



# STUDY & ANALYSIS OF SUPPLIER SELECTION & EVALUATION PROCESS AT JS PROCESS EQUIPMENT & SYSTEMS, PUNE, MAHARASHTRA

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**Abstract:** Supplier selection is key determinant which plays important role in quality and cost of company's product. This study has been undertaken to investigate the key determinant in supplier selection process at JS Process Equipment & Systems, Pune, Maharashtra. This paper deals with various supplier categories and parameters for making good relationship with suppliers which ensures effective manufacturing process. Paper concludes as suppliers are selected on the criteria's like Quality, cost, delivery, Safety, Credit terms, financial stability, geographical location, market credential etc. At JS Process Equipment & Systems, in supplier selection process importance is given to the cost factor which is followed by Quality and delivery time.

**Index Terms:** Supplier selection, supplier categories, quality, cost, safety.

## I. INTRODUCTION:

**Supplier:** A supplier may be a person or business or organization which provides a product or service to another entity. Suppliers generally intended to provide high-quality products from a manufacturer with reasonable price to a distributor or retailer for resale. A supplier generally acts as an intermediary between the manufacturer and retailer. It ensures free and correct communication, stock sufficiency and quality conformance.

## The Importance of a Supplier in the Product Lifecycle

Supplier plays very important role at every stage of the product lifecycle. Right from sourcing of raw materials, ensuring in-time production, find better options for raw materials supplier plays vital role. Companies need to work closely with their suppliers. Suppliers are integral part to almost every business. Suppliers and vendors are terms used interchangeably. Suppliers can do much more than merely supply of materials and services. Suppliers can provide information, helping to evaluate the various prospects of new products, tracking of competition etc.

## Suppliers' categories:

Suppliers can be divided into four general categories. They are:

1. **Manufacturers:** Manufacturer who produces the product and sells it to retailers or wholesalers. Most retailers buy through company salespeople or from independent representatives. Most of the time, prices from these sources are lowest.
2. **Distributors:** Wholesalers, brokers, distributors who in turn buy products in huge quantity from several manufacturers. They generally warehouse the goods for sale to retailers. Their prices are comparatively higher than a manufacturer's price. They are in position to supply retailers with small orders from a variety of manufacturers. Often, lower freight bill and less delivery time is considered as important aspect while selecting distributor to compensate the higher per-item cost.
3. **Independent craftspeople.** Exclusive distribution of unique creations is frequently offered by independent craftspeople who sell through trade shows.
4. **Import sources.** Many retailers buy foreign goods from a domestic importer, who operates much like a domestic wholesaler. Or, depending on familiarity with overseas sources, you may want to travel abroad to buy goods.

## Good Supplier Selection Attributes:

Following are some criteria considered in supplier's selection:

**Price:** Price certainly is the most important aspect while selecting suppliers. Generally right cost or lowest cost with adequate quality is considered while evaluating and selecting the suppliers.

**Reliability:** Reliability is probably the key factor while looking for suppliers. Reliability deals with supplier's response in term of providing right number of items, as promised, on time so that they arrive in time. Sometimes large suppliers have enough resources and backup which enable them to live up with their responsibilities and deliver the supply on time. Similarly small suppliers can also give more attention and possibly better service and reliability to get more and more business. Also some companies split up orders among two smaller firms for on-time delivery and as backup..

**Stability:** It deals with vendor's selection that has been in business from a long time. Companies with long-tenured senior executives, good reputation with other customers, overall image are some promising factors regarding the company's stability. Some signs to be considered like early arrival of shipments can be a sign of a vendor that is short on orders and needs to accelerate cash receipts.

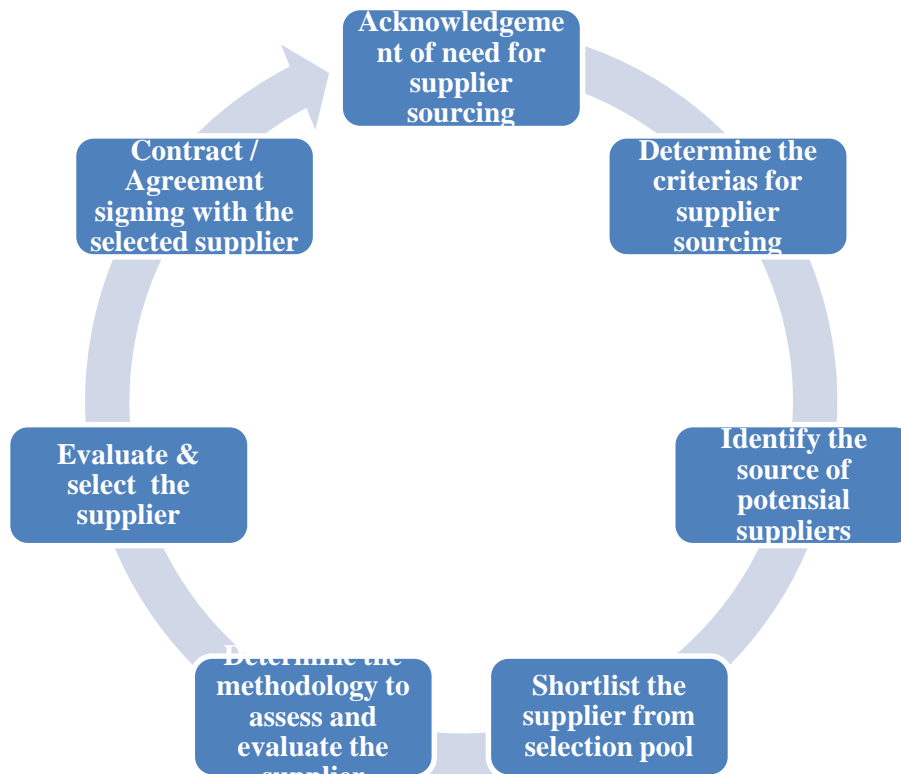
**Location:** Location of supplier is also had strategic importance. It had direct impact on transportation cost, time, freight charges and many more. In case of urgency, a distant supplier could present a real problem. Some suppliers for instance give discounts (free shipping) if you go for bulk order. Most of time comparative analysis had been done in term time, distance, cost savings and ordering flexibility while supplier selection.

**Competency:** It deals with suppliers using latest, most advanced technology, having good machinery products and services set up, suppliers with well-trained employees, attractive financial terms on purchases, realistic attitude toward customer are some factors to gauge the competency of competency.

## Supplier Selection Process:

With increasing complex and challenging business environment, supplier selection play vital role in business profitability. Procurement is the initial input for any business which decides quality, quantity and time of end products. Therefore the need for procuring goods and services from competent and reliable suppliers' has become a very import factor in Supply chain management. Supplier assessment and evaluation is an important process in procurement management.

Supplier selection is the process by which the buyer identifies, evaluates, and contracts with suppliers.



## II. LITERATURE REVIEW:

**S. Hussein Cheraghi ,Mohammad Dadashzadeh ,Muthu Subramanian (2011)** in paper titled “Critical Success Factors For Supplier Selection: An Update” analyzed critical success factors (CSFs) for supplier selection by reviewing more than 110 research papers. This paper summarized changes in the importance of various critical success factors considered during 1966-1990 versus 1990-2001. Competition and globalization along with new technologies have impact on ranking of factors in supplier selection process. This paper concludes that supplier selection criteria should consider traditional aspects of performance i.e. quality, delivery, price, service and new requirements like just-in-time communication, process improvement, supply chain management.

**Sachin B. Chhabile Dr. R. S. Dalu (2014)** in paper titled “Supplier Evaluation and Selection: A Review” Proposed 23 criteria’s for supplier selection. This paper highlights Analytical Hierarchy Process (AHP) is the best method for small and medium scale industry. Analytical Hierarchy Process is simple for implementation and inculcate both qualitative and quantitative criteria. This paper summarized that four criteria i.e. cost, quality, delivery and capacity had major impact on supplier selection process.

Supplier selection is considered as the most important step in the

**H. Abdul Zubar , P. Parthiban (2014)** in paper “Analysis of Supplier selection Methods through conceptual module & empirical study” analyzes that in the current scenario, it is very much necessary for any organization to deliver quality products at lesser cost in the right time to the right customer to survive in the global competing environment. This paper considered conceptual and empirical categories of papers in detail. This paper summarize as supplier/vendor selection is a complex problem whose criteria depends on the buyer/manufacturer requirements. The importance of criteria or the weight given to each criterion involved in the supplier selection process changes from buyer to buyer and time to time, depending on the situation.

**Xiaoyuan Shi, Weihua Zhang (2023)** in paper titled “Research on Supplier Selection, Evaluation, and Relationship Management” discusses the selection and development of suppliers, supplier performance evaluation, and how to strengthen the supplier relationship to ensure product market competitiveness. This study provides importance of procurement department to improve efficiency of overall organization as procurement department gives initial input having significant impact on end product quality.

### III. OBJECTIVES OF THE STUDY:

- To study supplier selection and evaluation process at JS process equipment and system.
- To study various challenges faced during supplier selection process.
- To study procurement process in JS process equipment and system

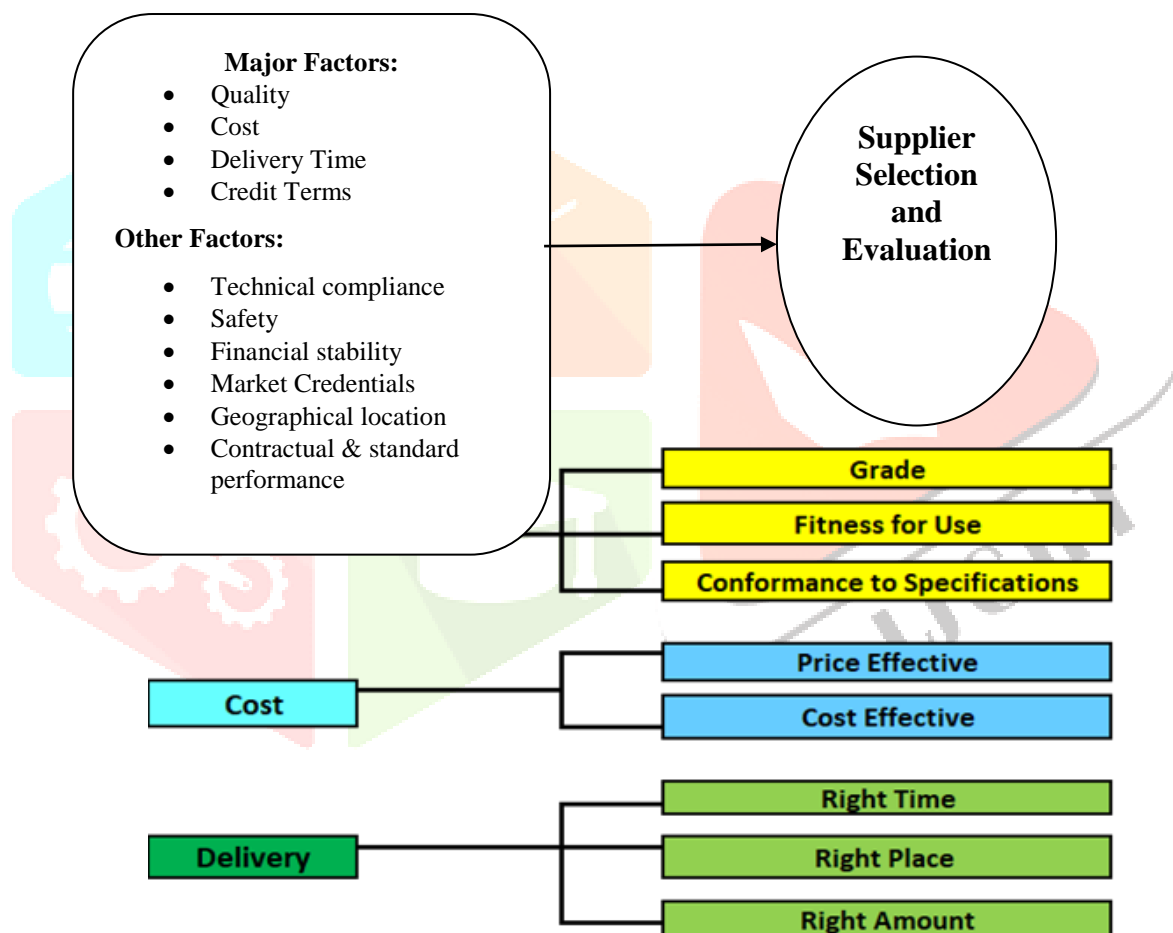
### IV. RESEARCH METHODOLOGY:

Study of Supplier selection and Procurement process at JS Process Equipment & Systems is descriptive study and based on Primary and secondary data collection. Primary data is collected through discussion, observation and interview method while secondary data is collected through books, company website, journals etc.

#### Analysis:

#### a) Supplier Selection and Evaluation Process at JS Process Equipment & System

##### ➤ Supplier Selection and Evaluation Criteria:



1. **Product Quality:** Material to be supplied by the supplier must correspond to the buyer's requirement. Preferences are usually given to those suppliers who have certified ISO 9001 quality management system.
2. **Cost Competitiveness:** Very important criteria while selecting supplier is cost quoted in quotation. Generally average or low cost supplier is selected by analysing his competitive position in market.
3. **Delivery Time:** It deals with conformance with delivery schedule and time. Generally suppliers stick with delivery schedule is given preference in selection.
4. **Credit Terms:** It involves, you will purchase something with a promise to pay in future.

5. **Technical Compliance:** Technical expertise of the supplier is largely considered while selection which includes availability of advanced machineries, use of technology to reduce lead time.
6. **Safety:** Safety of material involves insurance provision in case of product damage, pilferages etc. suppliers are preferred who assures that they will provide compensation for the loss. Safety largely includes packing, loading, unloading, transporting documents etc.
7. **Financial Stability:** By analysing financial reports and other ratios, financial stability can be measured.
8. **Good Market Credentials:** Overall image of supplier in the market is also checked while supplier selection. Good market credentials helps in supplier selection.
9. **Geographical Location:** nearness of supplier location is preferred as it reduces cost and lead time.
10. **Contractual and standard performance:** Contract terms are analysed and evaluated among the number of proposals received. Terms falls within or close to buyer's requirement are preferred for supplier selection.

At **JS Process Equipment & System comparative analysis** has been done for supplier selection in excel sheet. For eg:

Supplier	Safety	Quality	Delivery	Credit terms	Cost
A	60	70	65	65	82
B	75	80	85	75	83
C	80	85	90	80	80
D	85	90	90	80	80
E	60	70	70	75	82

Above are the ratings given by **JS Process Equipment & System** to various suppliers based on parameters namely Safety, Quality, Delivery, Cost and Credit terms. To select the supplier first preference is given to those suppliers who have quoted least cost. The average of Quality and Delivery rating has been taken and then comparatively suppliers are selected

Supplier	Quality	Delivery	Cost	Avg. of Quality & Delivery
A	70	65	82	67.5
B	80	85	83	82.5
C	85	90	80	87.5
D	90	90	80	90
E	70	70	82	70

Considering above table, highest average for Quality and Delivery time is for supplier C & D as well cost quoted by these supplier is also low. So Supplier C & D can be selected.

**b) Challenges faced during supplier selection process:**

- Suppliers are selected on the criteria's like Quality, cost, delivery, Safety, Credit terms, financial stability, geographical location, market credential etc.
- In supplier selection process almost importance is given to the cost factor which is followed by Quality and delivery time.
- Safety is one of the important aspect in supplier selection which has been checked through safety of material at various operations like packing, loading, unloading, transportation documents, Insurance etc.
- Delivery time is very important. The tolerance limit is specified. Suppose the material is received before 10 days than the specified date then it goes to default category as it increases the load on inventory and if it came late by 5 days than the specified date again that supplier is rated as defaulter , as it result into delay in production. Thus beyond the specified tolerance limit suppliers performance is rated as defaulter.
- Inspection testing plan has been prepared and accordingly check has been done for quality assurance and to reduce the error rate.
- In quality assurance plan, authority was mention i.e. whether checking should be done by quality checking authority or by the client or by officials from JS process equipment and systems.
- Most of the challenges faced during supplier selection are getting materials according to delivery schedule, Credit terms, quality problems and cost competitiveness.

**c) The Procurement process followed at JS Process equipment and system as follows:**

- Identifying requirements for goods, material and services
- Identifying reliable suppliers
- Minimum three quotations are invited
- Price negotiation
- Comparison of delivery and credit terms and conditions.
- Establishing order quantities
- Writing requests for bids and awarding supply contracts
- Coordinating delivery with warehouse against storage capacity
- Product testing and quality control
- Managing Budgets and payments

**V. FINDINGS & SUGGESTIONS**

JS Process equipment and Systems deals with manufacturing of Pressure Vessels, Heat exchangers, tanks and Piping (Prefabrication).

Following are some observations regarding supplier selection and evaluation process as well as manufacturing process followed:

- Suppliers are selected on the criteria's like Quality, cost, delivery, Safety, Credit terms, financial stability, geographical location, market credential etc.
- In supplier selection process utmost importance is given to the cost factor which is followed by quality and delivery time.
- Safety is one of the important aspects in supplier selection which has been checked through safety of material at various operations like packing, loading, unloading, transportation documents, Insurance etc.
- Delivery time is very important. The tolerance limit is specified. Suppose the material is received before 10 days than the specified date then it goes to default category as it increases the load on inventory and if it came late by 5 days than the specified date again that supplier is rated as defaulter , as it result into delay in production. Thus beyond the specified tolerance limit suppliers performance is rated as defaulter.
- Inspection testing plan has been prepared and accordingly check has been done for quality assurance and to reduce the error rate.
- In quality assurance plan, authority was mention i.e. whether checking should be done by quality checking authority or by the client or by officials from JS process equipment and systems.

- Most of the challenges faced during supplier selection are getting materials according to delivery schedule, Credit terms, quality problems and cost competitiveness.
- Documentation is very important and integral part of JS Process equipment and systems Goods/Material Receipt report, Material Inspection report, Rejection note, Quality Assurance plan, Inspection testing plan are some of the documents maintained.

## VI. CONCLUSION:

JS Process equipment and Systems deals with manufacturing of Pressure Vessels, Heat exchangers, tanks and Piping (Prefabrication). It serves various sectors like Brewery, Food & Pharma, Oil & gas, Dairy, Sugar & Distilleries, and Chemical Industries. They have set manufacturing process. JS Process equipment and systems used the criteria's like Quality, cost, delivery, Safety, Credit terms, financial stability, geographical location, market credential etc. for supplier selection. Still in final selection process most importance is given to the cost factor which is followed by Quality and delivery time and credit terms offered. Safety is one of the important aspect in supplier selection which has been checked through safety of material at various operations like packing, loading, unloading, transportation documents, Insurance etc.

Delivery schedule is very important. The tolerance limit is specified. JS Process equipment and Systems follows very detail quality assurance plan, authority was mention i.e. whether checking should be done by quality checking authority or by the client or by officials from JS process equipment and systems. Most of the challenges faced during supplier selection are getting materials according to delivery schedule, Credit terms, quality problems and cost competitiveness. Documentation is very important and integral part of JS Process equipment and systems Goods/Material Receipt report, Material Inspection report, Rejection note, Quality Assurance plan, Inspection testing plan are some of the documents maintained.

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