Resource Based Capability and Competitive Strategy of High-Tech Ventures in Kerala

Ranjini S Nambiar, P. Balasubramanian

Abstract: *The paper examines the impact of resource- based capability and competitive strategy on the performance of high-tech new ventures in Kerala. The resource-based capability was analyzed using the variables managerial capability, technical capability, marketing capability and input sourcing capability of the firm. Competitive strategy was measured by looking into cost strategy, quality strategy, innovation strategy, and customization strategy adopted by the firm. A descriptive research was undertaken to analyze the performance of the ventures. A survey method was administered to collect data from 83 high- tech startups in Kerala. Independent sample t-test, Multiple regression and Cluster analysis were used to arrive at a conclusion. The findings indicate that both resource- based capability and competitive strategy influences the performance of a venture. It was found that the entrepreneurs of profitable ventures exhibit better managerial capability. The results of the cluster analysis show that the entrepreneurs with high performance indicators are customer centric. The innovation strategy and marketing capability adopted by the firm has an impact on the venture performance. The findings suggest that sales, profitability and financial position can be predicted to an extend by the resource-based capability and competitive strategy adopted by the venture. The research work can be used by emerging entrepreneurs, policymakers and incubation managers to develop a framework to improve the performance of startups.*

Keywords: Competitive strategy, Firm performance, Resource based capability, Startups.

I. INTRODUCTION

Many researchers have contributed scholarly works in the area of venture performance. Identifying the factors contributing to venture performance is a vital subset of entrepreneurship literatures [1]. In the recent decade, policymakers around the world have initiated reform measures to promote entrepreneurship, considering the contribution made by enterprises towards the economic development of a country. This has led to the introduction of many startup firms with innovative ideas. In this new era of tech, firms adopt artificial intelligence, machine learning and information technology to bring innovation either in the product or production process. We are now in the third wave of internet revolution, where the development in information and telecommunication sector are brought to the real-world industries like agriculture, healthcare and many more [2]. Advanced manufacturing and robotics, Agtech and new food, Blockchain, artificial intelligence, big data and analytics are the top growing subsectors in the world [2]. Apart from the primary business activity, there are many internal and external factors contributing to the success of a new venture. Kerala, a state in the southern part of India, has witnessed the emergence of high-tech startups in the recent decade. One of the major reasons for this can be the policy measures adopted by the Government of Kerala to build a conducive environment for doing business in the state. The aim is to attract more youngsters towards entrepreneurship. In the long term, this helps in job creation and solving the unemployment problem faced by the country. Kerala is known for its high literacy rate. The youngsters with tech background have used this opportunity to start a venture in their hometown. Also, the positive move by the government, to an extent, has led to the reverse migration of serial entrepreneurs to their hometown.

Along with the external factors like government and institutional support, there are a host of internal factors which affect the performance of a business. Resource based capability and the competitive strategy adopted by the firm are two such factors contributing to the success of a venture. The theory of resource-based view was coined by Edith Penrose in the late 1950's by which, the heterogeneity of the resources possessed by the firm contribute to its competitive advantage [3]. The heterogeneity can be either in the tangible assets or in the intangible assets like the capabilities of the management [4]. The quality of the entrepreneur and his decisions determines the success of an enterprise [6]. Several researchers have hypothesized and proved that the resource-based capabilities and competitive strategies are determinants of firm's performance [7][8]. Hence the purpose of this study is to ascertain how the resource-based capabilities and competitive strategy adopted by the high-tech startup entrepreneurs in Kerala.

II. THEORETICAL BACKGROUND

As mentioned, many researchers have adopted the resource-based view to measure its impact on firm performance.

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This study has used the criteria used in the past studies of [7] and [8] to determine the resource-based capabilities and competitive strategy of high-tech firms in Kerala.

The resource based capability was analyzed using the variables managerial capability (problem solving, decision making, employee retention), technical capability (technology, technical expertise), marketing capability (expertise in customer service, adaptability to market dynamics, marketing expertise, distribution logistic), and input sourcing capability (access to low cost of capital, raw material, and skilled labor) [7].

Competitive strategy was measured by looking into cost strategy (emphasis on cost reduction in all facets of operations, process innovation to reduce cost, and improve productivity), quality strategy (emphasis on producing error free product and offering superior products to customer), innovation strategy (emphasis on product innovation, innovation in marketing techniques), and customization strategy (emphasis on meeting unique customer requirement and tastes) [7].

Measuring firm performance is difficult as the sample for the study was startup firms. To prevail over this issue many researchers has considered broad categories like business volume, growth etc. [8]. The present study considers profit making as a benchmark for success in business. Growth in sales, financial position and growth potential of the business were also used in addition to analyze the performance of the enterprise.

III. RESEARCH DESIGN

A descriptive research was conducted to analyze the resource-based capability and competitive strategy of high-tech startup entrepreneurs based in Kerala. Data collection was done both from primary and secondary sources. A survey method was adopted to collect data from primary sources. Personal interview, using a structured questionnaire, with the founders of startups registered in Kerala were conducted to gain required information. Purposive sampling technique was adopted to select 100 entrepreneurs who were able to scale up their business. 83 of them were willing to provide information and participated in the survey. Secondary data was collected from journals and internet. Data collected was analyzed using SPSS. Independent sample t-test, Multiple regression and Cluster analysis were used to arrive at a conclusion.

IV. ANALYSIS AND RESULTS

The data collected was analyzed to determine the resource-based capability and competitive strategy adopted and its impact on the performance of high-tech firms in Kerala.

A. Cluster Analysis

First, following [6] cluster analysis was done to analyze whether there are any broad categories of entrepreneurs with common approaches in the criteria evaluated. The entrepreneurs are classified into two segments because the difference between the coefficients is significant only on two cases. For the purpose of classification, K-Means cluster is used. Out of the total respondents, 55 per cent are in the first cluster and the remaining 45 per cent are in the second cluster.

A Two-step Cluster analysis was done to evaluate the performance of each cluster based on the growth in sales, financial position of the enterprise, profitability, and growth potential. Table-I shows the mean values for the two clusters which reflect the attributes of each cluster. It can be inferred from the Table-II that, the first cluster has high mean value in all the factors (sales, financial position, profitability and growth potential) which are used to evaluate the performance of the enterprise. It is noted from the table that the variable logistics is heavily loaded on cluster 1, which means the entrepreneurs in the first cluster have an access to well established distribution channel. Except that, no other factor is heavily loaded on any particular cluster segment. As seen in Table I, the entrepreneurs in Cluster 1 are more customer centric. They emphasis on bringing innovation in product and marketing techniques, creating an error free product and meeting unique customer requirements. They are adaptable to market dynamics and have a well-established distribution channel. It can be concluded that, even in this new era of tech, taking a customer centric approach helps in accelerating the performance of an enterprise.

Table- I: Final Cluster Centers

	Cluster	
	1 N= 46	2 N= 37
Problem solving	4	4
Decision-making	4	4
Employee retention	4	4
Technology	4	3
Technological development	4	4
Customer service	4	3
Market dynamics	4	3
Marketing expertise	4	3
Logistics	4	2
Low cost capital	3	3
Raw materials	4	3
Skilled labour	3	3
Cost reduction	4	4
Process innovation	4	4
Error free product	5	4
Product innovation	5	4
Marketing techniques	4	3
Customer requirements	5	4

Table- II: Evaluation Fields

Criteria	Cluster 1 Mean	Cluster 2 Mean
Sales	3.95	3.49
Financial position	3.95	3.31
Profitability	3.57	2.90
Growth potential	4.70	4.03

B. Independent Sample t- test

An Independent Sample t- test was done to analyze whether there is difference in the mean value of profitable and non-profitable startups in their resource-based capability and competitive strategy.

Table- III: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Problem solving	Equal variances assumed	.049	.826	3.681	81	.000	.565	.153	.260	.870
	Equal variances not assumed			4.002	80.996	.000	.565	.141	.284	.846
Decision-making	Equal variances assumed	.335	.564	3.623	81	.001	.523	.144	.236	.810
	Equal variances not assumed			3.843	79.660	.000	.523	.136	.252	.794
Employee retention	Equal variances assumed	.083	.774	2.393	81	.019	.424	.177	.071	.776
	Equal variances not assumed			2.534	79.503	.013	.424	.167	.091	.756
Technology	Equal variances assumed	.277	.600	1.338	81	.185	.325	.243	-.158	.808
	Equal variances not assumed			1.333	67.876	.187	.325	.244	-.161	.811
Technological development	Equal variances assumed	.281	.598	.992	81	.324	.221	.223	-.222	.665
	Equal variances not assumed			1.004	71.284	.319	.221	.220	-.218	.661
Customer service	Equal variances assumed	2.914	.092	3.952	81	.000	.932	.236	.463	1.401
	Equal variances not assumed			4.155	78.616	.000	.932	.224	.486	1.379
Market dynamics	Equal variances assumed	.034	.853	2.091	81	.040	.401	.192	.019	.782
	Equal variances not assumed			2.053	64.343	.044	.401	.195	.011	.790
Marketing expertise	Equal variances assumed	.847	.360	4.082	81	.000	.838	.205	.430	1.247
	Equal variances not assumed			4.188	74.319	.000	.838	.200	.439	1.237
Logistics	Equal variances assumed	2.392	.126	2.201	81	.031	.576	.262	.055	1.097

		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	Lower	Upper
	Equal variances not assumed			2.333	79.609	.022	.576	.247	.085	1.068
Low cost capital	Equal variances assumed	.174	.678	1.027	81	.307	.230	.224	-.216	.676
	Equal variances not assumed			1.022	67.423	.311	.230	.225	-.220	.680
Raw materials	Equal variances assumed	1.719	.193	1.800	81	.076	.359	.199	-.038	.755
	Equal variances not assumed			1.848	74.435	.069	.359	.194	-.028	.746
Skilled labour	Equal variances assumed	.019	.890	1.156	81	.251	.262	.226	-.189	.712
	Equal variances not assumed			1.179	73.129	.242	.262	.222	-.181	.704
Cost reduction	Equal variances assumed	3.089	.083	2.572	80	.012	.489	.190	.111	.867
	Equal variances not assumed			2.676	76.946	.009	.489	.183	.125	.852
Process innovation	Equal variances assumed	1.206	.275	1.544	81	.127	.311	.201	-.090	.712
	Equal variances not assumed			1.576	73.323	.119	.311	.197	-.082	.704
Error free product	Equal variances assumed	4.006	.049	1.626	81	.108	.266	.164	-.059	.592
	Equal variances not assumed			1.718	79.195	.090	.266	.155	-.042	.574
Product innovation	Equal variances assumed	1.836	.179	1.963	81	.053	.316	.161	-.004	.636
	Equal variances not assumed			2.059	78.304	.043	.316	.153	.011	.621
Marketing techniques	Equal variances assumed	6.155	.015	2.323	81	.023	.528	.227	.076	.980
	Equal variances not assumed			2.445	78.743	.017	.528	.216	.098	.958
Customer requirements	Equal variances assumed	6.128	.015	2.228	81	.029	.416	.187	.045	.788
	Equal variances not assumed			2.392	80.671	.019	.416	.174	.070	.763

From table III, the Levene's test significance value is less than 0.05 level for three variables (Emphasis on producing error free product, Innovation in marketing techniques, emphasis on meeting unique customer requirement and tastes). Therefore, the significance value of equal variances not assumed is considered in the t-test for Equality of Means. For all other variables, Levene's test significance value is greater than 0.05 level. Therefore, the significance value of equal variances assumed is considered in the t-test for Equality of Means. It was found that out of the 18 criteria, in 11 criteria, the mean value of profitable startups was found to be significantly different from the non- profitable startups. The hypothesis developed is:

H0: The means of the two groups are not significantly different. H1: The means of the two groups are significantly different.

From Table III, it can be inferred that the profitable startup entrepreneurs have a better managerial capability than the other. In decision-making situations involving uncertainty, they typically adopt a bold, aggressive posture in order to maximize the probability. The problem-solving capability and employee retention capability of profitable entrepreneurs were one step ahead compared to the other group. Significant difference was also observed in the marketing capability of profitable ventures. They had an access to established distribution channel and were adaptable to market dynamics. They have given more importance for customer service and marketing techniques. On the other hand, there were no significant difference in the input sourcing capability and technical capability of the groups. Considering the competitive strategy adopted by the firms, the innovation strategy and customization strategy of the profitable firms are better than non-profitable firms. The profitable firms have given emphasis on reducing the cost in all facets of operation. Except that, there were no significant difference in the cost strategy and quality strategy adopted by the firms.

C. Multiple Regression

Multiple regression was done to analyze the significance of resource-based capability and competitive strategy adopted by the firm to explain the performance of the business. The results are shown in Table- IV. The criteria that can significantly explain the variation in performance variables are only shown in the table. As mentioned earlier, sales, profitability, financial position and growth potential are the performance variables considered in this study. The hypothesis developed were: H0: The performance of the venture is not predicted by Resource based capability and competitive strategy adopted by the firm.

H1: The performance of the venture is not predicted by Resource based capability and competitive strategy adopted by the firm. Out of the performance variables considered, the significant value of growth potential is not less than 0.05(null hypothesis is accepted) which means resource-based capability and competitive strategy adopted by the firm could not alone predict the growth potential of a firm. The significant value is less than 0.05(null hypothesis is rejected) for all other performance variables considered in this study.

As seen in Table- IV, the venture having significant growth in sales are those with high technical capability and marketing capability. The R^2 value says that 48 per cent change in sales can be predicted by the technical capability and marketing capability of the firm. The innovation in product and process to reduce cost has helped the firms in maintaining the financial position. It can predict 40 per cent change in the financial position of a firm. The R^2 value says that 50 per cent of the profitability of the firm is predicted by the marketing capability, technical capability, cost strategy and innovation strategy adopted by the firm.

Table- IV: Multiple Regression Model

Criteria with significant Beta	Performance Variables			
	Sales	Financial Position	Profitability	Growth Potential
Problem Solving				
Decision Making	.03			
Employee Retention		.03		
Technology	.05			
Technological Development	.000		.007	
Customer Service	.005	.01	.007	
Market Dynamics				
Marketing Expertise			.05	
Logistics	.002		.04	
Low Cost Capital				
Raw materials				
Skilled labor				
Cost reduction			.05	
Process Innovation		.03		
Error free product				
Product innovation		.01	.001	
Marketing Techniques				
Customer Requirements				
R^2	.48	.40	.50	.29
F	3.346	2.377	3.620	1.477
Sig.	.000	.006	.000	.129

V. CONCLUSION

This paper shows the resource-based capability and competitive strategy adopted by the high-tech startup firms in Kerala. The findings are similar to that reported by previous researchers. The independent sample t-test, cluster analysis and regression model show that resource-based capability and competitive strategy adopted by a firm can predict the performance of the firm. The significant difference in the mean value shows that the entrepreneurs of profitable ventures possess better managerial capability and marketing capability than the entrepreneurs of non-profit making ventures. It can be inferred from this study, the profitable ventures are customer centric. The real Return on Investment of a firm are influenced by their customer centric approach. A customer centric firm may not focus on increasing sales, but the strategy adopted brings them more sales. Although the results are significant, future research with a bigger sample must be done to reach at a better conclusion. The present study only considered resource- based capability and competitive strategy to determine the performance of the high- tech firms in Kerala. There are no much literatures based on the high- tech ventures in Kerala as the ecosystem is now on its nascent stage. Therefore, the scope of the research about the high- tech startups are high. Variables measuring personality traits of the entrepreneur can be considered for future studies.

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