"Technical Note"

Factors Influencing Target Market Criteria: A Survey Conducted in Industries at Vitthal Udyognagar in Anand District of Gujarat State, India

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KEYWORDS

ABSTRACT

For any organization sound marketing strategy and quality assurance play vital role in the growth of the organization. The price, quality and service, service centers, friendly attitude, Discounts on sales, esthetics, store location and appearance, ease of operations, guarantees and warranties, adopting new ideas, and flexible payments terms were considered to study the perceptions of the respondents. The ultimate aim is to uphold the turnover of the organization and to create good market penetration of the goods produced in highly competitive business world.

1. Introduction

This study is carried out in Vitthal Udyogar in Anand district of Gujarat state, where about 1000 industrial units are working. The estate came into existence some time in 1965, slowly but steadily progressing upward. The district has six industrial estates; out of these Vitthal Udyognagar GIDC is in lead position among all. The varieties of units and their products need sound marketing and for that this study is aimed to assess the situation by knowing the perceptions of the respondents about target market criteria and its effects on productivity of the organization. The majority units are in small scale.

2. Industrial Spectrum

Since 1965, this industrial area has developed by leaps and bounds and now it is one of the largest engineering estates in Gujarat state. With the growth of the industrial estate its problems also grew. Competition, development of technology, reliance on old methods and human skills, government policies and associated rules and regulations, recurrent power cuts year after year; have all contributed their bit. This has resulted in reduced profitability of the industries (small and big), leading to widespread sickness and closure of many units. This has threatened the very foundation and survival of the industrial activity.

With this in view, it is proposed to undertake a thorough study of the working of representative industries in V. U. Nagar ranging from economically good to sick ones and find out suitable measures for their effective revival and growth, which has become critical and urgent. The investigation will attempt to identify specific factors like inadequate technological base, insufficient labour and staff training, power shortage etc. are responsible for the ills of the industries in this area.

It is required to have higher employees' productivity and motivated workers to work more and better with job satisfaction to produce quality products and services consistently. In this paper factors that Influencing target market criteria were studied. The industrial spectrum is as shown in Table1 and depicted in figure1 of the estate under study (see Appendices, table1 &figure1).

3. Objective of the Study

The main aim of the study is to identify the factors affecting target market criteria in the estate under consideration and correlation with the productivity.

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4. Research Methodology

4.1 Research Instrument

A questionnaire was developed on the basis of the present infrastructure scenario of the estate under study. The questionnaire consisted of 14 closed ended questions which were framed keeping in mind the various aspects; those are influencing industrial productivity that the respondents may wish to see in the organization. A three point Likert scale ranging from not important (1) to very important (3) was used to assess the situation to each of the identified attributes.

4.2 Data Collection

The data was collected within the Vitthal Udyognagar, GIDC in Anand district of Gujarat state. The survey was collected across the cross section of the estate including various industries and employees from top, middle, and bottom levels of the organizations.

4.3. Sample Size

An accidental sampling method was chosen to serve the purpose of data collection. This method seemed acceptable and appropriate taken into account the exploratory nature of the study. Over 250 questionnaires were distributed among the employees of the organizations.

Of the 250 questionnaires distributed, 94 were excluded for the reasons of incompleteness of answers and inconsistencies in responses and non return of questionnaires, thus, 156 usable questionnaires constituent a sample size.

Tab. 1 Industrial Spectrum: Classification Of Members' Industries (1980 Through- 2010)*

Sr. No.	Year	Engg. & Allied	Chem. & Allied	Elect. & Electr.	Paints & Allied	Plastics & Allied	Services & Traders	Assorted & misc.	Total
1	1980	101	24	16	10	11	-	58	220
2	1990	178	23	30	16	20	-	99	356
3	1994	210	17	30	40	30	63	120	510
3	1995	207	18	36	30	19	28	31	369
4	2002	206	15	55	26	22	15	115	444
5	2007	311	31	29	23	28	85	85	592
6	2010	335	25	37	29	23	91	71	611

*Source: VIUA Directory: 1980, 1990, 1995, 2002, 2007 & 2010

5. Statistical Analyses

The 156 usable questionnaires were analyzed using SPSS software. Frequencies were used to generate a profile of the key demographic characteristics of the respondents. Descriptive statistics were utilized to calculate the mean and standard error scores. An exploratory factor analysis was used to uncover the underlying factors related to target market criteria which affect customer preference.

5.1 Demographic Characteristics

The respondents: The number of male respondents in the survey were 150(96.20%) and 6(3.80%) were female respondents. Most of the respondents those participated in the survey were graduates and have educational qualification above it. 5.10 percent of the respondents were Ph.D., 22.40 percent of the respondents were post-graduates, 66 percent of respondents were graduates and the remaining 6.40 percent were undergraduates.

Respondents' work experience: The highest work experience 39.70% between 10-20 years, 23.70% between 21-30 years, 23.10% less than 10 years, 12.20% of respondents were above 30 years of experience and only 1.30% respondents were of age group more than 40 years have participated in this study.

Category of the company: As mentioned earlier majority units are in small scale. The same thing is reflected over here. In this survey 70.51% (110) are in small scale, 19.23% (30) in medium scale and only 10.26% (16) large scale units have participated and provided relevant data for this research study.

Sector of the company: Out of 100% respondents (156 units sample size), 89.20% of units in private sector, 5.10% of public sector, only 0.60% government units, while 5.10% were others have participated and supplied data for the analysis.

Classification of the industry: Estate under study was dominated by 68.30 %(105) engineering units, the other classified units were very few in the dedicated sample: 3.80% electrical/electronics, 5.80% paints, varnishes and 3.20% chemicals industries. Remaining miscellaneous units amount 19.90% of the total, have participated in this research study and supplied the relevant data for this study.

ISO Certificate: The 25% of respondent industries having ISO Certificates, 75.00% of industries were without ISO Certificates. have participated in this study.

Man Power: Out of 156 representative industries and total employee 12092, 97.59% male employees

and only 2.41% female employees in the industries of the sample considered.

Markets: Markets scenario shows demands: Indigenous (19.90%), state level (29.50%), national level (23.70%) and international level (26.09%) were recorded of the representative organization of the sample considered. State level demand observed slightly more compared to national and international demands.

Technical collaboration: 82.70% of industries do not have any technical collaboration with third party either nationally or internationally, only 17.30 % industries do have technical collaboration and have responded to the questionnaire for this research study.

5.2 Factor Analysis:

Factor Analysis is a general name denoting a class of procedure primarily used for data reduction and summarization. In research survey, there may be a large number of variables, most of which are correlated and which must be reduced to a manageable level. A factor is an underlying dimension that explains the correlations among a set of variables is called factor (variable).

First step to test reliability of questionnaire is checked by computing Cronbach's Alpha (see table 2).

Tab. 2. Reliability Statistics

Cronbach's Alpha(α)	Cronbach's Alpha Based on Standardized Items	N of Items
0.836	0.834	14

The Cronbach's Alpha of the Target Market Criteria was 0.836, implying that the questionnaire is reliable.

Second step to test appropriateness of the factor analysis is to carryout Bartlett's test and computing KMO value to decide the appropriate of the factor analysis. Prior to running the factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity were conducted.

The value of the KMO value 0.812, which is sufficiently large (>0.5), and supporting the appropriateness of using factor analysis to explore the underlying attributes of target market criteria. The Bartlett's test of sphericity was highly significant (p<0.000) significance value of Bartlett's Test is 0.000, rejecting the null hypothesis that the 14 important attributes are uncorrelated in the population. Factor analysis is carried out using principal component method with varimax rotation, the attributes with factor loading 0.6 or greater were considered significant in this analysis (see table 3).

Tab. 3. KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**0.812**
Bartlett's Test of Sphericity	Approximate Chi-Square	898.150
	Degree of freedom	91
	Significance level	0.000

Communalities: The communalities are presented in Table4. The percentage of total variance explained by the common factors referred to as communality. Communalities represent the proportion of the variance in the original variables that is accounted for by the factor solution.

The factor solution should explain at least half of each original variable's variance, so the communality value for each variable should be 0.60 or higher. This term may be interpreted as a measure of "uniqueness." A low communalities figure indicates that the variable is statistically independent and cannot be combined with other variables. The variables: 6, 13 and 14 with < 0.6 communality are not associated with any factors (see table 4).

Tab. 4. Communalities

Variable	Initial	Extraction
1	1.000	0.641
2	1.000	0.657
3	1.000	0.741
4	1.000	0.672
5	1.000	0.653
6	1.000	0.562
7	1.000	0.605
8	1.000	0.638
9	1.000	0.860
10	1.000	0.812
11	1.000	0.696
12	1.000	0.626
13	1.000	0.529
14	1.000	0.269

Extraction Method: Principal Component Analysis.

Extracted Factors: The four extracted factors that explain 64.013% of the total variance attributed to each factor presented in Table5. For this, an analysis of the Eigen values is required. The Eigen value represents the total variance explained by each factor. Only those factors are extracted for which the Eigen values are greater than one. The factors extracted here are four and together contribute 64.0130% of total variance. Thus extracting four factors from a total of fourteen variables for measuring the satisfaction level is good. Thus, factor analysis was tentatively considered appropriate for analyzing data (see appendices, table 5).

Tab. 5. Extracted factors

Sr. No.	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.955	35.393	35.393	4.955	35.393	35.393	3.345	23.891	23.891
2	1.730	12.355	47.748	1.730	12.355	47.748	2.420	17.288	41.179
3	1.257	8.980	56.728	1.257	8.980	56.728	1.880	13.429	54.608
4	1.020	7.286	64.013	1.020	7.286	64.013	1.317	9.405	64.013
5	0.957	6.833	70.846						
6	0.706	5.041	75.887						
7	0.657	4.693	80.581						
8	0.636	4.541	85.122						
9	0.513	3.662	88.784						
10	0.433	3.090	91.874						
11	0.430	3.070	94.944						
12	0.333	2.379	97.323						
13	0.288	2.057	99.380						
14	0.087	0.620	100.000						

Fig. 1. Industrial Spectrum at Vitthal Udyognagar Industrial estate

Rotated Matrix: There are various methods of rotations. The method of rotation used is varimax, which is the most commonly used rotation method in factor analysis. The variance explained by each component after the varimax rotation method and the number of factors extracted based on Eigen value 1 and more, total variance explained is 64.0130%., the variables associated with four factors are grouped (see appendices, table 6).
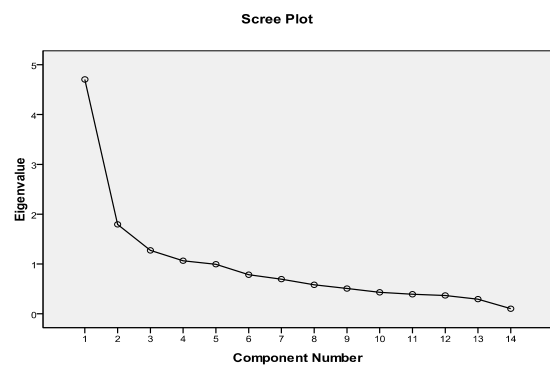

Fig. 2. The true number of factors

The Number of Factors Based on Scree Plot: The scree plot is a plot of the Eigen values against the number of factors in order of extraction. The shape of the plot is used to determine the number of factors. Typically, the plot has a distinct break between the steep slope of factors, with large Eigen values and a gradual trailing off associated the rest of the factors. The gradual trailing off in known as the scree. Experimental evidence indicates that the point at which the scree begins denotes the true number of factors (see figure 2).

Model Fitness: It is observed that there are 45(49%) non redundant residuals with absolute values greater than 0.05. Lower the percentage of 'the non-respondent residuals with absolute values greater than 0.05', higher is the acceptability of the model fit. The values of residuals is 49% < 50% is neither low nor high percentage, so the model is considered good, data explain the substantially because the number of 'the non-redundant residuals with absolute values greater than 0.05 is less than 50 percent (see Table 8).

Tab. 6. Rotated matrix

Variables	Statements	Factors			
		1	**2**	**3**	**4**
8	Attractiveness of packaging	**0.665**			
9	Convenience of store location	**0.810**			
10	Store appearance	**0.778**			
11	Convenience of product/service use	**0.824**			
2	Quality of product and service		**0.772**		
3	Brand name recognition		**0.834**		
4	Customer /Technical service		**0.680**		
5	Broad array of service (Chain of service centers)			**0.744**	
7	Discounts on sales			**0.761**	
1	Price				**-0.708**
12	Guarantee/ warranties				**0.696**

Extraction Method: Principal Component Analysis, Rotation Method: Varimax. Rotation converged in 7 iterations.

Tab. 7. Factors extracted from factor analysis

Factor	Description	Variables associated
1	Esthetics and convenience	Attractiveness of packaging, convenience of store location, store appearance, convenience of product/service use.
2	Quality and service	Quality of product and service, brand name recognition, customer /technical service.
3	Customer service and discounts	Broad array of service (chain of service centers), discounts on sales
4	Price and guarantees	Price, guarantee, warranties

Tab. 8. a. Reproduced Correlation, b. Residuals

V01	V02	V03	V04	V05	V06	V07	V08	V09	V10	V11	V12	V13	V14
0.689ᵃ	0.368	0.232	0.086	0.080	0.239	0.150	0.203	0.221	0.066	0.087	-0.404	-0.096	0.116
0.368	0.720ᵃ	0.633	0.561	0.108	0.385	0.007	0.184	0.102	-0.038	0.178	0.027	0.289	-0.001
0.232	0.633	0.691ᵃ	0.630	0.380	0.427	0.184	0.252	0.221	0.109	0.125	0.162	0.325	-0.064
0.086	0.561	0.630	0.665ᵃ	0.357	0.472	0.172	0.345	0.328	0.256	0.314	0.349	0.473	0.086
0.080	0.108	0.380	0.357	0.745ᵃ	0.358	0.536	0.389	0.524	0.492	0.069	0.199	0.173	0.004
0.239	0.385	0.427	0.472	0.358	0.474ᵃ	0.270	0.460	0.511	0.437	0.420	0.218	0.378	0.270
0.150	0.007	0.184	0.172	0.536	0.270	0.435ᵃ	0.347	0.476	0.449	0.114	0.075	0.085	0.102
0.203	0.184	0.252	0.345	0.389	0.460	0.347	0.544ᵃ	0.650	0.609	0.511	0.238	0.359	0.402
0.221	0.102	0.221	0.328	0.524	0.511	0.476	0.650	0.808ᵃ	0.774	0.563	0.260	0.364	0.470
0.066	-0.038	0.109	0.256	0.492	0.437	0.449	0.609	0.774	0.781ᵃ	0.553	0.334	0.362	0.471
0.087	0.178	0.125	0.314	0.069	0.420	0.114	0.511	0.563	0.553	0.710ᵃ	0.345	0.481	0.561
-0.404	0.027	0.162	0.349	0.199	0.218	0.075	0.238	0.260	0.334	0.345	.0570ᵃ	0.451	0.176
-0.096	0.289	0.325	0.473	0.173	0.378	0.085	0.359	0.364	0.362	0.481	0.451	0.503ᵃ	0.282
0.116	-0.001	-0.064	0.086	0.004	0.270	0.102	0.402	0.470	0.471	0.561	0.176	0.282	0.504ᵃ
	-0.096	-0.063	0.047	0.054	-0.131	-0.005	-0.065	-0.029	-0.047	-0.032	0.267	0.084	0.001
-0.096		-0.116	-0.109	-0.001	-0.078	0.055	0.073	0.027	0.042	-0.027	0.032	-0.044	-0.022
-0.063	-0.116		-0.089	-0.054	-0.005	-0.031	-0.044	0.005	0.052	0.010	-0.041	-0.075	0.105
0.047	-0.109	-0.089		-0.016	-0.082	0.027	-0.046	-0.002	-0.020	0.034	-0.017	-0.121	0.052
0.054	-0.001	-0.054	-0.016		-0.008	-0.181	-0.099	-0.047	-0.027	0.089	-0.014	0.027	0.060
-0.131	-0.078	-0.005	-0.082	-0.008		-0.081	-0.103	-0.023	-0.010	-0.037	-0.096	-0.059	0.000
-.005	0.055	-0.031	0.027	-0.181	-0.081		0.013	-0.150	-0.194	-0.005	0.082	0.061	0.178
-0.065	0.073	-0.044	-0.046	-0.099	-0.103	0.013		-0.031	-0.047	-0.106	-0.016	0.040	-0.119
-0.029	0.027	0.005	-0.002	-0.047	-0.023	-0.150	-0.031		0.091	0.002	-0.040	-0.018	-0.167
-0.047	0.042	0.052	-0.020	-0.027	-0.010	-0.194	-0.047	0.091		-0.021	-0.064	-0.045	-0.115
-.032	-0.027	0.010	0.034	0.089	-0.037	-0.005	-0.106	0.002	-0.021		-0.086	-0.069	-0.128
0.267	0.032	-0.041	-0.017	-0.014	-0.096	0.082	-0.016	-0.040	-0.064	-0.086		-0.135	0.104
0.084	-0.044	-0.075	-0.121	0.027	-0.059	0.061	0.040	-0.018	-0.045	-0.069	-0.135		-0.115
0.001	-0.022	0.105	0.052	0.060	0.000	0.178	-0.119	-0.167	-0.115	-0.128	0.104	-0.115	

Extraction Method: Principal Component Analysis: a. Reproduced communalities, b. Residuals are computed between observed and reproduced Correlations. There are 45 (49.0%) non-redundant residuals with absolute values greater than 0.05.

6. Findings and Discussion

Factors Extracted from Factor Analysis: In this section factors, factor description (Naming the factors) and associated factors are listed in table 7.

Interpretation of Factors: Originally there were 14 variables (attributes). After data reduction, factor analysis reduced to four factors enables us to describe target market criteria as below:

Factor1: Esthetics and Convenience

The most significant factor that determined besides quality of products is esthetics: Attractiveness of packaging attracts the customers. The location and appearance of the store is also equally important. The third aspect is ease of operation of the products especially in case of house hold items.

Factor 2: Quality and Service

The branded and quality products and technical services as and when required after sales add the additional value of the product and strengthened the market penetration.

Factor 3: Customer Service and Discounts

Customers always preferred trouble free and ease of operations of the products. The chains of service centers are preferred. Discounts on the items also attract the customer in the highly competitive business world along with the reliability, quality and service of the products. People do look into savings on their total buying. The special offer like: '20% extra' or 'buy two get one free' etc schemes be informed in advance so that they can get the best buy.

Factor 4: Price and Guarantees

The price is given less weight when reliable and quality products are available. Guaranteed items definitely attract the customers and earn the good will of the consumers' in long run will deepen the market penetration as expected in case of target market criteria.

The variables which are not associated with any factors are: Friendly staff attitude, fast growing/adopting new ideas, flexible payment terms.

7. Conclusion

The study mainly focused on finding out the major attributes of the target market criteria set as perceived by the respondents of the organization in Vitthal Udyognagar in Anand district of Gujarat state. The methodology adopted was structured questionnaire and the factor analysis was used using SPSS. The study shows that there are four major factors that customers prefer as far as the target market criteria is concerned. These factors are: Esthetics and convenience, Quality and service, Customer service and discounts, Price and guarantees. These factors contribute the market penetration leading to higher productivity of the organization as a whole. The knowledge of these factors is very useful in planning strategies and policy according to the customers' retention and improving loyalty and goodwill towards the products and reliability of the products. The strategies must be plan as per the changing need of the customers and be implementing accordingly. The customer want fully return on the money they spent on the products and expect stress-free life. The goodwill earned will attract new customers with the help of existing customers. So these attributes are of vital use in enhancing the business.

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