

Factors Affecting the Selection of Optimal Suppliers in Procurement Management

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Abstract

This is a desk top study on factors affecting the selection of optimal suppliers. The main objective was to identify the factors affecting supplier selection; the supplier selection process has also been identified. Factors affecting selection of suppliers were identified as; cost, technical capability, quality assessment, organizational profile, service levels, supplier profile and risk factors, in that relative order. This paper concludes that a cost criterion is a key factor affecting supplier selection for it dictates among many elements, the profit margins. Technical capability, quality of materials and the profile of the supplier are also closely considered. From the findings, we recommend that supplier selection should be an open and transparent process, carried out by experts from all key departments and should be done in time to avoid stock outs.

Key words: optimal supplier, selection, factors,

Introduction

1.1 Background of the Study

The role of purchasing in supply management has received and continues to receive increasing attention as the years go by. Purchasing enhances efficiency and competitiveness among other benefits but to realize these benefits it is imperative to select and maintain competent suppliers. However, many factors affect a firm's ability to choose the right supplier. There is a need to understanding of the supplier selection criteria. Some of the factors firms consider include trust and commitment, adequate finance, quality, reliable delivery times, adequate logistic technological capabilities (Cox, 1999). Materials delivery, quality, cost/price, financial position, communication and technology is recognized as the commonly used criteria a fact confirmed from empirical results as well as in previous literature. However other criteria such as ISO certification, reliability, credibility, good references and product development were are also necessary. This shows that focus is shifting from solely relying on quantitative factors to include qualitative criteria (Harps, 2000).

Many authors agree that the following factors makes the supplier selection decision making process complicated (Vera and Pullman, 1998). These factors are (1) multiple criteria: Both qualitative and quantitative (2) Conflict amongst criteria: Conflicting objectives of the criteria (3) involvement of many alternatives: Because of high competition (4) internal and external constraints imposed on Buying process. However, it takes a lot of work effort and patience to develop this partnership. Since, the right supplier selection process encompasses different functions such as purchasing, quality etc. within the company; it is a multi-objectives problem, encompassing many tangible and intangible factors in a hierarchical manner. Effective supplier means suppliers who can supply the right amount of materials or services at the right time, at right price and the right quality.

It is obvious therefore, that effective supplier selection must deal with a host of quantitative and qualitative factors that may be in conflict with one another (Vera and Pullman, 1998).

1.2 Supplier Selection Process

Over the last two decades the world economy has been dramatically changed due to various reasons. The environment of business is characterized by rising complexity, uncertainty, instability and volatility. Companies have to do re-thinking that traditional methods and strategies for doing business to the pressure of changing market conditions, intensified global competition, radical change in technology and shorter product life cycle. Managers are now realizing that no matter how strong and resourceful their firms might be, they are no longer able to maintain a competitive advantage at every step in the value chain in all national market, nor are they able to maintain a cutting edge in the wide range of technologies required for the design, development manufacturing and marketing of new products (Hanfield and Nicholas, 2007).

Supplier selection is generally considered as five phase process starting from the realization of the need for a new supplier, determination and formulation of decision criteria; pre-qualification; final supplier selection; to the monitoring of the supplier selection (Choy and Lee, 2002). At first, evaluation and assessment task needs the identification of decision characteristics against which the potential suppliers are to be assessed. Next evaluation seals are selected in order to measure the appropriateness of a supplier. The next step is to assign weight to attributes to identify the significance and contribution of each criterion to the supplier evaluation and assessment. Then an attribute may comprise of several sub attributes. The last stage is to evaluate potential suppliers against the characteristics identified at the beginning (Choy and Lee, 2002).

1.3 Objectives of the Study

The main objective of the study was to establish the factors affecting the selection of optimal suppliers in procurement management. The supplier selection process was also identified.

2.0 Factors Affecting the Selection of Optimal Suppliers

Li (2006) developed three factors in supplier selection measure based on extensive literature review and practitioner interviews. He illustrated that underlying the documented suppliers' selection criteria is the need to assess a supplier's quality and service capabilities as well as his strategies and managerial alignment with the buyer. Tan et al (1998) proposed an integrated model by combining the analytical hierarchy process and grey relation analysis in a single evaluation model. They proposed that through this model, it is possible to effectively integrate the specialized knowledge and experience of each disposed evaluation and the quantitative data to select the best supplier for cooperation.

Supplier selection is usually a time consuming process that evaluates suppliers on several criteria such as cost of production, raw material cost, quality assessment, organizational goal, quality staff, delivery system, personal facilities etc. Selection of suppliers is complicated process by the fact that numerous criteria must be considered in the decision making process. Therefore, different criteria are usually considered during the supplier selection process. Stanley and Wisner (2001) surveyed a number of industries and suggested that quality and on-time delivery are the most important attributes of purchasing performance evaluation. Wang and Che (2007) suggested that apart from optimum cost, joint development, culture, forward engineering, trust, supply chain management, quality and communication were also important. He further suggested that the suppliers' history of supply, production price, technical capability and transportation cost also play important role during suppliers' selection. O'Brian and Ghodsypour (1998), agreed that cost, quality and service that are the most important factors in supplier selection process. Therefore, it is important to note that cost and quality dominated more in the supplier selection process.

In the supplier selection process, a data bank containing an authorized list of suppliers with their profiles is crucial. Important information should include technical capability, quality assessment and organizational profile. Suppliers' data regarding this criteria should be stored in a case structure consisting of a number of fields representing the criteria in each with the relevant numerical performance values of the corresponding criteria of suppliers. Choy and Lee (2002), suggest a Case Based Supplier Management Tool (CBSMT) using the Case Based Reasoning (CBR) in the area of intelligent supplier's selection and management. This will make better performance compare to using the traditional approach.

Choy and Lee (2002), illustrated a stochastic integer programming approach for synchronous selection of tolerances and supplier based on the quality loss function and process capability indices. Tan et al (1998), indicated Data Envelopment Analysis (DEA), proposed an approach which compares suppliers for supplier selection and performance improvement. This model first recognizes the measure assessing a supplier's environmental performance and lastly suggests effective techniques for building the selection procedure, relating to an environmental viewpoint.

2.1 Analysis of Factors Affecting Optimal Supplier Selection

Stanley and Gregory (2001) came up with the supplier selection criterion which has since gained a lot of fame. Their model consists of;

2.1.2 Cost Criteria

The aim of this criterion is to identify vital element of cost associated with purchase. The most common cost related with a product is purchase price, transportation cost and taxes (Stanley and Gregory, 2001). Operational costs are also being considered during the supplier selection. The operational cost includes transaction processing; cost of rejects etc. but it requires more effort to estimate. Thus, cost is very important criterion for selection of right suppliers. The cost factor has been measured based on the importance of the following cost/price dimensions in supplier selection in telecommunication industry: raw material cost, cost due to delay, cost of inspection, after sales service, rework cost, engineering cost and labor cost. Profit maximization cannot be achieved without the cost minimization. The Factors (attributes) affecting this criterion include;

2.1.1.1 Price

The firm always requires the minimum price of the product to increase the profitability. The firm therefore must find a low-cost supply base where it can minimize manufacturing cost related to the production of the Product. Basically, price containment leads to supplier attractively.

2.1.1.2 Distribution Cost

This contains the lengthy distribution channel cost, transport expenses, inventory cost, handling and packaging Cost, damages during transportation and insurance costs. Since every business enterprise is out to procure at least cost possible, cost management brings a lot of business to suppliers who offer least cost, holding other factors constant.

2.1.2 Technical Capability

Suppliers' need competent technical ability to provide high quality product or service, ensure future improvements in performance and promote successful development efforts. Especially, this is very important when the firm's strategy included development of a new product or technology or access to proprietary technology. These technical criteria insist company to shift into the global market place. This factor has been measured on the basis of the importance of the following technical dimensions: compliance with quantity, compliance with due date, compliance with packaging standard, production planning systems of suppliers, maintenance activities of suppliers, plant layout and material. The production facilities and ability of the supplier to increase its capacity should also be taken into account to Judge the best one. The potential production capability of each supplier should be analyzed to meet a specified Production plan and also to develop a new product according to the market demand (Harps, 2000).

2.1.3 Quality Assessment

Quality assessment is a key factor of suppliers by which they can improve and maintain quality and delivery performance. It is very important for the company and suppliers. Quality and availability of product depends on this criterion. This factor has been measured on the basis of the importance of the following quality dimensions: management commitment, product development of suppliers, process improvement of suppliers, quality planning and quality assurance in supply chain, quality assessment in production, inspection and experimentation and quality staff of supplier (Beamon, 1999). The rejection rate of the product is defined in the terms of the number of parts rejected by the customers in fixed time period because of some quality problems. It also includes the defective parts detected in the incoming products. This encounters the issues like whether or not the frequent quality assessment of the parts has been done by the Supplier.

2.1.4 Organizational Profile

This factor has been measured on the basis of the importance of the following organizational dimensions: achievement of sales and marketing goals, financial performance, achievement of current organizational goals and strategy for technology age. Good suppliers should have high organizational power and advanced coordination skills.

2.1.5 Service Levels

The performance of the supplier in providing service to the manufacturer is the prime criteria to decide its suitability for a particular product. Beamon (1999) argues that the good service given by the supplier may help in increase the customer base and therefore, this criterion is important in global supplier selection. It is analyzed based on the following attributes:

2.1.5.1 Delivery

The ability of the supplier to follow the predefined delivery schedule is always the prime criteria for selection in this fast moving world. This means that suppliers who keep their promises are easier and profitable to work with.

2.1.5.2 Lead Time

This is the time between order and placement of material and the actual delivery. The shorter the lead time, the better the supplier. Every purchasing firm will be comfortable when the lead time is shortest possible. Long lead time has the impression that the specific supplier is less efficient or he just has more customers than he can serve thus delaying deliveries (Beamon, 1999).

2.1.5.3 Ease of Communication

The ease of communication and negotiability with the suppliers decide the long-term relation between the Supplier and manufacturer. Since languages, business customs, ethics and communication devices vary from Country to country, good suppliers should be best communicators; good message in good time.

2. 1.6 Supplier's Profile

The performance and past history of the suppliers help in taking decisions for its selection. The components of a suppliers profile are summarized below:

2.1.6.1 Financial Status

The financial status of the supplier can be analyzed by getting the information about the annual turnover of the Supplier and their financial structure based on the past history. The economic status of the supplier's country may affect the currency exchange rate, local price control and so forth. This can result in higher hidden costs for international sourcing and into during the supplier selection. A good supplier should have a good financial base so that in case of delayed payments, supply is not hindered (Awino, 2002).

2.1.6.2 Response of Customers

The response of the customers towards the supplier is one of the important factors to decide the performance of the supplier. Suppliers with good customer base should be preferred than the others. Customer numbers cannot lie, where the customers are, the deal is good.

2.1.6.3 Performance History

The performance history of the supplier should be analyzed carefully keeping in mind the competitive nature of the supplier, its past production schedule, response to market, and its ability to make commercial relations and business references. It is easy to get a profile of ageing supplier easier than new suppliers. Research shows that, old suppliers are more experienced and more stable in business (Kibe, 2000).

2.1.7 Risk Factor

Owing to a number of exogenous factors influencing international sourcing, global supplier selection is much riskier than its domestic counterpart. Consequently, the global supplier selection decision is most strongly affected by perceived risks. They can be stated as below:

2.1.7.1 Geographical Location

The location of the supplier and its physical and social status should be analyzed properly before selection of global partner. The home country of the supplier, the location of plant, the nature of natural calamities, and other factors should be checked before the selection because for long-term relation it may create problems in the supply of the goods.

2.1.7.2 Political Stability

The political status of the supplier's country and its nature towards the business policies may affect the long-term relationship between the supplier and the manufacturer. The more stable government should be preferred. During change of political leadership, different foreign country's policies may be changed. Accordingly and this may create big problems in further maintaining the relationship with suppliers. In this Connection, this must be analyzed in great precision with the help of the relevant experts (Cox 1999).

3.0 Conclusions

From the findings, this paper concludes that

3.1 Cost criterion, technical capability, quality assessment, organizational profile, service levels and risk factors, in that order of relative importance, are key factors affecting supplier selection in procurement management.

3.2 Cost criterion is the most important factor that firms consider before engaging suppliers. Cost directly affects the profit margins which is a key objective not only in materials management, but also in business organizations.

4.0 Recommendations

This paper recommends that

4.1 Supplier selection should be an open and transparent process, thorough and detailed to identify the salient and most important aspects of suppliers.

4.2 Due to its nature, supplier selection should be done by experts who are knowledgeable and have expertise to conduct the exercise professionally.

4.3 The supplier selection process should involve all key departments in the organization for the best qualified suppliers to be identified and engaged.

4.4 A good and conclusive supplier selection process takes time. Thus, prequalification should start early to avoid stock outs.

References

- Awino Z. B. (2002) "Purchasing and Supply Chain Strategy: Benefits, Barriers and Bridges" An Independent Conceptual Study Paper in Strategic Management, School of Business, University of Nairobi September 2002.
- Beamon, B., Measuring supply chain performance. *International Journal of Operations and Production Management* 19 (3), 275–292 (1999)
- Cox A. (1999). "Power, Value and SCM". *Supply Chain Management: An International Journal*. 4(4) 167-175.
- Choy KL, Lee WB., on the development of a case based supplier management tool for multinational manufacturers. *Measuring Business Excellence* 2002; 6(1):pp.15–22, 2002
- Felix T.S. Chan, Niraj Kumar, , Global supplier development considering risk factors using fuzzy extended AHP-based approach, *International journal of mangemnet science*, pp. 417 – 431, 2007.
- Handfield, R.B. and Nichols, E.L. *Introduction to Supply Chain Management*. , Prentice-Hall, USA(1999).
- Harps L. H. (2000). "The Haves and the Have Nots": Supply Chain Practices for the New Millenium: *Inbound Logistics Journal*. 75-114.
- Kibe J. M. (2000). *Applicaition of Inventory Manufacturing Practices. A Survey in Large Manufacturing Firms in Kenya*. Unpublished MBA Project University of Nairobi.
- Li, S., B. Ragu-Nathan, T.S. Ragu-Nathan and S.S. Rao. The impact of supply chain management practices on competitive advantage and organizational performance, *Omega* 34(2), 107-124(2006)
- Obrien C, Ghodsypour SH., , A decision support system for supplier selection using an integrated analytic hierarchy process and linear programming. *International Journal of Production Economics*;56:pp.199–212, 1998
- Stanley E. G. and Gregory M. M. (2001) "Achieving World Class Supply Chain Alignment: Benefits, Barriers and Bridges" A Compiled Research Report.
- Stanley, L.L. and Wisner, J.D., Service quality along the supply chain: implications for purchasing, *Journal of operations management* 19(3), 287–306(2001)
- Tan, K.C., Kannan, V.R. and Handfield, R.B. Supply chain management: supplier performance and firm performance. *International journal of purchasing and material management* 34 (3), 2–9(1998)
- Vera R, Pullman ME., An analysis of the supplier selection process. *Omega, International Journal of Management Science* 1998; 26(6): pp 739–50, 1998
- Liu J, Ding FY, Loll V., Using data envelopment analysis to compare suppliers for supplier selection and performance improvement. *Supply Chain Management: An International Journal*; 5(3):pp.143–50, 2000
- Wang G, Samuel HH, Dismukes JP,. Product-driven supply chain selection using integrated multi-criteria decision-making methodology. *International Journal of Production Economics*;91:pp.1–15., 2004