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Impacts of Competitive Strategies on Industrial Performance - An Empirical Study

Dr.T.B.Pankhania

Associate Professor in Mechanical Engineering and Head Workshop, B.V.M.Engineering College,
Sardar Patel University, Vallabh Vidyanagar, Anand, Gujarat, India.

Abstract: This paper presents the results of a survey of 156 owner-managed small scale industrial units at Vithal Udyognagar in Anand District of Gujarat state. The survey was designed to explore the strategic orientations leading to improve industrial performance- implications and hence higher productivity. Results of the analytical study based on the application of statistical analysis using SPSS17.0 software are indicators to be adopted by the small scale units in order to remain competitive. In the present age of cut-throat competition, it becomes highly necessary for an organization to be dynamic in the global competitive world. The various statistical analyses further indicate that a venture's competitive strategy significantly influences its performance. On the other hand, a complete lack of strategic orientation in a new business enterprise may lead to negative performance especially in the recession period and consequently may even threaten its very survival. To overcome such situations, it is possible only when all are committed to the changing world scenario.

Keywords: competitive, globalization, indicators, productivity, strategies, survey.

I. Introduction

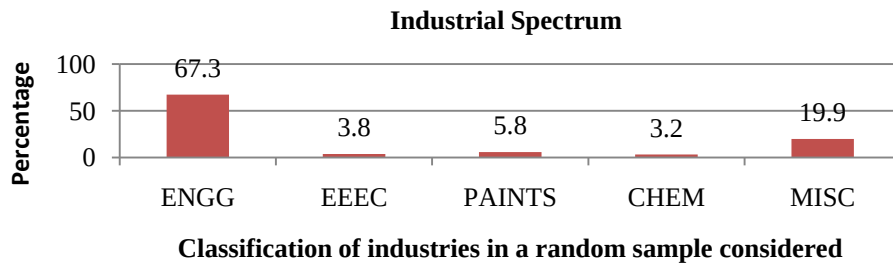
Present study is to develop productivity enhance route programmes in the present context to the changed trends of education, technologies, collaborative partnership between institutions and industries of mutual benefits. Talent is often cited as a key differentiator for competitive success. As more and more organizations realized that managing talent effectively is the key to business success; it is a topic of interest to both industry and academia. Talent is important to organizational performance; it is not just a human (capital) complementary issue. A survey is conducted at Vitthal Udyognagar in Anand district of Gujarat, India, and statistical analysis, using SPSS17.0 is carried out to uncover underlying factors which are responsible for the health of the industrial estate and capable of giving meaningful interpretations.

II. Research Design

The present study was conducted in industrial estates of Anand district, Gujarat India. The estate was established in 1965. At present 1000 odd units are working and more than 25000 jobs are created at different levels. The units were selected from the members' directory published by Vitthal Udyognagar Industries Association (VUIA). The sample consisted of owner-managed firms, initially 250 industries were selected for the study, and questionnaires were distributed to them. The questionnaires were checked for incomplete, inconsistent, and ambiguous responses. Out of which 94 units were dropped due to non-availability of complete data. The final sample consisted of 156 units was considered for the statistical analysis. The spectrum of industrial units of a sample is shown in Table1. The data were cleaned by identifying out-of-range and logically inconsistent. The responses were considered from usable questionnaires only and responses were 62.40% which are considered acceptable for this research study and analysis. The data collected using five point Likert scale and these data were analyzed using SPSS17.0 software for the analysis

Table 1: Industrial Spectrum

Classification of industries in a random sample considered	Frequency	Percentage
Engineering, Foundry, Fabrication, Machining	105	67.30
Electricals/Electronics	6	3.80
Paints, Varnishes, Resins	9	5.80
Chemicals	5	3.20
Miscellaneous	31	19.90
Total	156	100.00



The sample covered 156 industries from the Vitthal Udyognagar-GIDC. The major industries in the sample were engineering units which dominate others in the sample considered for the research study. The sample includes large, medium and small scale units though their representation is unequal.

III. 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.

IV. Identification and Measurement of Variables.

Fifteen different managerially controlled strategic variables/ items or competitive weapons were used to see whether these variables could capture the strategies undertaken /implemented by the industries of the estate. After a pilot study of 25 units, interviewing primarily, it was found that three variables, namely import, export and technical collaboration were required to be dropped on the common ground of the scale and category of industries in the sample. Thus, finally total twelve attributes were considered for the analysis. A three-point Likert scale (where 1= strongly disagree, 2= somewhat agree, 3= strongly agree) was used to measure perceptions of respondents for each strategic variable. The entrepreneurs and /or their representatives were asked to indicate on the scale the emphasis their business had placed on each of the twelve variables to remain competitive. They were also interviewed to know more about how the competitive weapons were being pursued in their organizations.

V. Statistical Analysis

SPSS software was used to carry out various statistical analyses to evaluate the various aspects which are influencing industrial performance and productivity

A. Reliability and Validity of the scales

Reliability comes to the forefront when variables developed from summated scales are used as predictor components in objective models. Since summated scales are an assembly of interrelated items designed to measure underlying constructs, it is very important to know whether the same set of items would bring out the same responses if the same questions are recast and re-administered to the same respondents. Variables derived from test instruments are declared to be reliable only when they provide stable and reliable responses over a repeated administration of the test. An effective tool for measuring reliability is Cronbach's alpha (α), which is a numerical coefficient of reliability. Computation of alpha is based on the reliability of a test relative to other tests with same number of items, and measuring the same construct of interest.

The results of factor analysis provided evidence for the discriminant and convergent validity of the measures. Cronbach's coefficient alpha (α) was calculated as an indicator of internal consistency of the scale. All scales had coefficients alpha greater than or equal to 0.50 as recommended by Nunnally (1978) thus indicating their validity and reliability. Results of the scale-building portion of the data analysis provided substantial evidence for the validity and reliability of the measurement. Each alpha coefficient exceeded the value of 0.50 suggested by Nunnally (1978) for scales are sufficiently reliable for data analysis.

Table 2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.724	0.755	12

Table 2 shows that alpha value 0.755 indicates that questionnaire is reliable and can be used for statistical analysis.

B. Appropriateness of the factor analysis

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is a measure of sampling adequacy, an index used to examine the appropriateness of factor analysis. The KMO value varies from 0 to 1. High values (between 0.5 and 1.0) indicate factor analysis is appropriate. Values below 0.5 imply that factor analysis may not be appropriate. Small values of the KMO statistic indicate that the correlation between pair of variables cannot be explained by other variables, and hence factor analysis may not be appropriate. Generally, a $KMO > 0.5$ is desirable, here the value of $KMO = 0.693$, Chi-square = 692.924, Degree of freedom = 66 and Significance level = 0.000, because the associated probability is less than the significance level of 0.05, the null hypothesis of equal population means is rejected, these different measures show that the factor analysis is appropriate [1]-[6].

Bartlett's test of sphericity is a test statistic used to examine the hypothesis that the variables are uncorrelated in the population. In other words, the population correlation matrix is an identity matrix; each variable correlates perfectly ($r = 1$) with itself but has no correlation ($r = 0$) with the other variables under study.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.693
Bartlett's Test of Sphericity	Approx. Chi-Square	692.924
	Degree of freedom	66
	Significance.	0.000

Table 3: shows the results of KMO and Bartlett's tests of sampling adequacy and sphericity. This shows that the factor analysis is appropriate.

C. Factor Analysis

The study used principal Components Analysis (PCA) with a varimax rotation. For the purpose of describing the underlying factor structure, the "Eigen value-one criterion (Rumelt, 1970) was used to determine the number of components to be extracted for the further analysis. The component loadings, communalities, and the sum of the squares of component loadings produced by an orthogonal varimax rotation are displayed in Table 4.

After the varimax rotation, the four factors accounted 67.73 per cent of the total variance explained. Each strategic variable loaded on at least one component with a minimum component loading of 0.444 for the scale of "adopting new ideas". Using conservation component loading of 0.50 as a cut off for significance (Nunnally,

1978), none of the variable loading on more than one component. Composite scales were then developed for each factor by retaining the strategic variables with factor loadings greater than 0.50 on any of the four factors. On the basis of the component loadings, the four factors/components were given descriptive labels.

Communality: The amount of variance shares with and portion of variance explained by common factors referred to as communality. Communality is the amount of variance a variable can explain with all the factors being considered. 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 extracted communalities greater than 0.4, are acceptable for the variables

Table 4: Strategic Variables: Varimax Rotated Factor Matrix

Strategic Variables	Factors				Communality	Cronbach's Alpha(α)
	1	2	3	4		
5. Store/Outlets location	0.823				0.766	0.679
6. Cost reduction	0.831				0.739	0.685
7. Ease of Operations	0.792				0.653	0.693
10. Flexible payments	0.644				0.430	0.717
2. Quality Products		0.815			0.704	0.714
3. Brand recognition		0.813			0.686	0.697
4. Service after sales		0.753			0.674	0.684
11. Incentives on performance			0.910		0.828	0.731
12. Pay-Productivity Link			0.920		0.858	0.725
1. Price of products				-0.781	0.717	0.735
8. Guarantees / warranties				0.669	0.596	0.714
No. of variables associated	04	03	02	02		
Variable Not Associated						
9. Adopting new ideas	0.444	0.384	0.130	-0.012	0.475	0.694
Eigen Value	2.822	2.297	1.754	1.255		
Percentage of Variance	23.514	19.144	14.617	10.455		
Cumulative % of Variance	23.514	42.658	57.275	67.730		

Table 5: Naming and Interpreting extracted four factors

Factor	Variables associated with factors	Description
1.	Customers' Satisfaction Strategy: Store/Outlets location(0.823), Cost reduction(0.831), Ease of Operations(0.792), Flexible payments (0.644).	Company's outlets, ease of product and service operations, Flexible payments, say by installments, interest free adopting new ideas for up gradation to satisfy customer needs play an important role in increasing customer as well producer satisfaction to increase business.
2.	Quality Strategy: Quality Products(0.815), Brand recognition(0.813), Service after sales (0.753).	Brand names along with quality products and services, prompt service to the customers after sales also enhance to compete the competitors of the business
3.	Motivational Strategy: Incentives on performance(0.910), Pay-Productivity Link(0.920),	The incentives on better performing employees to higher performers and payments linked with performance help improve productivity by the motivated employees.
4.	Factor4: Marketing Strategy: Price of products(-0.781), Guarantees / warranties (0.669)	Price is not considered here as influencing attributes for quality products, so impact is assessed with negative factor loadings, of course guarantees and warranties has significant impact on maximum market penetration to increase business.

D. Limitations of the study

The problems in data collection were many like: Non-availability of some secondary data. Responses with reservations, employees responded differently and might have added little or more bias, time consuming and tiresome or unwillingness to disclose certain information by the respondents. The time factors, poor awareness of some respondents were other limitations. Lower education, language problem and lack of freedom to disclose the facts were major constraints to the most of the employees.

VI. Conclusions

The study mainly focused on finding out the impacts of competitive strategies to meet competitiveness in the global era on industrial performance leading to higher productivity. It is interesting to know that almost everybody in the opinion that globalization has changed the present industrial scenario, and it is the demand of the day. The set attributes regarding quality, cost, price, service, incentives guarantee, warrantee, etc all attributes have their own effect on the industrial performance. The four factors uncover the associations of the 15 attributes. Only one variable is not associated with any of the four factors. These factors contribute to the market penetration leading to higher performance of the industrial organization.

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