs associated with excess inventory buffers, overtime and expediting. Thus improvements in the supplier's process can be passed on to manufacturers in the form of flexibility and price reductions.

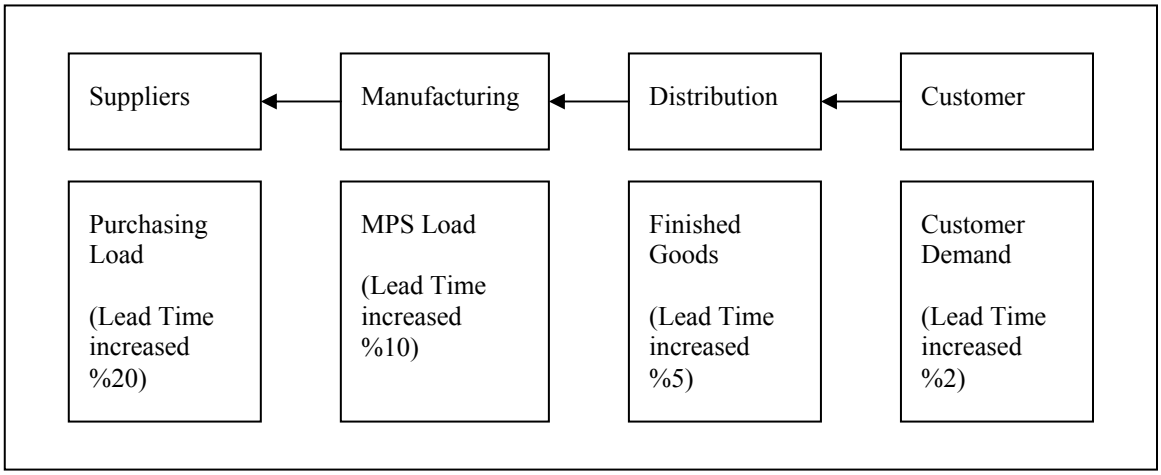

Figure 1. Supply chain vulnerability to schedule changes

Long-Term Buyer/Seller Relationships: Formal linkages evolve between manufacturers and their suppliers through frequent contact, open communication and joint planning sessions involving manufacturing, quality, design, and materials management. Long-term contracts provide an incentive for investment in new equipment to reduce costs and improve quality.

Procurement Lead Times: Local sourcing, blanket orders with multiple releases, and paperwork simplification are common approaches for shortening lead times. Some companies have implemented electronic data interchange (EDI) and bar-coding applications to streamline purchasing and receiving administrative tasks. Others have adopted the buyer/planner concept which also shortens the processing cycle by consolidating traditional purchasing and planning tasks into a single function. Excess inventory is a convenient but costly approach to buffer the inefficiencies of paperwork processing, unreliable vendors, and an unpredictable transportation system. Closer and more responsive vendors and a simplified administrative cycle eliminate the need for such buffers.

Inventory Buffers: As supplier quality increases and ship-to-stock programs are implemented, the replenishment pipeline is shortened [8]. In addition, the cooperative manufacturer/supplier relationship evolves to a point where both parties are identifying and solving problems at the source. Over time, raw material and work-in-process inventory buffers can be reduced as problem areas are exposed and corrected.

Long-Term Cost Reduction: The objective of this task is to jointly analyze the supplier's manufacturing process, methods, and equipment, and understand the components of the supplier's manufacturing cost structure. Through this approach, a manufacturer and his suppliers can identify opportunities and implement changes to reduce costs from which both benefit [9].

Nonproduct Expenditures: Traditionally companies are allowed the human resources department to purchase insurance, the engineers to purchase capital equipment, the data processing department to purchase software/hardware, and the maintenance department to purchase construction services. It is becoming less unusual to find purchasing functions within engineering, data processing, or marketing organizations. Companies are beginning to negotiate the scope of services or apply make-versus-buy logic to maximize the benefits of auditing and legal fees. In short, substantial purchasing cost reduction opportunities can be found within nonproduct expenditure areas not traditionally serviced by purchasing professionals.

5. POTENTIAL RESULTS

Manufacturers who successfully implement long-term outsourcing programs have realized the following benefits:

• Reductions in the material and material overhead components of their manufacturing cost structure

• Quality improvement through statistical process control and joint corrective actions

• Simplified administrative and support functions through reduced paperwork and long-term contracts

• Increased effectiveness due to less expediting, rework, repair, and return-to-vendor activities

• More responsive and technically sound product introductions.

If supplier markets were totally reliable and efficient, rational companies would outsource everything except their key and/or critical activities. Unfortunately, most supplier markets are imperfect and do entail some risks for both buyer and seller with respect to price, quality, time, or other key dimensions. Moreover, outsourcing entails unique transaction costs - searching, contracting, controlling, and recontracting - that at times may exceed the transaction costs of having the activity directly under management's in-house control. To address these difficulties, managers should answer three key questions about any activity considered for outsourcing:

- What is the potential for obtaining competitive advantage in this activity, taking account of transaction costs?
- What is the potential vulnerability that could arise from market failure if the activity is outsourced?
- What can we do to alleviate our vulnerability by structuring arrangements with suppliers to afford appropriate controls yet provide for necessary flexibilities in demand?

Conceptually, first two factors can be thought as dependent each other. Two extremes - competitive edge and strategic vulnerability - are relatively straightforward. When the potential for both competitive edge and strategic vulnerability is high, the company needs a high degree of control, usually entailing production internally or through joint ownership arrangements or tight long-term contracts (explicit or implicit).

Most companies can substantially leverage their resources through strategic outsourcing by:

(1) developing a few well-selected key and/or critical activities of significance to customers and in which the company can be best-in-world;

(2) focusing investment and management attention on them; and

(3) strategically outsourcing many other activities where it cannot or need not be best.

There are always some inherent risks in outsourcing, but there are also risks and costs associated with insourcing. When approached within a genuinely strategic framework, using the variety of outsourcing options available, and analyzing the strategic issues developed here, companies can overcome many of the costs and risks. When intelligently combined, key and/or critical activities and extensive outsourcing strategies provide improved returns on capital, lowered risk, greater flexibility, and better responsiveness to customer needs at lower cost.

To be more competitive, in the global marketplace, manufacturers and suppliers within a supply chain must tear down the traditional practices of the past and create more innovative operating partnerships.

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VITAE

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