

Decision Making Tools

Evaluating Vendor Performance

Paper 4

Sunil Kumar Puri

Our view of the world is determined by our set of assumptions about it. To put it in another way, our vision is often affected by what we believe about the world; our beliefs often determine the information that we "see." (Arsham)

Bibliography

Arsham, Professor Hossein. "Leadership Decision Making."

As stated in earlier paper, decision making process is a conscious effort and is about facing a situation or a question. Good decisions are not flukes but are efficient and effective conclusions made by putting to use a well engineered plan and a well focused process by defining a model. The decision making model shall represent a way of looking at the problem considering a set of assumptions that enable us to understand and evaluate the predictable outcome.

All business organizations engaged in manufacturing depend on many suppliers who may be manufactures, service providers or merchants to supply the needed commodity at the right time at the right price and of right quality to be able to manufacture the right product at right price possessing the right demanded quality. For any business it is therefore imperative to choose suppliers that qualify for the procurement of the merchandise supply. Suppliers are strategic partners in today's competitive world. The goal of supplier partnership shall be to create a business relation of trust where both partners win. Each supplier's production capacity, financial stability, technical competence and quality of merchandise must be evaluated by visiting the works of the supplier and a thorough supplier research shall be conducted. In this paper we discuss the purpose and procedures of vendor evaluation.

In order to evaluate a vendor one must consider the supplier's position in the industry, its progressiveness and its attitude as well. The following factors are important in evaluating the supplier:

- Purchases that arrive on time.
- Purchases that pass the quality inspections.
- Meeting target prices.
- Knowledge of Merchandise.
- Ability to cultivate raw material suppliers.
- Providing timely response to inquiries from buyers.
- Ability to supply repeat orders.
- Ability to deliver on shorter lead times.

Evaluating the supplier performance

The qualification of a supplier does not end with the supply of merchandise. The real test of the supplier rests in the ability to perform effectively and consistently over a period of time. One must use both objective and subjective evaluations to rate the suppliers. Suppliers evaluation generally involves quality, service, delivery and price. The most commonly used methods to evaluate suppliers are:

- **Categorical Method**
- **Weighted Point Method**

- **Cost Ratio Method**

Categorical Method

In this method the evaluation of the suppliers is based on one's individual experience with the supplier. The suppliers are assigned grades like preferred, neutral and unsatisfactory after careful analysis of the performance against a list of selected factors. The factors generally considered are; quality, delivery, service and price.

Evaluation lists are circulated in all the concerned departments. The departments that generally form the evaluating team are; purchase department, designing department, quality control department, goods receiving and accounting department. Each department evaluates the suppliers according to their individual experience in working with the supplier. Each supplier is evaluated and assigned grades that may be preferred, neutral and unsatisfactory. The final list is prepared and a final grade is assigned to the vendor.

The advantage of this method is that it is simple and easy to administer however the method is subjective and gives only qualitative analysis.

Weighted Point Method

The system is based on carefully selected factors like quality, delivery, price and service. Each factor is assigned a weight which varies according to the retailer's importance of the factor. For a high end retailer quality may have the maximum weight whereas for a middle level retailer price may be the most important factor. A typical evaluation criterion may be to assign 30 points for quality, 30 points for price 30 points for delivery and 10 points for service.

The method uses each vendor's performance against each factor. The performance is expressed in terms of individual factor rating like quality rating, price rating, delivery rating and service rating. The individual ratings are then summed up and a supplier's composite rating is derived at.

Table below gives data on four suppliers of a single item evaluated on Quality, Price and Delivery. The weight factor for Quality 40, Price 35 and delivery 25

Supplier	Inspection Analysis		Price Analysis			Delivery Analysis
	Lots Received	Lots Accepted	Basic Price	Discount	Transport	Deliveries Missed
S1	85	75	25	5%	1.1	11.8%
S2	70	65	28	10%	1.0	7%
S3	75	62	26	7%	1.15	17.3%
S4	60	50	27	5%	1.2	16.6%
S5	35	35	29	8%	1.3	0%

Table 1

Quality Rating

Quality rating rates the vendor over the quality of goods supplied. Quality rating is calculated in terms of percentage of lots accepted. The rating can be calculated using the following formula:

$$\text{Quality Rating} = \frac{(\text{Lots Received} / \text{Lots Accepted})}{100} \times \text{Quality Factor \%age}$$

Eq. 1

Quality Rating Table

Supplier	Lots Received	Lots Accepted	% age Accepted	Factor Weight	Quality Rating
S1	85	75	.882	40	35.28
S2	70	65	.928	40	37.12
S3	75	62	.827	40	33.08
S4	60	50	.833	40	33.32
S5	35	35	1.00	40	40.00

Table 2

Price Rating

Price rating rates the vendor over price competitiveness. Price rating is calculated using the following formula:

$$\text{Price Rating} = \frac{\text{Lowest Price}}{\text{Price Paid}} \times \text{Price Factor Weight \%age}$$

Eq. 2

Table Price Rating

Supplier	Unit Price	Discount	Basic Price	Transportation Charges	Net Price	Lowest Price	Lowest Price as % age of Net Price	Factor weight	Price Rating
S1	25	5%	23.75	1.1	24.85	24.85	100	35%	35.00
S2	28	10%	25.20	1.0	26.2	24.85	94.85	35%	33.19
S3	26	7%	24.18	1.15	25.33	24.85	98.1	35%	34.33
S4	27	5%	25.65	1.2	26.85	24.85	92.55	35%	32.39
S5	29	8%	26.68	1.3	27.98	24.85	88.81	35%	31.08

Table 3

Delivery Rating

Delivery rating rates the vendor's ability to meet with its promised deliveries and is calculated using the following formula;

$$\text{Delivery Rating} = \text{Proportions of commitments kept} \times \text{Service Factor \% age}$$

Eq. 3

Table Delivery Rating

Supplier	%age Deliveries Missed	%age Deliveries Kept	Factor Rating	Delivery Rating
S1	11.8%	88.2%	25	22.05
S2	7%	93%	25	23.25
S3	17.3%	82.7%	25	20.67
S4	16.6%	83.4%	25	20.85
S5	0%	100%	25	25.00

Table 4

Composite Rating

If we see the results of the composite rating chart is obvious that Supplier "S5" should be preferred because it has maximum composite rating of 96.08 though on price alone this supplier rates last. The idea of such rating method is to be able to evaluate the vendor taking in account all characteristics of the supplying company. It must be noted that this vendor did not miss even a single shipment thus can be termed as most reliable vendor as well.

Table Composite Rating

Supplier	Quality Rating	Price Rating	Delivery Rating	Composite Rating
S1	35.28	35.00	22.05	92.33
S2	37.12	33.19	23.25	93.56
S3	33.08	34.33	20.67	88.08
S4	33.32	32.39	20.85	86.56
S5	40.00	31.08	25.00	96.08

Table 5

The Cost Ratio Method

The cost ratio method is based on calculation of the ratio of quality cost, delivery cost, service cost and the overall costs.

The quality costs are the costs incurred in money spent in quality assurance, visits to vendor's plant for quality assurance and cost of appraisal etc.

The delivery costs include all logistic costs, freight, email, fax, STD and ISD calls.

The service costs are evaluated on the basis of a point rating awarded to the supplier on the basis of its ability to provide service.

The various possible factors include technical capacity, financial stability, Research and Development ability, response level and geographical location of the supplier.

A desirable minimum rating point is fixed for checking vendor scores, presuming a minimum point is set at 60 points if a supplier scores 85 points the supplier is given credit of 25% points. The supplier gets a score of 25 and by multiplying with predetermined weight age of 10% score of 0.025 is awarded.

The over all cost ratio = $QR + DR \pm SR$

Eq. 4

Suppliers service analysis

Minimum qualifying points as per example above	= 70
Maximum weight assigned to service factor	= 30%
Price quoted by supplier 1	= 160
Price quoted by supplier 2	= 162
Price quoted by supplier 3	= 161

Table Cost Ratio Method

Details of Expenditure	Suppliers		
	Supplier 1	Supplier 2	Supplier 3
1. Delivery Costs			
Visit to the suppliers works	2040	6500	3040
Telephone expenses	150	1050	750
Other Expenses	50	200	150
Total delivery Costs	2240	7750	3940
2. Quality Costs			
Inspection Costs at supplier's works	500	2050	1850
In-house inspection Costs	1800	-	550
Reworking Charges for defective material supplied	750	-	350
Cost of Material Rejected after receipt	1100	560	950
Total	4150	2610	3700
Total value of purchases made	75000	95000	85000

Table 6

Table Cost Ratio Analysis

Cost Ratio Analysis	Supplier 1	Supplier 2	Supplier 3
1. Quality Cost Ratio			
Total Quality Costs	4150	2610	3700
Total Purchases	75000	95000	85000
Quality Cost Ratio	5.53%	2.74%	4.35%
2. Delivery Cost Ratio			
Total Delivery Costs	2240	7750	3940
Total Purchases	75000	95000	85000
Delivery Cost Ratio	2.98%	8.15%	4.63%
3. Service Cost Ratio			
Supplier Service rating	70	90	75
Qualifying service rating	70	70	70
Deviation from rating	0	20	5
Weight assigned to service rating	25%	25%	25%
Service Cost Ratio	0	5	1.25
4. Overall Cost	5.53	2.74	4.35
QR + DR ± *SR	2.98	8.15	4.63
	0	-5	-1.25
Total Overall Cost Ratio	8.51	5.89	7.73
*Service cost is added to QR + DR if it is negative value and is subtracted to QR + DR if it is positive value.			
Quoted Price per unit	160	162	161
Net Adjusted Price	173.61	171.54	173.44

Table 7

The overall Net Price = Price Quoted + Overall Cost percentage.

Using Eq. 4.4 we get;

The overall cost percentage for Supplier 1 = $5.53 + 2.98 - 0 = 8.51\%$

Supplier 2 = $2.75 + 8.15 - 5 = 5.89\%$

Supplier 3 = $4.35 + 4.63 - 1.25 = 7.73\%$

The Net adjusted price:

Supplier 1 quoted price + Overall Cost Percentage = Rs. 160 + 8.51% = Rs. 173.61

Supplier 2 quoted price + Overall Cost Percentage = Rs. 162 + 5.8% = Rs. 171.54

Supplier 3 quoted price + Overall Cost Percentage = Rs. 161 + 7.73% = Rs. 173.44

It is evident from the table above that supplier 2 has maximum service rating and minimum quality control costs. Though the price of supplied goods is a little higher the overall price to the buying company is less than most of the suppliers. The idea of having a vendor evaluation system is that price alone or any factor alone shall never be the evaluating factor. The vendor shall be selected looking into all the factors. It will prove more beneficial in longer run to select a vendor using any of the method that suits the company. Many companies follow the policy of having two or more vendors for supplying any commodity. It is therefore necessary to have a vendor rating system.

Results and Conclusions

The objectives of buying in an organization are to carefully determine the potential of vendors by formulating an evaluating model that helps in locating suppliers who have the capacity to produce the needed item in the required quality and is capable to deliver as per requirements at right price and can be relied upon as a continuous source of supply. The purchased product must be evaluated by various departments namely, purchase, quality control and production. The buying company may evaluate the suppliers position in the market and its vision on progressiveness, its interest in the buying company's orders, and its attitude to ensure smooth flow of supplies

About the Author:

The author is a qualified professional in Total Quality Management, Kaizen and Lean Production. He has his own company in the name and style of M/s Techknit Overseas Pvt. Ltd. and has worked as Indian agent of the top three computerized flat bed knitting machine manufacturers for many years. Currently he also looks after the interests of Toyota Tsusho India Pvt. Ltd. an associate company of the famous Toyota Automobile Company of Japan for Punjab and surrounding areas. He is also working as a marketing consultant for a Chinese Machinery Manufacturing Company and as TQM consultant for a few Knitwear Companies. The author can be contacted on email at skpuri@techknit.com and on mobile no. +919988303707.