

# A REVIEW ON BARRIERS IN IMPLEMENTING GREEN VENDOR SELECTION

## Abstract

Material used in some of the major industries represents more than 50% of the sales price. A crucial role is played here by the purchase department as it has the responsibility to purchase right quantity and right quality of material from the right source in right time. Selecting the right vendor for the supplies is a challenging job as it can affect the financial and operational reputation of the industry. Customer's environmental consciousness and government environmental regulations pressurize companies to reduce environmental impact on vendor selection. Moreover, few countries across the globe have strict rules regarding procurement of material in consideration of environment which may restrict many companies to expand their business or supplies in these countries. So, considering all the above discussion it is important for companies to implement Green Vendor Selection process, but there are some barriers in implementing green vendor selection. In this review chapter all these barriers with their impact are discussed in detail.

**Keywords:** Material, Environmental Regulations, Green Vendor. Barriers.

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## **I. INTRODUCTION**

In today's competitive world selecting the right vendor plays a vital role in any manufacturing industry as it affects the productivity. Minimum unit price, best quality and timely delivery is the expectation of a buyer from the vendor. It is the responsibility of the purchase department to ensure timely delivery, minimum unit price and best quality and so the buyer expects all the above-mentioned factors from the Vendor. Hence, selecting a right vendor is very important task of the purchase department/ buyer. Among the issues of supply chain management regarding purchase, vendor selection is the most crucial activity of purchase department [1,2]. In this chapter data is collected from some research papers and from discussion with some of employees working in purchase department. This study will be helpful in further research for developing a model which will be helpful for buyers/ purchase department of manufacturing industries for quickly selecting a green vendor. The scope of this study is limited to manufacturing industries.

## **II. LITERATURE REVIEW**

Akili and Emmanuel Allan in his paper has clearly stated that organization responds to environment management requirements in many different ways. He grouped companies as reactive and proactive group. Companies with a belief that environmental management is a part of their quality and sustainability management come under the proactive group whereas, companies which uses end of pipe solution intending to comply with regulations and avoid penalties by the government come under reactive group[7].

In the past, factors which were considered for selecting a vendor mainly were quality, logistics and cost. Logistics mentioned in this reference clearly means timely delivery of material. However, the importance of environmental factors in the decision making process for selecting of vendor was not taken into consideration. Lamming and Hampson have concluded in their research that there is no co-ordinated response while dealing with environmental management issues [3].

There is a continuous awareness among people regarding degrading environment and people are coming forward for environment protection. This promotes stake holders of companies to use safe measures related to environment like pollution control, reuse of material, recycle of material etc. Expectation from a green company includes reduction in pollution. Reduction in pollution can be achieved by reducing air emission, solid waste, water waste and use of harmful material [4].

The selection of a green vendor is dependent on few criteria like Importance of economic criteria, social criteria and environmental criteria. Importance of economic criteria is concerned with the financial condition of the parent company and the readiness of management to spend for environment friendly articles and components. Importance of social criteria is concerned with the health and safety practices improvement at customer level as well as at vendor level so as to implement green vendor concept. Importance of environmental criteria is concerned with environmental protection practices at customer level as well as at the vendor level. This criterion concentrates mainly on pollution control at all levels of an organization [4].

### III. GENERAL VENDOR SELECTION BARRIERS

We shall first consider the issues / barriers in general vendor selection process. Some of the important barriers are discussed below.

**1. Need of Vendor:** The buyer has to justify why exactly a new supplier is required for a productionised component or a new development project. Various reasons and barriers related to new vendor development are discussed below

- **Scope of New Vendor Base:** It is concerned with the ability and capacity of the vendor. Whether the vendor is in a position to supply the required component as per specification in right time and in right quantity. If the buyer decides to develop a new product and it requires certain operations and processes which are not in the scope of present vendor, then need for new vendor arises. If value engineering or value addition processes are to be implemented and for that purpose if some processes are to be changed then arises the need of a new vendor.
- **Cost Reduction:** Justification of per unit cost of the product/ component has to be put in front of the management. In today's scenario a good relation between the vendor and the buyer is expected. Many times, a buyer faces a critical situation where the vendor demands hike in per unit price but it is not possible for the buyer to do so. In case, the present supplier demands for price hike for a component he is delivering and there is a difference between the thinking of buyer and the vendor regarding cost such that the buyer thinks that price hike is not justified, a need of new vendor arises.
- **New Technology:** Technology is improving day by day. Immense research is done on improving the machines and processes. New process or machines with modern technology are introduced in market. Performance with respect to accuracy and productivity of these new processes or machines are good as compared to previous one. In this case, the buyer may need to find a new vendor who possesses this modern technology.
- **Financial and Other Risks:** A buyer always prioritizes company benefits and so keeping a watch on the financial position of the vendor is one of his functions. Financial risk includes the monitoring of financial status of vendor. It may happen in coming future that the vendor may not be able to supply the required quantity of material within time due to his financial debts and loans. Other risk may include the interest of vendor in some other form of business. The vendor is not satisfied with the business he is getting from the buyer Company and so he may shift his resources in some other company or product which is more profitable for him. So to avoid bottle neck situations it is important for the buyer to develop other source i.e. new vendors.
- **Dual or Alternate Sourcing:** The buyer always divides SOB (Share of business) among few vendors so as to safeguard his resources at times if crises arise. It may happen that there is strike called at Vendor Company and due to which there is a problem at parent company. To avoid this situation, more than one vendor is developed, and SOB is divided among different vendors according to their capacity.

2. **Vendor to Competitor:** The vendor (tire 2) has all the drawings and specifications required for producing the component as per customer (tire 1) requirement. The vendor may think of directly supply the OEM by bypassing his customer (tire 1) or even directly supplying to end customer. In this case the vendor tries to be a competitor.
3. **Financial Stability of Vendor:** If the financial position of the vendor is not good then he might face severe problems like, strike by employees due to less salary or delay in salary or the vendor is unable to purchase raw material etc. In such situation the parent company has to face shortage of raw material or semi - finished goods. It is very important that the financial condition of the vendor should be good enough to cope up with various hurdles. Buyer has to find out the financial status of the vendor. That can be done by various methods like Financial Institute Rating, Rapid Rating Company etc.
4. **Quality:** DPPM (Delivery part per million) of the vendor represents his ability to supply quality products. It can be a major issue if the vendor is not serious about quality and quality policies. It is the responsibility of the buyer to check the DPPM of the vendor in past and take necessary action against vendor like penalty or change the supplier itself. Need may arise for new vendor.
5. **Cost:** Effectiveness of the vendor should be known to the buyer. It is important because if the vendor does not plan his resources properly i.e. if the vendor does not use his resources in an optimal way then there are chances that in future this vendor may face problem in implementing value engineering and value addition.
6. **Development Lead Time:** If the vendor concentrates only on bread-and-butter components and is least concerned about new product development, then the lead time in any new product will increase. This is a serious loss to the customer/ parent company in this competitive environment. This attitude of the vendor which affects the research policy of company and so need may arise to change the supplier.

#### IV. GREEN VENDOR SELECTION BARRIERS

There are many barriers in green vendor selection process. There are various criteria's and subcriteria's identified in this study through literature reviews and interviews with the industrial expert. These criteria's are discussed below.

1. **Finding a Green Vendor:** After the decision taken by the management to become a green company, the first and most important task of the buyer is to find a vendor who can supply green material. In today's competitive world where every business firm aims at maximum profit, finding a way to manufacture and supply green material is a difficult task for the Vendor. Thus, it becomes a difficult task for the buyer to find a green vendor.
2. **Cost:** Many examples can be given where due to huge competition vendors /suppliers are working on a very less margin. To keep the plant functioning many small-scale industries are offering a huge discount to the buyers. Examples of fastener manufactures can be seen where these manufacturers take only processing cost and not the profit from the buyer. Profit here is gained from the scrap. The buyer should be ready to purchase green material at a cost where the vendor can also earn profit.

There are many criterions concerned with cost of green material discussed below:

- **Green Production Technology [5]:** Shifting from existing production technologies to new technologies or upgrading the technology which are good for environment requires huge cost. A vendor can only take this risk if he has business assurance, because generally capital investment is required for purchasing new machines to meet the technology.

Again, to set up a plant for water treatment or industrial waste disposal it requires management approved funds. It further adds to the cost of the vendor. As cost of quality increases the cost of end product will also increase and so if the vendor has assurance of business, he will invest a huge amount for green production.

- **Packaging:** Cost of green packaging is more as compared to conventional packaging. Now a day's many companies supply components to customers/ OEM's in plastic bins which are returnable. This reduces the cost of packing and also is helpful for implementing green packaging but is only possible for deliveries in same city.

In many European countries, due to strict government norms companies do not accept materials from vendors packed in plastic. So, if a vendor from India wants to export some component to industries located in Europe, he has to develop special packaging which is ecofriendly. For eco-friendly packaging the cost of packaging increases.

- **Solid, Water and Other Material Waste Management:** Management of waste is mandatory for every industry which is monitored by government bodies like Pollution Control Board's. Due to bad practices in industries many of the times, management of waste is done only on paper which is a serious problem.

Motivating the existing supplier or the vendor to manage the industrial waste in proper way is a difficult task as lot of time and money may be required in many cases. It is a challenging task for the buyer to find a vendor who has a fair system of waste management.

- **Multi Location Capital Investment:** For green vendor selection the vendor financial stability is important because, the vendor should be able to invest and set up plant near to the customer. For example, if the location of customer and vendor are nearby then it becomes feasible and easy to supply components to the customer in bins without plastic or corrugated box packing. Customer should be financially stable and sufficient so as to set up new plant nearby the location of customer.

3. **Uncertainty and Competition in Market [6]:** Market uncertainty and competition are barriers in green vendor selection process. Uncertainty of the acceptance of the product by the customer is a reason company's fear of. Reason of this fear may be due to the cost of the product which may be on the higher side due to green machining or green packaging. Very few vendors will accept this risk and will try to be green vendors due to uncertainty.

4. **Lack of Implementation of Research:** Many researchers around the globe are working on methods to develop ecofriendly products. Top management of vendor organization should assimilate this new technology. If vendor is not in a position to assimilate or does not have the capacity to invest, then the buyer needs to change supplier or develop a new vendor.
5. **Lack of Professionals [6]:** If assured of confirm business and good profit a vendor will be surely interested in business. In this case the vendor is interested and is willing to implement changes, but the problem is skilled manpower. Professionals with the required skill in areas like green design and development, green projects, green tooling, green process design etc. should be available to implement change required in green manufacturing. Also, the buyer finds it difficult to find a vendor with all the ready facilities.
6. **Lead Time:** Product development is a process where standard components are used to minimise the lead time. Standardised components from the existing component list are used to design and develop a new product so as to meet the requirement of competitive market through means of small lead time.

If the vendor is required to begin from scratch i.e. introduces environmental friendly product concept right from the design it is surely going to take much time for the product to develop. Hence, lead time for a new product or existing product with green concept will be more i.e. time required for green product to reach to the customer will be more.

7. **Buyer/ Auditor Certification:** While finalizing a vendor, audits are conducted at vendor end by the buyers or representatives of buyers. Lead auditor should be certified for EOHS, EMS, OHSAS along with QMS certification like ISO, IATF, AS etc.
8. **High Cost of Processes:** In some cases, few processes (generally chemical) are not cost effective if Green. In such cases time required for vendor to develop a process which will be cost effective requires:
  - Time
  - Expertise
  - High Cost
  - Business assurance

In such situations finding a vendor or motivating a vendor to change the process to green is difficult as the profit margin of both the customer and the vendor will shrink.

## V. CONCLUSION

As protecting the environment is a duty of all the habitats of this world and industrialization is always blamed for the harm done to environment. This chapter will be helpful in finding the barriers in green vendor selection. Further these barriers can be analysed in detail and a proper solution can be found out to eliminate these barriers. A detailed study is required to be done on each point about the barrier mentioned in this

chapter. Most of the barriers indicate that willingness of management is more important. Employee awareness and customer awareness plays an important role in implementing green technology.

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