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Vendor Evaluation – An Empirical Study with Special Reference to A Valve Industry in Tamilnadu

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ABSTRACT

This empirical study seeks to investigate vendor evaluation at a private valve industry which helps to identify the right sources of supply for the organization in getting quality product. The present research identified factors influencing vendor evaluation and relationship that exists between the factors. The overall satisfaction of the vendor was also recorded in the study. There are 34 vendors, supplying materials for Valve industry and those vendors were considered for this study. The present study is of descriptive nature, primary data were collected through questionnaire. The framework of analysis involves Reliability Analysis, ANOVA, Correlation Analysis, Descriptive Statistics and Regression Analysis and the findings of the study may enable the organization to understand the current state and also to identify the scope of improvement if any.

Keywords: Business Statistics, statistics application, vendor evaluation, valve industry, empirical study.

INTRODUCTION:

The Indian valve industry selected for the study is truly integrated, incredibly fast and intuitive valve manufacturing company. It deals in exporting and manufacturing valves. They manufacture all types of LO plates, DB plates, Ball valves, pumps, valve bodies and bonnet. It is an ISO 9001:2008 certified company operating since 2006. The turnover of the business ranges up to Rs. 5 crore approx. The demand for valves is witnessing growth in almost all areas. All core sectors of industry, namely power, oil and gas, water and infrastructure projects, metal and mining, chemicals, drugs and pharmaceuticals, and food and beverages, require various types of valves for expansion of capacities, de-bottlenecking or routine maintenance and repair of plants. The valve market, by and large, is shared by various manufacturers based on technology, manufacturing capacities, and brand name quality and price competitiveness. The world's best brands are also produced locally in the country through fully owned subsidiaries or joint ventures. India today produces world-class products and the country is emerging as a large exporter of valves. Like other countries India too has small manufacturers and almost all manufacturers have their own niche markets. The market is large enough to offer opportunities to all manufacturers irrespective of the size of their operations. The quality of Indian valves is, by and large, acceptable to domestic users depending on the service and application. However, large organizations in key sectors have strict buying criteria where the best brands are purchased after a complete techno-commercial scrutiny of offers depending on the criticality of the application. In fact, India is fast becoming a large exporter of valves now that free imports do not really pose a problem for market growth. More than 60 per cent of the total cost of valve is material cost. The USD 1.6 Billion Valve making industry in the country is at par with global standards especially in terms of technology. The valves industry in the country is anticipated to grow at a rate of about 7-8 per cent annually. The growth margin has been set at an approximate Rs 10,000 crore. The industry has a pivotal role in the segments of power, water, cement, steel, oil and gas across the country. The demand for actuators and valves is on the rise with newer leaps being taken in all these sectors.

With more investment in the listed sectors, outlined in the 12th Five Year Plan (2012-17), the demand is estimated to escalate almost manifold. Valves and actuators play a critical role in sectors such as power, oil and gas, water, steel and cement. With the growth in infrastructure sector, demand for valves and actuators in India has grown significantly in the last decade. India has reached an inflection point in valves manufacturing, having become a large exporter of the industrial device.

The selection process is aimed at selecting the best vendor for the sourcing project scope while mitigating the risk. At this step commercial, financial, human resources, risk, sourcing strategy and other criteria are taken in account in addition to the technical/quality capabilities of the vendor. To this end a selection matrix will be used and each vendor will be scored against each criteria. Supply chain manager and Global auditor will fill in the matrix. The output of the matrix is one or 2 vendors which will be developed to supply parts as per the project scope. All criteria may not need to be scored depending upon the project but financial review is mandatory.

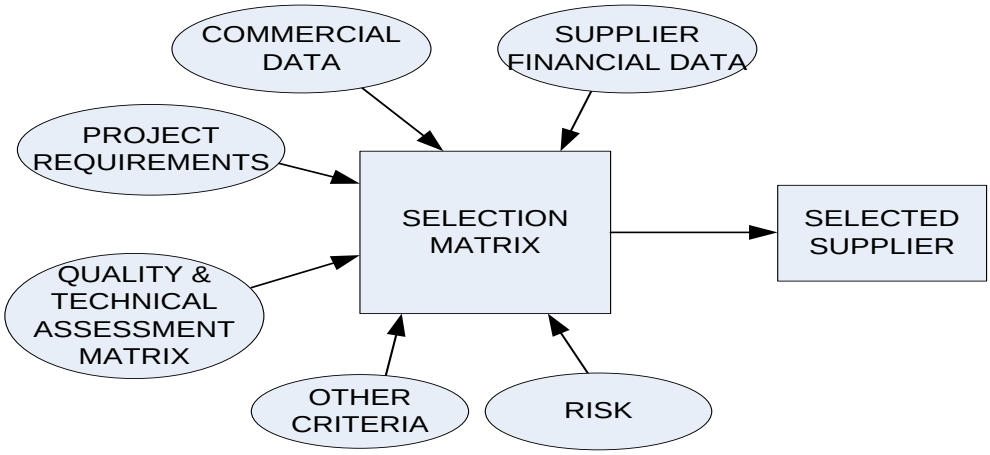

Figure 1: Supplier Selection Matrix

Vendor selection is framed to be the primary step in the process of product procurement for a successful market operations (Gencer & Gurpinar, 2007). The criticality of the stakeholder's partnership with the vendors are found to be very critical for any organization towards improving the quality of the overall production process. (Rajesha & Malliga, 2013). Vendor choice was the most critical view of any firm for its strategic operations (Taghizadeh & Ershadi, 2013). (Simunovic et al. 2010) highlighted the preference of vendors in the critical process of every firm. Studies has shown that the choice of suitable and deserving supplier will enhance the business and hence supplier or vendor selection can be coined as important activity paving way for smooth flow of operations and increased profitability in return (Aguezzoul, 2012).

REVIEW OF LITERATURE:

Bruno Zavrsnik (1998) "The Importance of Selection and Evaluation of The Vendor In Purchasing Management". This paper demonstrates how important purchasing management is today because the profit potential of effective management of the purchasing and supply activities is enormous compared with other practical management alternatives. K. L. Choy (2003) "Design of a case based intelligent vendor relationship management system—the integration of vendor rating system and product coding system". This article is about intelligent vendor relationship management system (ISRMS) integrating a company's customer relationship management system, vendor rating system and product coding system by the case based reasoning technique to select preferred vendors during new product development process. Chen-Tung Chen(2005) "A fuzzy approach for vendor evaluation and selection in supply chain management". This article is aimed to present a fuzzy decision-making approach to deal with the vendor selection problem in supply chain system. Y. N. Liu(2005) "A Case Study of Evaluating Vendor's Selection Criteria in a Steel Bars Manufacturer". This article examines the difference between a president rating of the perceived importance of different vendor attributes and their actual choice of vendors in an experimental setting. Pierangela Morlacchi (2006) " evaluation and selection: the design process and a fuzzy hierarchical model". The article investigates the design process of an evaluation and selection model and presents the fuzzy-hierarchical model. FarzadTahriri (2008) "AHP approach for vendor evaluation and selection in a steel manufacturing company". This article is about the selection the vendor and measuring the performance the vendor. Ram Narasimhan (2008)"Vendor Evaluation and Rationalization via Data Envelopment Analysis: An Empirical Examination". This article is about Strategic evaluation of vendor

performance assists firms in improving their operations across a variety of dimensions. Prince Agarwal 2011) "A review of multi-criteria decision making techniques for vendor evaluation and selection". This article is about the evaluation of the vendor using different techniques. David Asamoah(2012) "AHP Approach for Vendor Evaluation and Selection in a Pharmaceutical Manufacturing Firm in Ghana". The article is about suitable methodology for the evaluation and selection of vendors in a pharmaceutical manufacturing firm in Ghana. Mostafa Setak (2012)"A Vendor Selection and Order Allocation Models in Supply Chain Management: A Review". This paper reviews vendor selection and order allocation models based on an extensive search. Manish Kumar Sagar(2012) "Vendor Selection Criteria: Study of Automobile Sector in India".
This article is about identifying the most important criteria to be used as a baseline for a vendor selection process of valve manufacturing in India.

METHODS:

Objectives of the Study:

1. To identify the factors influencing vendor evaluation.
2. To find the association between factors influencing vendor evaluation and the profile of the vendor.
3. To identify the degree of relationship between the factors identified.
4. To study the impact of factors on the overall satisfaction on the vendor performance.

Research Method:

The study is descriptive in nature. Primary data has been collected through a structured questionnaire consisting of 32 variables. The vendors were given their response in a five points likert scale (5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly disagree). Therefore, data was collected to the population of 34. Secondary data is the data collected from the available resources, for the purpose of the study the data about the Vendor, literature support were collected from the available documents in the company and from the website. The research applied census survey technique as the entire population is sufficiently small and the data was gathered on every vendor of the organization.

DATA ANALYSIS:

The researcher collected opinion for 34 vendors.

Table 1: Classification of Vendors

Years of Association	**No of Vendors**
0-2	10
3-5	19
6>above	5
Parts Supplied	**No of vendors**
Forge Shop	2
Forging	6
Rolled/Forged bar, NDT, Special process	8
Machine shop	2
Inserts,Tools & Tool holders	16
Location of Vendor	**No of vendors**
Coimbatore	26
Bangalore	3
Mumbai	4
Rajkot	1

DESCRIPTIVE STATISTICS:

Based on the Expert opinion and Literature review nine factors which influence the vendor evaluation were determined. The nine factors are Safety & House Keeping, Materials & Logistics, Management, Quality System, Advance Planning, Material Control, Measuring & Testing Equipment, Problem Solving, General observation.

Table 2: Descriptive Statistics

Factors	Statement	Mean	SD
Safety & House keeping	Employees are wearing safety equipment as prescribed in plant health and safety standards	4.0000	.24628
	Good housekeeping practices, including implementation of 5S	4.2647	.51102
	Emergency exits are clearly marked and easily accessed	3.7647	.60597
Materials & Logistics	Evidence of sufficient storage and loading areas	3.9412	.81431
	Evidence of effective FIFO system and stock rotation	4.2941	.67552
	Product is well marked and no evidence of damage to materials or containers	3.7059	.75996
	Minimal storage of materials at production lines	3.4412	.66017
Management	Evidence of effective and updated communications with employees	4.0000	.42640
	Evidence that management spends sufficient time on shop floor	4.1765	.67288
	Employee training/development in place and utilized	3.7353	.51102
Quality system	Vendor is certified to latest required standards, including ISO/TS	4.4706	.56329
	Training matrices are in place at operator stations	3.5000	.56408
	Operator instructions are posted, readily available and updated	3.7059	.90552
	Evidence of an effective system to manage and monitor sub-vendors	3.8824	.84440
	Evidence of sufficient use of mistake-proofing	3.8235	.93649
Advance planning	Vendor has a detailed process to manage new programs and advance quality planning	3.6765	.58881
	There are sufficient resources in place to manage new program activity	3.6167	.55129
	There are regular reviews of status on all new programs	3.8824	.47767
Material control	Material is tagged at all stages of the operation	3.6471	.69117
	Plant floor is clear of parts or materials	3.5588	.50399
	Segregation area is secure and suspect material is contained	4.3235	.58881
	Manufacturing process is set up to prevent contamination by suspect material	4.1471	.70205
	First-off samples are evident and tagged	3.3824	.65202
	Dedicated area set up for containment inspection	3.7647	1.01679
Measuring & Testing equipment	All measuring and test equipment is properly tagged	4.1765	.67288
	All measuring and test equipment is calibrated	4.0000	.92113
Problem solving	Defective parts are reviewed with appropriate personnel	4.0000	.49237
	KPI in place to monitor customer performance and issues	3.5000	.66287
	Evidence of application of lessons-learned and read-across	3.9412	.77621
General observation	Facility is well organized and can accommodate additional capacity	3.9118	.57036
	Employees appear to be satisfied and are open and approachable	4.0000	.42640
	Vendor has the capability to be a good vendor to Revolution Valves	4.2647	.66555

The mean of all the variables are equal and almost close to 4.000, which shows that the responses are normally distributed and the satisfaction level on the vendor was satisfactory. The standard deviation of the variable dedicated area set up for containment inspection (1.01679) was high when compared to other variables which shows that the perception about the vendor gets deviated from its normal value.

Reliability test:

The data taken for the study is found to have a greater reliability coefficient (Cronbach alpha) of about 0.767 which implies that inference obtained from these data is highly reliable in nature.

Table 3: Reliability Coefficient

Cronbach's Alpha	N of Items
0.767	32

FACTOR WISE DATA ANALYSIS:

To understand the distribution of the responses of various vendors descriptive statistics has been used.

Table 4: Factor wise Data Analysis

	Safety & House keeping	Materials & logistics	Management	Quality system	Advance planning	Material control	Measuring & Testing equipment	Problem Solving	General observation
N Valid	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**
Mean	4.0098	3.8456	3.9706	3.8765	3.7255	3.8039	4.0882	3.8137	4.0588
Median	4.0000	3.7500	4.0000	3.6000	3.6667	3.7500	4.0000	4.0000	4.0000
Mode	4.00	3.75	4.00	3.20	4.00	3.67	4.00	4.00	4.00
Std. Deviation	.31232	.30160	.38810	.68227	.39756	.27052	.49955	.41997	.46761
Skewness	-.766	.183	-.921	.430	.436	-.239	-.956	-.922	-2.432

The Mean, Median, Mode of all the nine factors are all equal and almost close to 4.00, which shows that the responses are normally distributed and the satisfaction level on the vendor was satisfactory. The standard deviation of Quality System (.68227) was high when compared to other factors which shows that the perception about the vendor gets deviated in terms of quality systems followed by them.

CORRELATION ANALYSIS:

The nine factors influencing vendor evaluation were tested for degree of relationship among them to find whether the fluctuation in one factor affects the other factor. To identify the same, the factors were measured for Bi-variate correlation with respect to each other and their coefficients were given in the following table

Table 5: Correlation analysis

	Safety & House Keeping	Materials & Logistics	Management	Quality System	Advance planning	Material control	Measuring &Testing equipment	Problem Solving	General observatin
Safety & House Keeping	1	-.010	.475**	-.174	-.005	-.136	.221	.297	.134
Materials & Logistics		1	.133	.044	.310	.391*	.269	.045	.442**
Management			1	.032	.361*	.392*	.118	.461**	.566**
Quality System				1	-.546**	.604**	.531**	.206	-.116
Advance planning					1	.064	-.154	.128	.434*
Material control						1	.580**	.662**	.533**
Measuring &Testing equipment							1	.466**	.280
Problem Solving								1	.452**
General observation									1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

From the table, it is clear that there is a highly significant correlation (.662) existing between Material control and problem solving. Further Quality system and material control is also having a highly significant correlation (0.604). Material control is also found to have a highly significant correlation (0.580) with Measuring & Testing equipment. Management is found to have a highly significant correlation (.566) with General observation. Material control is having a highly significant correlation (.533) with General observation. Quality system is also having a highly significant correlation (.531) with Measuring & Testing equipment. Safety & Housekeeping is having a significant correlation (.475) with Management. Measuring & Testing Equipment is having a significant correlation (.466) with Problem Solving. Problem Solving is found to have a significant correlation (.452) with General observation. Materials & Logistics is having a significant correlation (.442) with General observation. Other factors were found to exhibit a weak relationship among them which is statistically insignificant in nature. Quality system is having negative significance (-.546) with Advance planning.

REGRESSION ANALYSIS:

To understand the influence of the various factors on the overall satisfaction of the vendor, regression analysis was performed keeping the overall satisfaction as independent variable and factors influencing vendor satisfaction as dependent variables.

Table 6: Regression Analysis

S. No.	Factors of Vendor Evaluation	Regression Coefficient
1.	Safety & Housekeeping	.304
2.	Materials & logistics	.171
3.	Management	-.004
4.	Quality system	.099
5.	Advance planning	-.021
6.	Material control	.206
7.	Measuring & Testing equipment	.119
8.	Problem Solving	-.096
9.	General observation	.500
	R^2	**.675**
	F Statistics	**5.536**
	Significance	**0.000**

Since R^2 >0.5, there is an impact of factors on the overall satisfaction of the vendor. The factors such as General observation (.500), Safety & Housekeeping (.304), Material control (.206), Materials & logistics (.171), Measuring & Testing equipment (.119), Quality system (.099) have a significant impact on the overall satisfaction of the vendor.

One-way ANOVA:

Association between safety & Housekeeping and Demographic profile of vendor:

To understand the influence of safety & Housekeeping on the demographic profile of vendor one way ANOVA is been used by keeping safety & Housekeeping as dependent and Demographic profile of vendor as the factor the analysis is been performed.

H_0: There is no significant difference between the buyers perception on Safety & Housekeeping of Vendor and Demographic profile of Vendor.

Table 7: Association between safety & Housekeeping and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Safety & Housekeeping	Years of Association	.429	.655	H_0 is Accepted
Safety & Housekeeping	Parts supplied	2.812	.044*	H_0 is Rejected
Safety & Housekeeping	Location of Vendor	10.894	.000*	H_0 is Rejected

*Significant at .05 level

H_0 is Accepted, which implies there is no significant difference between buyers perception on Safety & Housekeeping of the vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)
H_0 is Rejected, which implies there is a significant difference between buyers perception on Safety & Housekeeping of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).
H_0 is Rejected, which implies there is a significant difference between buyers perception on Safety & Housekeeping of the vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between Materials & Logistics and Demographic profile of vendor:
To understand the influence of Materials & Logistics on the demographic profile of vendor one way ANOVA is been used by keeping Materials & Logistics as dependent and Demographic profile of vendor as the factor the analysis is been performed.
H_0: There is no significant difference between buyers perception on Material & Logistics of Vendor and Demographic profile of Vendor.

Table 8: Association between Materials & Logistics and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Materials & logistics	Years of Association	.926	.407	H_0 is Accepted
Materials & logistics	Parts supplied	1.547	.215	H_0 is Accepted
Materials & logistics	Location of Vendor	.216	.884	H_0 is Accepted

*Significant at .05 level
H_0 is Accepted, which implies there is no significant difference between buyers perception on Materials & Logistics of the vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)
H_0 is Accepted, which implies there is no significant difference between buyers perception on Materials & Logistics of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).
H_0 is Accepted, which implies there is no significant difference between buyers perception on Materials & Logistics of the vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between Management and Demographic profile of vendor:
To understand the influence of Management on the demographic profile of vendor one way ANOVA is been used by keeping Management as dependent and Demographic profile of vendor as the factor the analysis is been performed.
H_0: There is no significant difference between buyers perception on management of the Vendor and Demographic profile of Vendor.

Table 9: Association between Management and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Management	Years of Association	.350	.707	H_0 is Accepted
Management	Parts supplied	5.407	.002*	H_0 is Rejected
Management	Location of Vendor	1.956	.142	H_0 is Accepted

*Significant at .05 level
H_0 is Accepted, which implies there is no significant difference between buyers perception on Management of the vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)
H_0 is Rejected , which implies there is a significant difference between buyers perception on Management of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).
H_0 is Accepted , which implies there is no significant difference between buyers perception on Management of the vendor(factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between Quality system and Demographic profile of vendor
To understand the influence of Quality system on the demographic profile of vendor one way ANOVA is been used by keeping Quality system as dependent and Demographic profile of vendor as the factor the analysis is

been performed.

H_0: There is no significant difference between the buyers perception on Quality system of the Vendor and Demographic profile of Vendor.

Table 10: Association between Quality system and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Quality system	Years of Association	1.356	.273	H_0 is Accepted
Quality system	Parts supplied	.909	.472	H_0 is Accepted
Quality system	Location of Vendor	.718	.549	H_0 is Accepted

*Significant at .05 level

H_0 is Accepted, which implies there is no significant difference between the buyers perception on Quality system of the vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)

H_0 is Accepted , which implies there is no significant difference between the buyers perception on Quality system of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).

H_0 is Accepted , which implies there is no significant difference between the buyers perception on Quality system of the vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between Advance Planning and Demographic profile of vendor:

To understand the influence of Advance planning on the demographic profile of vendor one way ANOVA is been used by keeping Advance planning as dependent and Demographic profile of vendor as the factor the analysis is been performed.

H_0: There is no significant difference between the buyers perception on Advance planning of the vendor and Demographic profile of Vendor.

Table 11: Association between Advance Planning and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Advance planning	Years of Association	.152	.859	H_0 is Accepted
Advance planning	Parts supplied	1.021	.413	H_0 is Accepted
Advance planning	Location of Vendor	1.254	.308	H_0 is Accepted

*Significant at .05 level

H_0 is Accepted, which implies there is no significant relationship between the buyers perception on Advance planning of the vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)

H_0 is Accepted, which implies there is no significant difference between the buyers perception on Advance planning of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).

H_0 is Accepted , which implies there is no significant difference between the buyers perception on Advance planning of the vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between Material Control and Demographic profile of vendor:

To understand the influence of Material control on the demographic profile of vendor one way ANOVA is been used by keeping Material control as dependent and Demographic profile of vendor as the factor the analysis is been performed.

H_0: There is no significant difference between the buyers perception on material control of the vendor and Demographic profile of Vendor.

Table12: Association between Material Control and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Material control	Years of Association	.956	.359	H_0 is Accepted
Material control	Parts supplied	4.459	.006*	H_0 is Rejected
Material control	Location of Vendor	.858	.473	H_0 is Accepted

*Significant at .05 level

H_0 is Accepted, which implies there is no significant difference between the buyers perception on Material control of the Vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)

H_0 is Rejected , which implies there is a significant difference between the buyers perception on Material control of the Vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).

H_0 is Accepted , which implies there is no significant difference between the buyers perception on Material control of the Vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between Measuring & Testing equipment and Demographic profile of vendor:

To understand the influence of Measuring &Testing equipment on the demographic profile of vendor one way ANOVA is been used by keeping Measuring & Testing equipment as dependent and Demographic profile of vendor as the factor the analysis is been performed.

H_0: There is no significant difference between the buyers perception on Measuring & Testing equipment of the vendor and Demographic profile of Vendor.

Table 13: Association between Measuring & Testing equipment and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Measuring & Testing equipment	Years of Association	3.042	.062	H_0 is Accepted
Measuring & Testing equipment	Parts supplied	1.298	.294	H_0 is Accepted
Measuring & Testing equipment	Location of Vendor	8.545	.000*	H_0 is Rejected

*Significant at .05 level

H_0 is Accepted, which implies there is no significant difference between the buyers perception on Measuring & Testing equipment of the vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)

H_0 is Accepted, which implies there is no significant difference between the buyers perception on Measuring & Testing equipment of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).

H_0 is Rejected , which implies there is a significant difference the buyers perception on Measuring & Testing equipment of the vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between Problem Solving and Demographic profile of vendor:

To understand the influence of Problem solving on the demographic profile of vendor one way ANOVA is been used by keeping Problem solving as dependent and Demographic profile of vendor as the factor the analysis is been performed.

H_0: There is no significant difference between the buyers perception on Problem solving of the vendor and Demographic profile of Vendor.

Table 14: Association between Problem Solving and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
Problem Solving	Years of Association	1.827	.178	H_0 is Accepted
Problem Solving	Parts supplied	11.959	.000*	H_0 is Rejected
Problem Solving	Location of Vendor	1.495	.236	H_0 is Accepted

*Significant at .05 level

H_0 is Accepted, which implies there is no significant difference between the buyers perception on Problem solving of the vendor (factor of vendor evaluation) and Years of association (demographic profile of vendor)

H_0 is Rejected , which implies there is a significant difference between the buyers perception on Problem solving of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).

H_0 is Accepted , which implies there is no significant difference between the buyers perception on Problem

solving of the vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

Association between General Observation and Demographic profile of vendor:

To understand the influence of General observation on the demographic profile of vendor one way ANOVA is been used by keeping General observation as dependent and Demographic profile of vendor as the factor the analysis is been performed.

H_0: There is no significant difference between the buyers perception on General observation of the Vendor and Demographic profile of Vendor.

Table 15: Association between General Observation and Demographic profile of vendor

Factors of vendor Evaluation	Demographic profile of vendor	F value	Significance	Result
General observation	Years of Association	2.119	.137	H_0 is Accepted
General observation	Parts supplied	2.470	.067	H_0 is Accepted
General observation	Location of Vendor	.728	.543	H_0 is Accepted

*Significant at .05 level

H_0 is Accepted, which implies there is no significant difference between the buyers perception on General observation of the vendor(factor of vendor evaluation) and Years of association (demographic profile of vendor)

H_0 is Accepted , which implies there is no significant difference between the buyers perception on General observation of the vendor (factor of vendor evaluation) and Parts supplied (demographic profile of vendor).

H_0 is Accepted , which implies there is no significant difference between the buyers perception on General observation of the vendor (factor of vendor evaluation) and Location of Vendor (demographic profile of vendor).

RESULTS:

The study of vendor evaluation at Valve industry reveals the following findings

- The response to all the factors are normally distributed and are satisfactory.
- There is a significant correlation existing between the factors of vendor evaluation, especially Safety and Housekeeping is found to have a significant correlation with Management. Further Materials and logistics exhibits a significant correlation with General observation. Management is also found to have a significant correlation with Problem solving, general observation. Quality system is found to have a significant correlation with material control, Measuring and testing equipment. Material control is found to have a significant correlation with Measuring and testing equipment, Problem solving, general observation. Measuring and testing equipment is found to have higher degree of correlation with Problem solving. Problem solving is found to be correlated with General observation. This indicates that the factors of vendor evaluation is related to one another.
- The regression analysis shows that the factors such as General observation, Safety & Housekeeping, Material control, Materials & logistics, Measuring & Testing equipment, Quality system have a significant impact on the overall satisfaction of the vendor.
- ANOVA shows that there is no significant difference between buyer's perception on the Years of association with the vendor and Factors of vendor evaluation. Further there is a significant difference between Safety &Housekeeping, Management, Material control, Problem solving with parts supplied by the vendor. The factors such as Safety &Housekeeping, Measuring& testing equipment has a significant difference with Location of vendor.

DISCUSSIONS:

As vendor evaluation plays a vital role for successful run of the organization, it is important to study the factors influencing vendor evaluation.

- The Descriptive statistics shows that the response for all the factors are satisfactory which implies that the company is satisfied with the performance of the vendor.
- Correlation shows that safety & Housekeeping has a significant relation with Management which shows that when one factor is improved the other will improve automatically. Materials & Logistics has a significant

relation with General observation which shows that when one factor is improved the other will improve automatically. The same way when Management is improved problem solving and General observation will also improve. Further improving the Quality system will improve the Material control and Measuring & testing equipment, whereas Advance planning needs more attention. Improving the Material control will improve Measuring & testing equipment, problem solving and General observation. Further improving Measuring& Testing equipment will improve Problem solving. Improving Problem solving will improve General observations.

- The factors such as General observation, Safety & Housekeeping, Material control, Material &Logistics, Measuring & testing equipment, Quality system, have significant impact on overall satisfaction of the vendor, which implies that improving all these factors will help in improving the overall satisfaction of the vendor.
- The factors of vendor evaluation does not have any impact on the buyer's perception on the years of association with the vendor. The factors of vendor evaluation such as Safety & Housekeeping, Management, Material Control, and Problem Solving have a significant impact on the parts supplied. Safety & Housekeeping, Measuring & Testing equipment have a significant impact on the location of the vendor.

CONCLUSION:

The present study determined nine factors which influence vendor evaluation. It comprises of Safety & House Keeping, Materials & Logistics, Management, Quality System, Advance Planning, Material Control, Measuring & Testing Equipment, Problem Solving, General observation. The significant positive correlation between the factors implies that the effect of one factor is possible on the other factor. This denotes that the increased or decreased rate of one factor might show fluctuation on the other related factor in the same direction. The factors are associated well such that the relationship will be appreciated on the assurance of all these factors at their level of importance. Though they are not equally influential, they are well associated that the presence or absence of one factor will show an explicit difference in the vendor evaluation. Hence the relationship between the factors should be considered to enhance the vendor evaluation. Among these factors Material control and Problem solving has high significance which shows vendor is giving more of importance towards these factors. The factors such as General observation, Safety & Housekeeping, material control, Materials & Logistics, Measuring & Testing equipment, Quality System have impact on the overall satisfaction of the vendor so it is must to improve all these factors so as to improve the overall satisfaction of the vendor. The factors of vendor evaluation does not have any impact on buyers perception on years of association with vendor, so it is not important how long the vendor is associated with the organization. The factors such as Safety & Housekeeping, Management, Problem solving, Material control have an impact on the parts supplied so improving all those factors will improve the parts supplied. Safety &Housekeeping, Measuring & Testing equipment have impact on the location of the vendor so improving these factors will help in enhancing the location of the vendor. This study will help the organization assess the vendors periodically so that it will be helpful in evaluating the vendors.

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