Envisaging the Dealer Perceptions regards Product Performance and Brand image Enhancement at KSB Pumps for Superior Positioning

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Abstract

In the last decade, a lot of research has been dedicated to conceptualizing and measuring the dealer perceptions performance and brand image. However, apart from putting forth various influencing factors, no integrative framework has so far been developed to account for the complex psychological processes underlying the formation of perceptions regards product performance and brand image. This paper attempts to propose such a framework by envisaging the dealer perceptions regards product performance and brand image enhancement at KSB pumps for superior positioning.
Keywords: Product performance, Brand image, Perceptions, Superior positioning

Introduction

KSB is a leading international supplier of pumps, valves and related systems for the Industrial applications, building services, process engineering, energy conversion, water treatment, water transport, solids transport and other areas of application. KSB combines innovative technology and excellent service to provide intelligent solutions. This approach means that KSB employees are close to customers all over the world, providing them with pumps, valves and systems for almost all applications involving the transportation of liquids. A comprehensive range of services rounds off this customer-focused portfolio.

KSB has been growing continuously since it was founded in 1871. Today the Group has a presence all over the globe with its own sales and marketing companies, manufacturing facilities and service operations.

The production facilities are also being regularly modernized and extended to cope with the challenges of new product technology. Foundry is capable of producing sophisticated automotive components apart from pump and valves castings and is a leading supplier of tractor/automobile castings in the country. During the last thirty years, the Company has rapidly expanded its product portfolio to include a large number of pumps and valves according to the changing market needs in various segments. KSB believes in continuous innovation; adding new products and business ideas to strengthen the portfolio and help to open up new markets.

Review of the Pump Industry in India

There is a huge gap between supply and demand of electricity in India. The deficit currently stands at approximately 8 percent annually. The gap can be bridged either by increasing the supply by setting up more power generation units or decreasing demand by consuming less power. Energy efficiency and Demand Side Management are important tools to control the demand of electricity. Agriculture pumping consumes 18 percent of electricity in India. Hence the demand side management of agriculture pumps has the ability to significantly diminish the demand-supply gap. According to the opinion of farmers, low voltage capability of pump sets is the most important attribute followed by warranty/guarantee, price, standards, after sales service and higher water output. However, the opinion of retailers differs from the opinion of farmers. According to the retailers, farmers consider price as the most important attribute for pump selection. Word of mouth has the most significant influence on brand

selection by farmers followed by other influencing factors such as retailer's feedback, banner advertisement, television and availability of retailer in proximity. Given the flat rate for electricity consumed in agriculture activities, farmers are found to be totally unconcerned about electricity savings.

Farmers across most of the states such as Andhra Pradesh, Madhya Pradesh, Maharashtra, Punjab & Haryana, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal associate low voltage compatibility with efficient pumps. High water throwing capacity is considered as another important attribute for a pump to be efficient by most of the farmers. The pump market in India is valued at INR 5,490 cr. in 2010, and is expected to reach INR 12,330 cr. by 2014, growing at a Compounded Annual Growth Rate (CAGR) of 22 percent. The pump industry is composed of a large number of Small Scale Industries (SSI) units, large manufacturers and many overseas manufacturers. The industry is fragmented, with the presence of both organised and unorganized players and competition from international companies who have set up their base in India. Indian pump manufacturers appear to completely fulfill the domestic demand for pump usage, with more than 600 manufacturers producing around 1.2 million pumps annually. The industry is balanced in terms of demand-supply, with domestic companies meeting 95 percent of the requirements and imports constituting the remaining 5 percent.

In a comprehensive literature review, Singh, Muetze et al. (2010) found only two studies reporting data. They concluded that very few installations have been subjected to monitoring to establish their effectiveness and running costs. Fortunately, in 2010 the Energy Saving Trust published results on the first phase of the most comprehensive field trial of the technologies ever undertaken in the UK, which studied heat pumps at 83 sites (54 ground source and 29 air source.) Devakumar examines that in today's situation, the customer has multiple alternatives to choose at various points of Purchase (POP).Therefore, dealers and sales personnel need to know the pulse of the customer and the customer's touch points by thoroughly understanding the customers' needs and wants. At any point of time if the customer tends to be dissatisfied on any grounds, viz., emotional, psychological and personal ground, it will lead to customer switching behavior.

Research Methodology: Sample Mean method,Standard Deviation or Risk analysis method, Correlation-Regression method, Time series methods are used for a sample size of 100 in West Bengal. Chi square tests were done along with F-Test for the data. The data were tabulated in excel to arrive at the results.

Research Results and its Discussion

Survey Feedback Data

PRODUCT	EXCELLENT	GOOD	ACCEPTABLE	DISAPPOINTING
1. PERFORMANCE	3	8	1	-
2. LIFE	2	9	1	-
3. FINISH	2	4	3	3
PRICING	1	3	5	3
DELIVERY TIME	1	7	4	-
DOCUMENTATION	-	6	4	2
7. TECH. SUPPORT	1	7	1	3
AFTER SALES SERVICE	3	4	3	2
SALES GROWTH	-	3	6	3

According to the above data, we can differentiate the product growth into four different ranges to simplify the calculation, these are

Disappointing : 0-25

Acceptable : 25-50

Good : 50-75

Excellent : 75-100

Calculation of Mean

CLASS BOUNDARY	MID VALUE (x)	FREQUENCY	CUMULATIVE FREQUENCY	$y=\frac{x-37.5}{25}$	Fy
0-25	12.5	16	16	-1	-16
25-50	**37.5**	28	44	0	0
50-75	62.5	51	95	1	51
75-100	87.5	13	108	2	26
Total		**Σf=108**			**Σfy=61**

$$\text{Now } = \frac{\Sigma fy}{\Sigma f} = \frac{61}{108}$$

$$\text{Again } \bar{y} = \frac{\bar{x} - 37.5}{25}$$

So we can say that,

$$\frac{\bar{x}-37.5}{25} = \frac{61}{108}$$

$$\text{Or,} \quad \bar{x} = \frac{61 \times 25}{108} + 37.5$$

$$\text{Or,} \quad \bar{x} = 14.12 + 37.5$$

$$\text{Or,} \quad \bar{x} = 51.62$$

So, Mean of x= 51.62

COMMENTS: So it shows that the growth of the product in compare to the other branded product of same category in market is moderate or average.

Calculation of Standard Deviation

CLASS BOUNDARY	MID VALUE (x)	FREQUENCY	$Y=\frac{x-37.5}{25}$	fy	fy^2 (fy × y)
0-25	12.5	16	-1	-16	16
25-50	**37.5**	28	0	0	0
50-75	62.5	51	1	51	51
75-100	87.5	13	2	26	52
Total		**N=108**		**Σfy=61**	**Σfy^2=119**

Now Risk or Standard deviation = SD = $\underline{\sigma} = \sqrt{\frac{\Sigma fy^2}{\Sigma f} - (\frac{\Sigma fy}{\Sigma f})^2} \times i$

So, $\underline{\sigma} = \sqrt{\frac{119}{108} - (\frac{61}{108})^2} \times 25$

Or, $\underline{\sigma} = \sqrt{1.109 - (0.57)^2} \times 25$

Or, $\underline{\sigma} = \sqrt{1.109 - 0.3249} \times 25$

Or, $\underline{\sigma} = \sqrt{0.7841} \times 25$

Or, $\underline{\sigma} = 0.89 \times 25 = 22.13$

So Risk or Standard deviation=SD= $\underline{\sigma} = 22.13$

COMMENTS: So the calculation says that the risk of the product in the market is high. So it should be minimized as soon as possible.

Calculation of Regression Equation, Regression & Correlation Co Efficient

Let $\bar{x}$ and $\bar{y}$ be the means of x & y and $\underline{\sigma}_x$ and $\underline{\sigma}_y$ be their standard deviation and r_{xy} be their correlation coefficient and on other hand b_{yx} be their regression coefficient of Y on X.
Now to compute these values the following table is done.

CLASS BOUNDARY	MID VALUE(x)	FREQUENCY(y)	$\bar{x}$	$\bar{y}$	x^2	y^2	Xy
0-25	12.5	13			156.25	169	162.5
25-50	37.5	28			1406.25	784	1050
50-75	62.5	51	200/4 = 50	108/4 = 27	3906.25	2601	3187.5
75-100	87.5	16			7656.25	256	1400
TOTAL	**Σx =200**	**Σy=108**			**Σx^2=13125**	**Σy^2=3810**	**Σxy=5800**

Now w the Regression Equation is

$$y - \bar{y} = b_{yx}(x - \bar{x})$$

We know that, $b_{yx} = cov(x,y) / \sigma_x^2 = \dfrac{\left(\frac{\Sigma xy}{n}\right) - \left(\frac{\Sigma x}{n}.\frac{\Sigma y}{n}\right)}{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}$

So, the value of Regression Coefficient=

$$b_{yx} = \frac{\left(\frac{\Sigma xy}{n}\right) - \left(\frac{\Sigma x}{n}.\frac{\Sigma y}{n}\right)}{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}$$

Or, $b_{yx} = \dfrac{\left(\frac{5800}{4}\right) - \left(\frac{200}{4}.\frac{108}{4}\right)}{\frac{13125}{4} - \left(\frac{200}{4}\right)^2}$

Or, $b_{yx} = \dfrac{1450 - 1350}{3281.25 - 2500}$

Or, $b_{yx} = \dfrac{1450 - 1350}{3281.25 - 2500}$

Or, $b_{yx} = \dfrac{100}{781.25}$

Therefore, Regression coefficient = b_{yx} = 0.128

Now by putting the value of b_{yx} in regression equation we can get the following equation,

$y - \bar{y} = 0.128 (x - \bar{x})$

or, $y - 27 = 0.128 (x - 50)$

or, $y - 27 = 0.128 x - 6.4$

or, $y - 0.128 x = 27 - 6.4$

or, $y - 0.128 x = 20.6$

or, $0.128 x - y + 20.6 = 0$

So the Regression Equation will be $0.128 x - y + 20.6 = 0$

Or, $y = 0.128 x + 20.6$

Now as we know that r= Correlation Coefficient= $\dfrac{\left(\frac{\Sigma xy}{n}\right) - \left(\frac{\Sigma x}{n}.\frac{\Sigma y}{n}\right)}{\sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}.\sqrt{\frac{\Sigma y^2}{n} - \left(\frac{\Sigma y}{n}\right)^2}}$

So the value of **r** will be as follows;

$$r = \frac{\left(\frac{\Sigma xy}{n}\right) - \left(\frac{\Sigma x}{n}.\frac{\Sigma y}{n}\right)}{\sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}.\sqrt{\frac{\Sigma y^2}{n} - \left(\frac{\Sigma y}{n}\right)^2}}$$

$$\text{or,} \quad r = \frac{\left(\frac{5800}{4}\right) - \left(\frac{200}{4}.\frac{108}{4}\right)}{\sqrt{\frac{13125}{4} - \left(\frac{200}{4}\right)^2}.\sqrt{\frac{3810}{4} - \left(\frac{108}{4}\right)^2}}$$

$$\text{or,} \quad r = \frac{100}{\sqrt{781.5}.\sqrt{223.5}}$$

$$\text{or,} \quad r = \frac{100}{27.95 \times 14.95}$$

$$\text{or,} \quad r = 0.24$$

So the value of Correlation coefficient will be r = 0.24

COMMENTS: So from the above calculation we can see that, y depends on x and we can determine y if x is known. Now as here y is related to the frequency of the product growth and x is related to the degree of product growth, so frequency of the product growth depends upon the different degree of product growth.

Here we have mainly used following test for revealing the data interpretation results by Chi-Square Analysis- F- Test Analysis.

Calculation of F-Test (*F*)

Now let H_0 = Null hypothesis
Such that two attributes, Product features and Product growth are independent.
And H_1= Alternative hypothesis
Such that two attributes, Product features and Product growth are dependent.

CLASS BOUNDARY	MID-VALUE(x)	FREQUENCY(y)	x^2	y^2
0-25	12.5	13	156.25	169
25-50	37.5	28	1406.25	784
50-75	62.5	51	3906.25	2601
75-100	87.5	16	7656.25	256
TOTAL	**Σx =200**	**Σy=108**	**Σx^2=13125**	**Σy^2=3810**

So the value of $F = \sigma_x^2 / \sigma_y^2$

Now we know that, $\sigma_x^2 = \frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2$

And $\sigma_y^2 = \frac{\Sigma y^2}{n} - \left(\frac{\Sigma y}{n}\right)^2$

So the value of σ_x^2, $\sigma_x^2 = \frac{13125}{4} - \left(\frac{200}{4}\right)^2$

Or, $\sigma_x^2 = 3281.25 - 2500$
Or, $\sigma_x^2 = 781.25$

And the value of $\underline{\sigma}_y^2$,

$$\underline{\sigma}_y^2 = \frac{3810}{4} - \left(\frac{108}{4}\right)^2$$

Or, $\underline{\sigma}_y^2 = 952.25 - 729$

Or, $\underline{\sigma}_y^2 = 223.25$

So as we can see that $\underline{\sigma}_x^2 > \underline{\sigma}_y^2$

So the value of □ $= \underline{\sigma}_x^2 / \underline{\sigma}_y^2$

Therefore, □ $= \underline{\sigma}_x^2 / \underline{\sigma}_y^2 = 781.25/ 223.25 = 3.50 > 3.33$ for 5% level of significance with **df= (4-1) = 3.**

COMMENTS:

So, the calculation shows that, **H_0 = Null hypothesis is rejected,**

It means that the two attributes, Product features and product growth are independent.

Conclusion

Growth of the product in compare to the other branded product of same category in market is moderate or average. We conclude that the growth of the product in compare to the other branded product of same category in market is moderate or average. Product features and product growth are independent. The risk of the product in the market is high. So it should be minimized as soon as possible.

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