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MULTI-CRITERIA STATISTICAL-BASED ANALYSIS ON THE EFFECT OF ENTREPRENEURSHIP AND APPROACHES OF KNOWLEDGE MANAGEMENT ON OBTAINING COMPETITIVE ADVANTAGES: CASE STUDY OF SIMARAN ELECTRONIC INDUSTRIES

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ABSTRACT

This study investigates the effects of entrepreneurship and approaches of knowledge management on obtaining competitive advantage, case study of Simaran Electronic Industries in Tehran on 2018. This study in terms of method is descriptive study. The statistical population consists of 500 staff of Simaran electronic industries. For this reason, 217 people were selected as statistical population and simple randomly method of questionnaires was selected and collected. The instruments for collecting data is questionnaire. In order to estimate reliability for final questionnaire, it was distributed among 15 people and confirmed by factorial analysis. Also, in order to analyze data, structural modeling equations was being used. The results showed that organizational entrepreneurship and innovation and pioneer have positive effect in competitive advantage but risk-taking, self-renewal and aggressiveness competition have not positive effect on it. In this research, knowledge management and saving knowledge have positive effect on competitive advantage but knowledge creation, knowledge sharing and knowledge in competitive advantage have not effect.

1. INTRODUCTION

Because of complicated nature and dynamics of current environment which is due to speed in change of technology and speed of change in market, it is so difficult to find industry which was not entered into entrepreneurship because entrepreneurship is vital mechanism which results to competitive strength for companies and industries (Tamayo et al., 2010). As with, the researchers

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believed that without strategy for entrepreneurship, aims of entrepreneurship are not realized, because strategy of personal thinking, processes determines products and systems which are being taken to confront with distrust. Knowledge management is regarded as one of the interesting and challenging subjects in new millennium (Pawaskar et al., 2017). Domain and application of it is regarded in management texts. Knowledge management is not new concept, maybe, many of us manage it, but having plan and program for its performance is new subject which was considered late 20 centuries. Knowledge management is regarded as new strategy in commercial modes and organizations are willing to assemble to use its potential advantages (Dehghani and Ameri, 2015). In this research, we try to discuss effect of personal capabilities of leaders in innovation of staff by mediatory role of staff learning in Simaran electronic industries.

2. RESEARCH PROBLEM

In new global economic space, obtaining sustainable competitive advantage and organizational ability and accurate use of resources is based on knowledge. As for incredible growth of global markets to services, organizations are necessary to discuss threats and opportunities by emphasize upon knowledge management. Thus, it is necessary to perform vast researches. Results of current studies in the field of entrepreneurship show that not having strategic insight on entrepreneurship activity damage capital especially new entrepreneurship domains (Khazaee Poul, Zaree, Dehghan and Karimi, 2012). Today, organizational knowledge management and its process are regarded as necessary, future strategy to obtain competitive advantage and maintain its survival and restore personal performance and convert into learner organization in changeable environments and organizations try to obtain it to encounter with challenges. The aim of present article is to discuss necessity and importance of knowledge management in organizations and its role in competitive advantage. In order to obtain above aim, firstly, after offering knowledge, importance of knowledge and competitive advantage is presented (Haraj Hassanabadi, 2017). As for increasing growth of competition in electronic industries especially CCV and iPhone, home appliances and computer equipment, it is evident that in order to aware staff, necessary educations are offered (Lin et al., 2016). Simaran Company holds educational period for technical and sales team. It is apparent that vast section of its capital devoted to education and knowledge management not to defer competition in market. Simaran company knows that if leadership and staff have better comprehension on technology, engineering instruments, and techniques, they have better abilities to respond customer' needs and apply new knowledge in relation to solve engineering problems (Saidi et al., 2016). In Simaran company, supply first materials, and attract customer and obtain competitive advantage is difficult, because, as for increment of prices and imbalance market and more efforts to save, adjust extra forces and reduce educational costs to prevent from problems, defects of resources are so permanent, today, organization produce with saves materials and this is due to inability to prepare product and negative effect in it as if Simaran brand is not favorite for customers and replace it. A reason is custom tariff; thus present research discusses it. Therefore, this study was done to investigate the effect of entrepreneurship and approaches of knowledge management on obtaining competitive advantage- case study: Simaran Electronic Industries in Tehran.

3. RESEARCH HYPOTHESES

Main Hypothesis

There is significant effect between entrepreneurship and knowledge management on sustainable competitive advantage in Simaran electronic industries.

Research Minor Hypotheses

1) There is significant effect between entrepreneurship and knowledge management on sustainable competitive advantage in Simaran electronic industries.
2) There is significant effect between Innovation in products, services, and process on sustainable competitive advantage in Simaran electronic industries
3) There is significant effect between pioneer on sustainable competitive advantage in Simaran electronic industries
4) There is significant effect between risk-taking on sustainable competitive advantage in Simaran electronic industries
5) There is significant effect between self-renewal on sustainable competitive advantage in Simaran electronic industries
6) There is significant effect between aggressiveness competitions on sustainable competitive advantage in Simaran electronic industries
7) There is significant effect between knowledge creations on sustainable competitive advantage in Simaran electronic industries
8) There is significant effect between knowledge sharing on sustainable competitive advantage in Simaran electronic industries
9) There is significant effect between knowledge applications on sustainable competitive advantage in Simaran electronic industries
10) There is significant effect between knowledge saving on sustainable competitive advantage in Simaran electronic industries

4. RESEARCH CONCEPTUAL MODEL

Research model applied the work of Guimaraes et al. (2018), where factors of entrepreneurship and knowledge management strategy are cooperated into the sustainable competitive advantage, Figure 1.

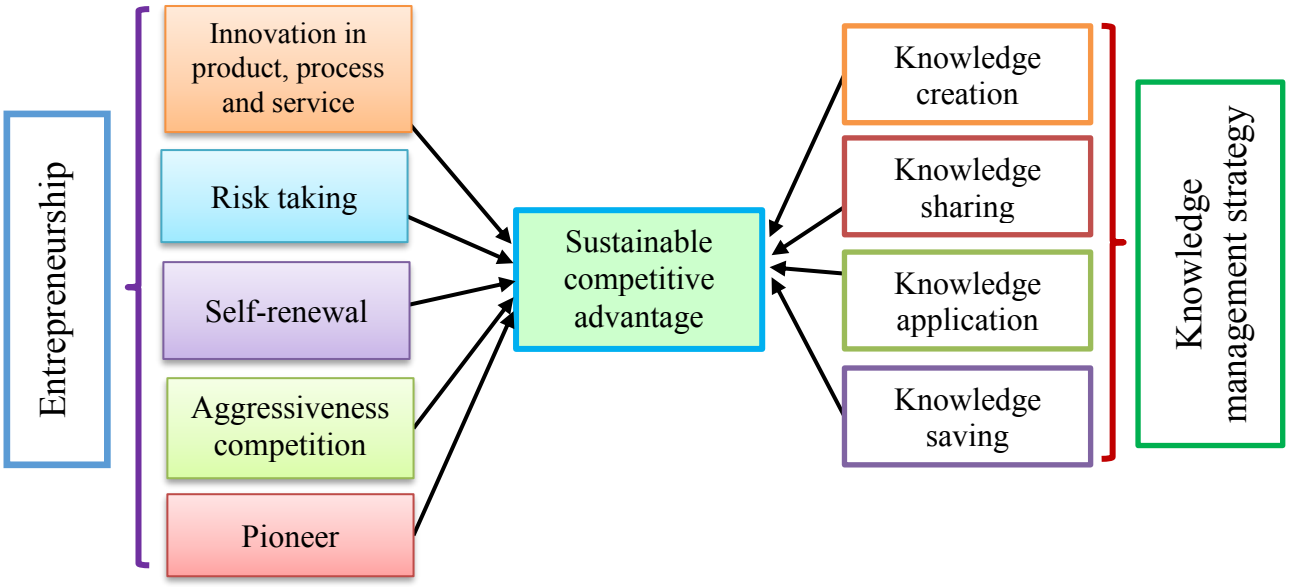

Figure 1: Research Conceptual model (after Guimaraes et al. (2018)).

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5. DATA ANALYSIS METHOD

In this research, the statistical analysis software, SPSS® and SMART PLS® have been used.

6. RESEARCH FINDINGS

The Kolmogorov-Smirnov (K-S) non-parametric test applies the empirical distribution function (ECDF). Since p-value in Table 1 less than 0.05, it indicates that all variables do not follow a normal distribution in our population, and thus PLS software has been used.

Table 1: Kolmogorov-Smirnov test (KS)

Variables	n	Mean	SD	Kolmogorov- Smirnov	p-value
Organization entrepreneurship	217	3.112	0.451	7.504	<0.001
Innovation in product, process and service	217	3.874	0.512	7.584	<0.001
Pioneer	217	3.904	0.398	8.262	<0.001
Risk taking	217	3.797	0.397	7.920	<0.001
Self-renewal	217	3.818	0.409	7.891	<0.001
Invasion competition	217	3.877	0.516	8.044	<0.001
Knowledge management strategy	217	3.802	0.451	7.783	<0.001
Knowledge creation	217	3.871	0.395	8.044	<0.001
Knowledge sharing	217	3.928	0.451	8.327	<0.001
Knowledge application	217	3.914	0.419	7.997	<0.001
Knowledge saving	217	3.920	0.456	8.359	<0.001
Sustainable competitive advantage	217	3.923	0.458	8.399	<0.001

7. TEST OF RESEARCH HYPOTHESES

In this section, we test the variables.

As we recognized that Figure 2 shows model in the coefficient path model and the effect of each variables is shown. But Figure 3 shows model in positive extended model which relationship among each variables is estimated, that have organizational entrepreneurship and knowledge management strategy relationship with advantage or not. In order to determine relation between variables, fixed value is 1.96, that means t-value is 1.96. Therefore, if fixed value is written on arrow between variables and it is higher than 1.96 (for example, 7.119 in relationship between organizational entrepreneurship and competitive advantage) and t-value is 126.711 shows relation between two variables.

Figure 4 pertains to sub-hypothesis. Main variables for organizational entrepreneurship and knowledge management strategy are deleted and 5 indicators for organizational entrepreneurship including (innovation in product, Service, and process) leadership, risk-taking, self-renewal, aggressive competition and 4 indicators for knowledge management strategy including knowledge creation, knowledge sharing, application knowledge, and knowledge saving are cited in research separately and their effect on substantial competitive advantage is shown directly. Figure 4 shows effectiveness of independent variable on dependent ones. The values higher than 1.96 proved effectiveness of variables and relationship between dependent variables is the value is lower than it, the relation is rejected and the variables are not permitted and is their positive coefficients are not included, they are deleted.

Composite reliability and Cronbach alpha show value higher than 0.7 and all values are suitable

mode from estimation model.

Composite reliability shows substantial Cronbach alpha if this value is higher than 0.7 for hidden variables, one can enter all indicators with equal importance in Cronbach alpha but in second index with more factorial load, it is so important. Therefore, this index is regarded stronger and logical than Cronbach alpha.

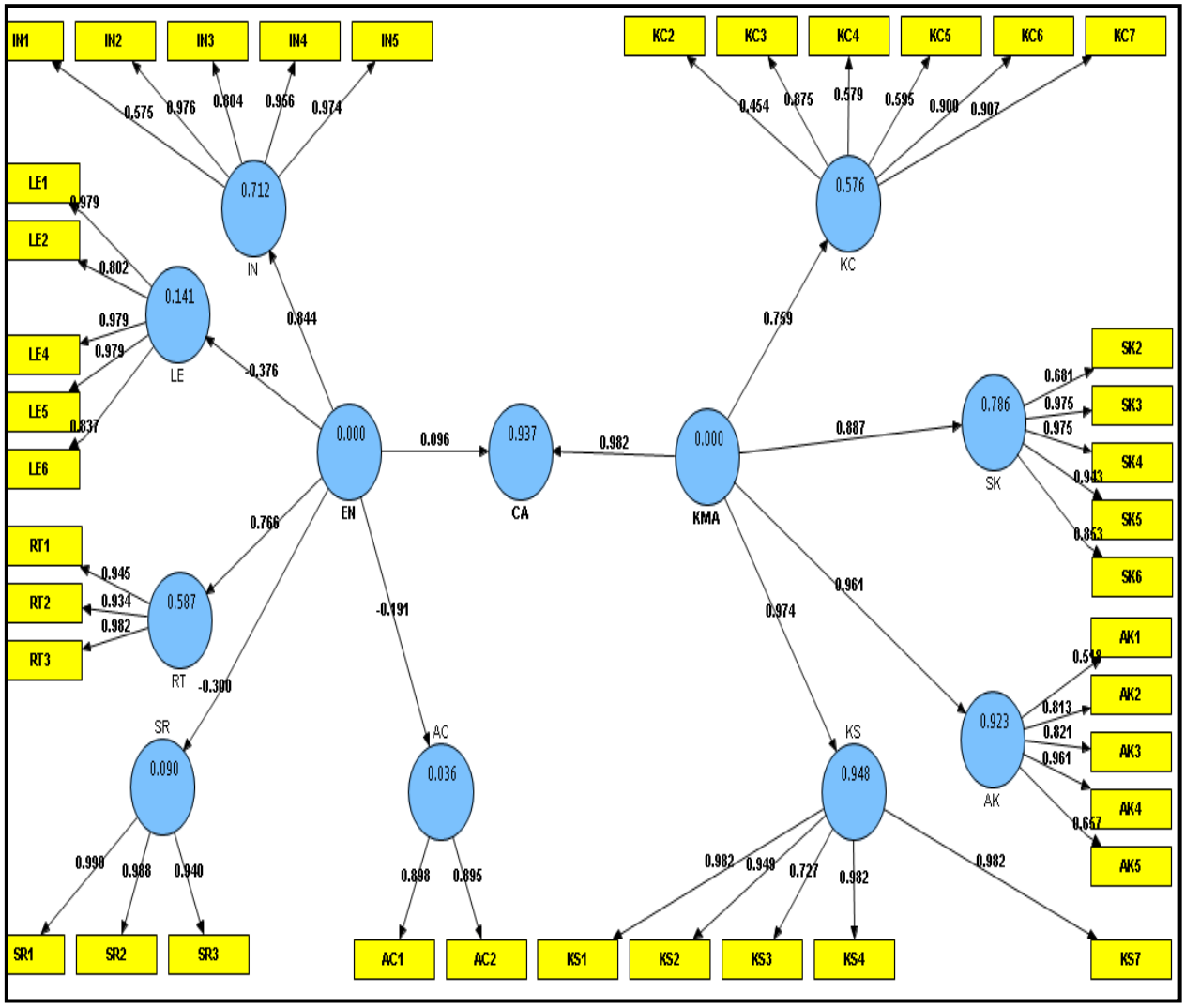

Figure 2: Structural model as with factorial loadings (discuss main hypothesis).
AC: Aggressive Competition, AK: Application knowledge, CA: Competitive Advantage, IN: Innovation, KC: Knowledge Creation, KS: Knowledge Storage, L: Leadership, RT: Risk Taking, SK: Sharing knowledge, EN: Entrepreneurship, KMA: Knowledge Management Approaches, SR: Self-Renewal

If one of some specifications are estimated, correlation is provided between estimations. If correlation between factorial loads is high, the questionnaire has synchronic reliability. This correlation shall be estimated to ensure that AVE is necessary. For synchronic reliability, AVE or average variance extracted shall be calculated and synchronic reliability is when

1) Significant level or T statistics
2) Path coefficient (factorial load)
    a. If factorial load is more than 0.4 between questions and variables, one concludes that the question is estimated our variable well.
    b. T statistics value is criteria for confirmation or rejection of hypothesis and if its value is more than 1.64, 1.96, 2.58, one concludes that that hypothesis is confirmed between 90, 95 and 99%.

c. Also, it shall be said that if value of path coefficient is positive between hidden variable and dependent variable, it concludes that by increase independent variable, it increases dependent variable and if path coefficient value is negative between independent and hidden variable, it concludes that by increase intendant variable, reduce dependent variable and AVE is higher than 0.5.

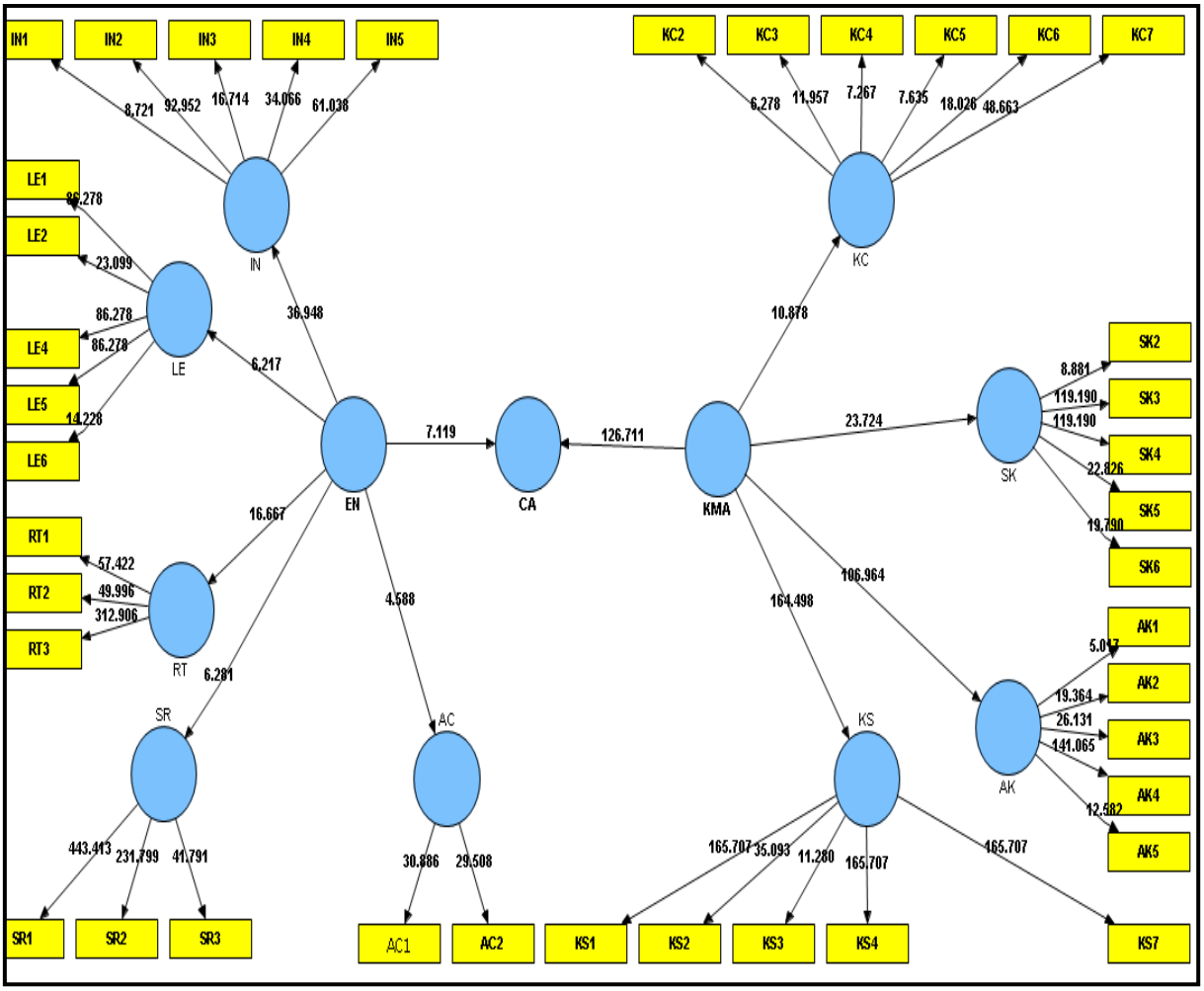

Figure 3: Structural model as with significant loadings Z (main hypothesis)

As we know, Figure 2 shows model in lane coefficient and effect of each of variables have been seen, but Figure 3 is extended in positive manner which estimates relation between variables that is we want to discuss do organizational entrepreneurship variable and knowledge management relation with competitive advantage or not? In order to make relation between variables, fixed value shall be 1.96 that is out t value is 1.96 in all researches. Thus, if fixed value is high 1.96, this shows relation between two variables.

8. RELIABILITY

In order to discuss reliability of model, we discuss factorial loadings coefficients, Cronbach alpha, and composite reliability. Composite reliability and Cronbach alpha show value higher than 0.7 (Table 2), which confirm model is suitable from estimation mode.

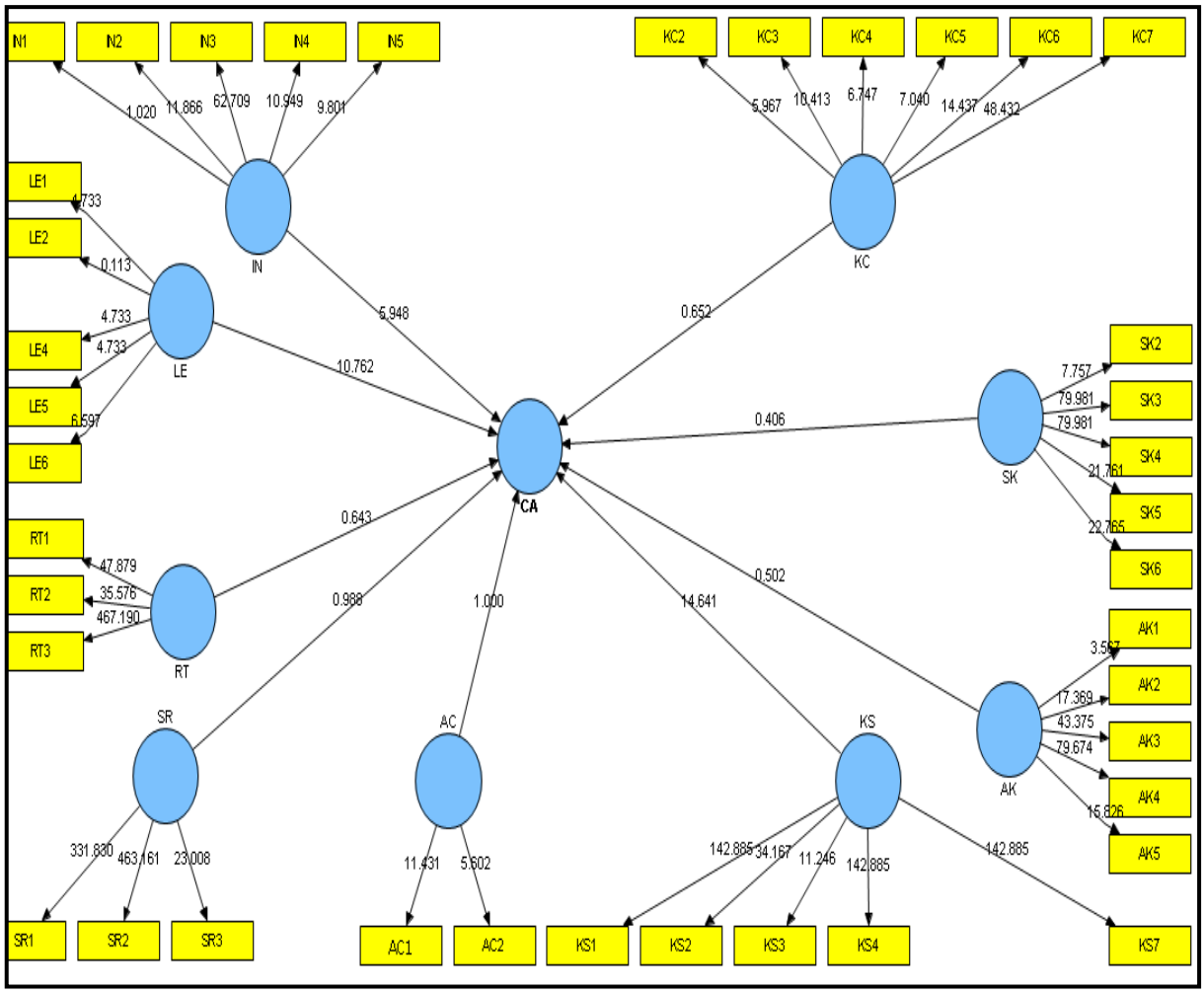

Figure 4: Structural model as with factorial loadings (discuss minor hypotheses)

Table 2: Results of Cronbach alpha and composite reliability for variables

Variables	Composite reliability(CR>0.7)	Cronbach alpha (Alpha>0.7)
Aggressive variable (AC)	0.883	0.756
Knowledge application (AK)	0.875	0.811
Competitive advantage (CA)	0.970	0.964
Innovation (IN)	0.909	0.910
Knowledge creation (KC)	0.871	0.824
Knowledge saving (KS)	0.969	0.957
Leadership (LE)	0.727	0.952
Risk-taking (RT)	0.883	0.756
Sharing Knowledge (SK)	0.875	0.811
Self-renewal (SR)	0.970	0.964

Since suitable value is 0.7 for Cronbach alpha and composite reliability, and according to findings Table 2, variables are suitable.

Synchronic reliability considers correlation for each item. Values higher than 0.5 are acceptable. So that each of questions pertain to variable have high correlation (Table 3) and shows results of synchronic reliability. Since suitable value is 0.5 for AVE and conforms to findings the Table 3, this scale takes suitable mode and confirms synchronic reliability.

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Table 3: Results of synchronic reliability for variables

Variables	Avg. Variance (AVE>0.5)
Aggressive variable (AC)	0.791
Knowledge application (AK)	0.595
Competitive advantage (CA)	0.784
Innovation (IN)	0.704
Knowledge creation (KC)	0.547
Knowledge saving (KS)	0.863
Leadership (LE)	0.503
Risk-taking (RT)	0.909
Knowledge Sharing (SK)	0.794
Self-renewal (SR)	0.908

In structural equations, there is significant relationship among factors and correlation and significant coefficient are on Table 4.

If there is mediator variable among variables, if one of the lanes are higher than 1.96 and another is low, it is confirmed. That is, relation is higher than 1.96 and in our research, two variables are discussed and the results are higher than 1.96 and lower than 1.96 and acceptance and rejection of hypothesis confirmed. According Table 4, relations among all main variables (independent) with dependent variables was discussed and the results are analyzed.

Table 4: Results of direct coefficient and significant coefficient

Path	Path coefficient	Sig.	Result
Innovation-competitive advantage (IN-CA)	5.948	0.072	Confirmation
Pioneer-competitive advantage (LE-CA)	10.762	0.158	Confirmation
Risk taking-competitive advantage (RT-CA)	0.643	0.005	Rejection
Self-renewal-competitive advantage (SR-CA)	0.988	0.001	Rejection
Aggressive competition-competitive advantage (AC-CA)	1	0.001	Rejection
Knowledge creation-competitive advantage (KC-CA)	0.652	0.004	Rejection
Knowledge sharing-competitive advantage (SK-CA)	0.406	0.004	Rejection
Knowledge application-competitive advantage (AK-CA)	0.502	0.018	Rejection
Knowledge saving-competitive advantage (KS-CA)	14.641	0.858	Confirmation
Entrepreneurship-competitive advantage (EN-CA))	70.119	0.096	Confirmation
Knowledge management approaches-competitive advantage (KMA-CA)	126.711	0.982	Confirmation

9. CONCLUSION

Entrepreneurship has significant effect on sustainable competitive advantage of Simaran electronic industries. Because path coefficient is as 0.096 on sustainable competitive advantage. T value is 7.119 and its value is obtained as 1.96. Thus, main hypothesis is confirmed by 95% confident interval and high t value. Then, we conclude that entrepreneurship has significant effect on competitive advantage of Simaran electronic industries. According to the obtained results, we consider that risk-taking has no significant effect on competitive advantage of Simaran electronic industries because path coefficient is as 0.005 on path coefficient. The t-value is 0.643 and its value is lower than 1.96. Thus sub-third hypothesis is rejected by 95% confident interval that is risk-taking is not effect on competitive advantage of Simaran electronic industries. Also, self-renewal has no significant effect on competitive advantage of Simaran electronic industries. Because path coefficient of Self-Renewal on sustainable competitive advantage is 0.001. The t-value is 0.988 and its value is lower than 1.96. Thus, minor fourth hypothesis is rejected by 95% confident interval that Self-Renewal has no effect on competitive advantage in Simaran electronic industries. From results

obtained of this study, we consider that Aggressive competition has no significant effect on competitive advantage of Simaran electronic industries. knowledge creation has no significant effect on competitive advantage of Simaran electronic industries. Because path coefficient of knowledge creation on sustainable competitive advantage is 0.004. The t-value is 0.652 and its value is lower than 1.96. Thus, sixth minor hypothesis is rejected by 95% confident interval. Other results obtained of this study show that knowledge sharing has no significant effect on competitive advantage of Simaran electronic industries. And path coefficient of knowledge sharing on sustainable competitive advantage is 0.004. T value is 0.406 and its value is lower than 1.96. Thus, seventh minor hypothesis is rejected by interval 95%. Meanwhile, knowledge application has no significant effect on competitive advantage of Simaran electronic industries. And path coefficient of knowledge application on sustainable competitive advantage is 0.018. The t-value is 0.502, lower than 1.96, thus eighth minor hypothesis is rejected by 95% confident interval. Meanwhile, knowledge saving has significant effect on competitive advantage of Simaran electronic industries and thus knowledge saving is significant on sustainable competitive advantage as 0.858. The t-value is 14.641and its value is higher than 1.96. Thus, ninth hypothesis is confirmed by 95% confident interval.

10. RESEARCH SUGGESTION

It is advised that managers offer new services compared with other companies in industry, establish more working fields, apply ideas of staffs concerning developments, and try to maintain and enhance innovation with competitive advantage.

It is advised that Simaran managers establish knowledge forum in order to increase innovation in competitive advantage and offer creative strategies and national protection in framework of team activities and develop innovation, meanwhile, acceptance of creative suggestions and patients against their faults and use of its advantage are emblems of competitive advantage.

11. DATA AVAILABILITY STATEMENT

The used or generated data and the result of this study are available upon request to the corresponding author.

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