

Research Article

Vendor Evaluation for an Automobile Company

Dr. Varsha Karandikar and Hritikesh Nilawar

Vishwakarma Institute of Technology, Savitribai Phule Pune University, Pune, India

Received 24 March 2025, Accepted 09 April 2025, Available online 11 April 2025, Vol.15, No.2 (March/April 2025)

Abstract

Vendor evaluation method is a technique which is used commonly by the consumers in order to determine the suitability of a vendor for a need or want. This technique is also useful for industries to find out the most suitable vendor who can supply parts and components to the company. This research paper is all about following a methodology in order to find out the best possible vendor for an automobile company. In this study, we have taken information from the company about their requirements with respect to a vendor as well as the vendors which are available to the company and their ranking with respect to three different parameters. Then according to the data provided and evaluation priority is given to Quality and then to the delivery time. Referring to these parameters we have studied the performance of the vendors in the past few years. Then according to the evaluation vendors are selected for different products. There is also a part of the research paper where we have scheduled the date at which the parts are to be ordered depending on the lead time. Thus, with the help of Vendor evaluation the best vendors for supply of each and every part are easily identified.

Keywords: Vendor, Vendor evaluation, Priority, Quality, Delivery time, Cost, Lead time.

Introduction

Vendor rating is the result of a formal vendor evaluation system. Vendors or suppliers are given standing, status, or title according to their attainment of some level of performance, such as delivery, lead time, quality, price, or some combination of variables. The motivation for the establishment of such a rating system is part of the effort of manufacturers and service firms to ensure that the desired characteristics of a purchased product or service is built in and not determined later by some after-the-fact indicator. The vendor rating may take the form of a hierarchical ranking from poor to excellent and whatever rankings the firm chooses to insert in between the two. For some firms, the vendor rating may come in the form of some sort of award system or as some variation of certification. Much of this attention to vendor rating is a direct result of the widespread implementation of the just-in-time concept in the United States and its focus on the critical role of the buyer-supplier relationship.

Most firms want vendors that will produce all of the products and services defect-free and deliver them just in time (or as close to this ideal as reasonably possible). Some type of vehicle is needed to determine which supplying firms are capable of coming satisfactorily close to this and thus to be retained as current suppliers. One such vehicle is the vendor rating.



In order to accomplish the rating of vendors, some sort of review process must take place. The process begins with the identification of vendors who not only can supply the needed product or service but is a strategic match for the buying firm. Then important factors to be used as criteria for vendor evaluation are determined. These are usually variables that add value to the process through increased service or decreased cost. After determining which factors are critical, a method is devised that allows the vendor to be judged or rated on each individual factor.

It could be numeric rating or a Likert-scale ranking. The individual ratings can then be weighted according to importance, and pooled to arrive at an overall vendor rating. The process can be somewhat complex in that many factors can be complementary or conflicting. The process is further complicated by fact that some factors are quantitatively measured and others subjectively.

*Corresponding author's ORCID ID: 0000-0002-7847-6928
DOI: <https://doi.org/10.14741/ijcet/v.15.2.8>

Once established, the rating system must be introduced to the supplying firm through some sort of formal education process. Once the buying firm is assured that the vendor understands what is expected and is able and willing to participate, the evaluation process can begin. The evaluation could be an ongoing process or it could occur within a predetermined time frame, such as quarterly. Of course, the rating must be conveyed to the participating vendor with some firms actually publishing overall vendor standings. If problems are exposed, the vendor should formally present an action plan designed to overcome any problems that may have surfaced. Many buying firms require the vendor to show continuing improvement in predetermined critical areas.

Literature Review

Vendor selection is one of the classic and highly researched themes in purchasing and outsourcing literature. In fact, reviews of literature in vendor selection indicate a strong variety in the systemic approaches for selection (Ho, Xu and Dey, 2010) and as well as in the evaluation criteria (Weber, Current and Benton, 1991). In this study, the focus has been to identify the generic vendor evaluation criteria which are critical in the iron and steel manufacturing industry and estimate their relative importance for the purchasing practitioners. Some of the classic literature (Busch, 1962; Dickson, 1966) establishes that criteria like "quality", "warranties" and "delivery schedule" are critical evaluation factors amongst many others like "management capability", "price", "production capability", "financial position", "labor relations", "vendor reputation", "technical capability", "post sales services" and multiple other relationship specific attributes like "reciprocal arrangements" and "past business records". Initially in the pre-1990 era; most of the evaluation criteria were quantitative in nature. However in the post-1990 era, qualitative criteria started getting popular in literature with the increasing maturity of the purchasing processes. Thus with the increased complexity, it was realized that not all evaluation criteria could be quantitative and qualitative dimensions, and it is further important to note that some of these criteria may be tangible or even intangible (Cebi and Bayraktar, 2003; Saen, 2007). These qualitative and intangible evaluation criteria should not be overlooked which can provide a more holistic picture of individual vendor's competencies and alignment with the buyer firm's requirements. Therefore, with the increased maturity of purchasing management as a discipline and the onset of global sourcing trends, newer vendor evaluation criteria like "trade restrictions", "geographical location", "total cost of logistics", "relationship", "quality management systems", "tariffs or customs duties", "culture", "volume discounts", "foreign exchange rates", "capacity constraints", "communication barriers", "relative bargaining power"

and "risk management" started gaining prominence in vendor selection literature (Cusumano and Takeishi, 1991; Min, 1994; Choi and Hartley, 1996; Meredith Smith, 1999; Braglia and Petroni, 2000; Ghodsypour and O'brien, 2001). Further, there are evidences of concerns surrounding sustainability and the management of environment while deciding vendor evaluation criteria like "social responsibility", "environmental image", "environmental costs" and "environmental factors" (Winn and Angell, 2000; Humphreys, Wong and Chan, 2003; Cagno, Trucco and Tardini, 2005; Lee, Kang, Hsu, and Hung, 2009; Jabbour and Jabbour, 2009). Also, with the adoption of information technology in purchasing, new criteria for vendor selection started gaining importance like "etransaction capabilities", "quality management systems", "EDI capability" and electronic transaction capability (Bottani and Rizzi, 2005; Talluri and Narasimhan, 2005; Chen and Huang, 2007). It is also important to note that studies have also utilized multiple requirement specific evaluation criteria in case studies, which would otherwise have very less generalizability across other firms or industries.

Criteria for evaluation

Vendor performance is usually evaluated in the areas of pricing, quality, delivery, and service. Each area has a number of factors that some firms deem critical to successful vendor performance. Pricing factors include the following:

- Competitive pricing. The prices paid should be comparable to those of vendors providing similar product and services. Quote requests should compare favorably to other vendors.
- Price stability. Prices should be reasonably stable over time.
- Price accuracy. There should be a low number of variances from purchase-order prices on invoiced received.
- Advance notice of price changes. The vendor should provide adequate advance notice of price changes.
- Sensitive to costs. The vendor should demonstrate respect for the customer firm's bottom line and show an understanding of its needs. Possible cost savings could be suggested. The vendor should also exhibit knowledge of the market and share this insight with the buying firm.
- Billing. Are vendor invoices accurate? The average length of time to receive credit memos should be reasonable. Estimates should not vary significantly from the final invoice. Effective vendor bills are timely and easy to read and understand.

Quality factors include:

- Compliance with purchase order. The vendor should comply with terms and conditions as stated

in the purchase order. Does the vendor show an understanding of the customer firm's expectations?

- Conformity to specifications. The product or service must conform to the specifications identified in the request for proposal and purchase order. Does the product perform as expected?
- Reliability. Is the rate of product failure within reasonable limits?
- Reliability of repairs. Is all repair and rework acceptable?
- Durability. Is the time until replacement is necessary reasonable?
- Support. Is quality support available from the vendor? Immediate response to and resolution of the problem is desirable.
- Warranty. The length and provisions of warranty protection offered should be reasonable. Are warranty problems resolved in a timely manner?
- State-of-the-art product/service. Does the vendor offer products and services that are consistent with the industry state-of-the-art? The vendor should consistently refresh product life by adding enhancements. It should also work with the buying firm in new product development.

Delivery factors include the following:

- Time. Does the vendor deliver products and services on time; is the actual receipt date on or close to the promised date? Does the promised date correspond to the vendor's published lead times? Also, are requests for information, proposals, and quotes swiftly answered?
- Quantity. Does the vendor deliver the correct items or services in the contracted quantity?
- Lead time. Is the average time for delivery comparable to that of other vendors for similar products and services?
- Packaging. Packaging should be sturdy, suitable, properly marked, and undamaged. Pallets should be the proper size with no overhang.
- Documentation. Does the vendor furnish proper documents (packing slips, invoices, technical manual, etc.) with correct material codes and proper purchase order numbers?
- Emergency delivery. Does the vendor demonstrate extra effort to meet requirements when an emergency delivery is requested?

Finally, these are service factors to consider:

- Good vendor representatives have sincere desire to serve. Vendor reps display courteous and professional approach, and handle complaints effectively. The vendor should also provide up-to-date catalogs, price information, and technical information. Does the vendor act as the buying firm's advocate within the supplying firm?

- Inside sales. Inside sales should display knowledge of buying firms needs. It should also be helpful with customer inquiries involving order confirmation, shipping schedules, shipping discrepancies, and invoice errors.
- Technical support. Does the vendor provide technical support for maintenance, repair, and installation situations? Does it provide technical instructions, documentation, general information? Are support personnel courteous, professional, and knowledgeable? The vendor should provide training on the effective use of its products or services.
- Emergency support. Does the vendor provide emergency support for repair or replacement of a failed product.
- Problem resolution. The vendor should respond in a timely manner to resolve problems. An excellent vendor provides follow-up on status of problem correction.

Vendor Rating Techniques



- **Categorical plan:** managers from various verticals make a list of factors that are crucial for a vendor to own based on their personal experiences and vendors are compared based on the same.
- **Weighted point plan:** factors are categorized and weight is assigned to each factor based on vendor performance. An example is given below for calculating the same.
- **Cost ratio plan:** Supplier rating is done on the basis of different costs incurred for procuring the materials from different suppliers. The cost ratios are ascertained for the different rating variables such as quality, price, timely delivery. The cost ratio is calculated in percentage on the basis of total individual cost and the total value of the purchase.
- **Evanston's vendor selection:** previous performances of the vendor is considered for choosing them.
- **Forced decision matrix:** the attributes of rating like quality, service, price, reliability of the vendor, lead time of supply are identified first. Then these factors are compared between themselves. If something is more important it will be assigned with the weight of one and the other will be zero for evaluation.

- **Service cost ratio:** subjectively measuring other intangible aspects of a supplier's services. Aspects to consider could be Labour stability, financial stability, flexibility in production for rush orders, research and development.

Benefits Of Vendor Rating

Benefits of vendor rating systems include:

- Helping minimize subjectivity in judgment and make it possible to consider all relevant criteria in assessing suppliers.
- Providing feedback from all areas in one package.
- Facilitating better communication with vendors.
- Providing overall control of the vendor base.
- Requiring specific action to correct identified performance weaknesses.
- Establishing continuous review standards for vendors, thus ensuring continuous improvement of vendor performance.
- Building vendor partnerships, especially with suppliers having strategic links.
- Developing a performance-based culture.

Advantages of Vendor Rating

- It helps the buyer to understand the vendor from every important aspect and will help in knowing if the vendor is suitable to deal with or not. It helps the buyers to strike the right kind of communication required.
- Ensuring a constant standard of vendor performance with updated reviews of their performance.

Methodology

In this research paper we are concerned with the Vendor evaluation of 62 consumable parts to determine the best vendor for a particular part.

The vendor evaluation in this research paper is based on four different parameters namely

1. Quality
2. Delivery time
3. Cost
4. Serviceability

We obtained information from the company on the criteria which they use in order to evaluate vendor and select the best available vendor.

The information obtained from the company includes the different types of parts which are required for assembly and sub-assembly operations. We also obtained information about the different types of vehicles that are required to be produced. They also provided data on the number of days which are required in order to produce a particular type of

vehicle. The time period which is required in order to classify the different parts which are being imported from various vendors according to the vendor evaluation process.

According to the due of the required amount of vehicles and depending upon the lead time for each and every part the assembly and the production process is required to be initiated at a particular period of time. This research paper shows the factors and the calculations which are required to calculate the date of initiation of the project.

There are several other factors as well which are to be considered such as the time which is used to segregate the parts when they arrive from a particular vendor. It also plays a major role because due to this the estimated time of arrival of the parts is to be changed so that the schedule of production of the parts can be easily maintained.

In the company they strictly follow the criteria in a particular pattern. First priority is always given to quality then to delivery time and then to cost. Cost is given the least importance. Quality is preferred because of the fact that customer satisfaction is the most important aspect for the company. Delivery time which is also called as lead time is given average importance.

Now coming to the actual calculations and evaluation of the vendors the different vendors for different parts are selected according to the rating provided to them by the company based on the quality of the product that are received from them by the company. The second priority is according to the promptness of the delivery of a vendor and the least priority is given to the cost of the component.

In this research paper we have selected vendors for the same component by comparing them to each other. The best vendor is selected also depending upon the serviceability of the vendor which is a combination of the other three parameters.

We have also calculated the date for ordering the parts depending upon the lead time of the part and also the schedule of the company. There are certain changes which are made in the estimated time of arrival of the parts because there have been certain changes in the schedule in the month of December as there are holidays on the eve of new year.

ETA is calculated by subtracting the lead time of a particular part from the due date for the part to arrive at the company according to the requirement.

Conclusion

With the help of the study which was undertaken we are able to evaluate vendors on different parameters successfully and determine those vendors which fit the required criteria. Thus this process helps in defining a well defined procedure in order to select vendors for the company depending upon the parts that they supply. This study can also be further utilized in order to develop vendor evaluation techniques in which

more than four parameters are involved. This study also shows the difficulties faced by companies to carry out

References

- [1] G. Noci, "Designing 'green' vendor rating systems for the assessment of a supplier's environmental performance," *Eur. J. Purch. Supply Manag.*, vol. 3, no. 2, pp. 103–114, 1997.
- [2] M. C. Y. Tam and V. M. R. Tummala, "An application of the AHP in vendor selection of a telecommunications system," *Omega*, vol. 29, no. 2, pp. 171–182, 2001.
- [3] D. Wu and D. L. Olson, "Supply chain risk, simulation, and vendor selection," *Int. J. Prod. Econ.*, vol. 114, no. 2, pp. 646–655, 2008.
- [4] A. P. Pawar, Kulwant S., *Developments in Logistics and Supply Chain Management*. 1392.
- [5] S. Yahya and B. Kingsman, "Vendor rating for an entrepreneur development programme: A case study using the analytic hierarchy process method," *J. Oper. Res. Soc.*, vol. 50, no. 9, pp. 916–930, 1999.