

Research on the Conceptual Dimension of Entrepreneurship Ability in Emerging Technology Enterprises

Dayong Xu*

Department of Business Administration, University of Science and Technology Liaoning, Anshan, Liaoning, 114051, China

Abstract: Emerging technology enterprises entrepreneurial ability is a very complex, multidimensional fuzzy concepts, in this paper, definition of entrepreneurship is to point to the self-efficacy which makes successful completion of various tasks and undertakes a variety of roles in the process of entrepreneurship. Existing research only focus on a particular aspect of entrepreneurship, look from the entrepreneurial process, it's not conducive to guide entrepreneurial practice. Because the implementation success requires the ability to perform a variety of entrepreneurship, this paper is written in a more integrated view of rebuilding the dimension of concept of entrepreneurship, points out that entrepreneurship should contain two order 11 dimensions, the relevant opportunities and related management ability two first-order dimension and the relationship between the first-order dimension under the opportunity, learning, knowledge sharing, innovation, opportunity recognition and development, and management of organization, coordination, risk management, strategic, concepts, ability, etc. 11 second-order dimension. Through the questionnaire design, distributed to actual emerging technology enterprises, to collect first-hand data, by means of structural equation to test its reliability, validity and fitting. From the calculation results show, conceptual model fitting precision and prediction model is true and reliable, which can provide reference for the emerging technology enterprises in terms of building its entrepreneurial capacity.

Keywords: Conceptual dimension, emerging technology enterprises, entrepreneurship ability, SQM.

1. INTRODUCTION

Emerging technology research of corporate entrepreneurship has been the academic and corporate attention, but early scholars only focused on exploring entrepreneurship concept connotation and the importance of entrepreneurship to method is through the theory of qualitative research. With the rapid social development and the complexity of environmental change, the emerging technology enterprises in the entrepreneurial process, often encounter many problems. To reduce the risk and loss during the process of entrepreneurship, we must dig deep in the emerging technology enterprises entrepreneurship research, and the foundation also the most important is to build the model for its dimensions in order to get a operational framework which can guide enterprise in the entrepreneurial process.

2. THE PRESENT SITUATION OF THE RESEARCH REVIEW

Emerging industry is based on major technical breakthroughs and development needs of knowledge technology intensive, less material resources consumption, growth potential, good comprehensive benefit of industry, for social and economic development plays an important leading role. No emerging technology, no new industries, No innovation in the emerging technology enterprises entrepreneurship,

naturally there would be no new technology to the transformation of the emerging industries. Clearly, improving ability of emerging technology enterprises is an important way to accelerate emerging technologies to emerging industry evolution, promote the development of new technology industries [1]. Existing literature on entrepreneurship research mainly focus on the dimension (Winter; Man, 2002; yu-li zhang and xiao-wen wang, 2011, *et al.*); Based on the opportunity to view (Shane & Venkataraman, 2000; Nicolaou, 2008; MeiDeJiang and Long Yong, 2012; Zahra's, 2011, *et al.*). Dynamic capability (Wang & Ahmed, 2007; Teece, 2007, *et al.*). Efficiency framework (Wood & Bandura, 1989; Chen, Greene & Crick, 1998, *et al.*). Entrepreneurs need skills on the frame (DeNoble Jung & Ehrlich, 1999, *et al.*), and based on the research of relationship between Angle of view (Rasmussen & Nielsen, 2004, Tang Jing and Jiang Yanfu, 2004, *et al.*). In conclusion, the existing literature on how to improve enterprise business ability are discussed in this paper, laid the foundation for this study [2-8].

There were few literature study, however, that entrepreneurship in emerging technology companies. In fact, the emerging technology enterprises as a special kind of enterprise, its business ability in overall accords with the general law of corporate entrepreneurship. However, due to the core of the emerging technology enterprises is emerging technology innovation, the nature of the emerging technology cause the particularity in merging technology enterprises entrepreneurship [9-11]. Emerging technology is based on science, may be the creation of a new industry or modification of an existing industry innovation, it has a high degree of uncer-

tainty and complexity, has strong era, commercialization and the characteristics of the creative reshaping of traditional industry [12]. Emerging technologies are those that appear recently or are developing, can have a significant impact on economic structure and industry development of high technology (silver road, etc., 2005), it has three elements: 1) The technology is in formation or development; 2) Is rather than high technology; 3) Can have a important impact on economic structure or industry development (Zhao Zhen yuanhe silver road, 2004). Emerging technology for the development of enterprises need to continue to develop new capability (silver road and min wang, 2010) [13-16], it will cause the dynamic evolution of corporate entrepreneurship.

In conclusion, the emerging technology is more and more brought to the attention of the business community and academia, and the emerging technology enterprises entrepreneurship research is not enough, just focus on a particular aspect of entrepreneurship, Look from the entrepreneurial process, is not conducive to guide business practice [17-20]. Because the realization of entrepreneurial success need to have a variety of capacity at the same time, so this article will be more integrated view of rebuilding the dimension of concept of entrepreneurship, points out that entrepreneurship should contain two order 11 dimensions, Namely relevant opportunities and related management ability two first-order dimension, and the relationship between the first-order dimension under the opportunity [21-25], learning, knowledge sharing, innovation and opportunity recognition and development of organization, coordination and management, risk management, strategic, concepts, ability, etc. 11 second-order dimension.

Based on the discussion above, we put forward the following hypothesis:

H1: Relevant opportunities has a positive impact on the emerging technology enterprises entrepreneurship

H2: Related management skills have a positive impact on emerging technology entrepreneurship

In this paper, on the basis of existing research literature, in combination with the practical situation of the emerging technology enterprises, build entrepreneurship conceptual model as follows:

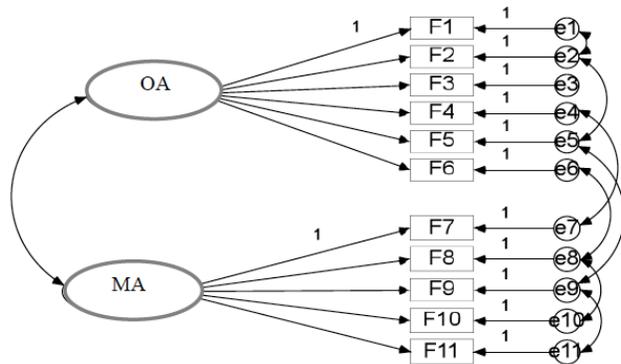


Fig. (1). Entrepreneurship conceptual model.

Note: OA: opportunity ability; MA: Management ability; F1: On behalf of the relationship between ability; F2: The ability to learn; F3: The knowledge sharing ability; F4: The

innovation ability; F5: Opportunity recognition ability; F6: The opportunity to develop ability; F7: Ability of organization; F8: cooperation ability; F9: risk management ability; F10: strategic capabilities; F11 concept ability

3. STUDY DESIGN

In order to verify the above theory hypothesis, this paper uses the structural equation model for data analysis, the analysis process is roughly in the following three steps: First of all, the paper describes the basic characteristics of each variable, and confirmatory factor analysis, to verify that the data support of each variable dimension structure; Second, for each measurement test reliability and validity of the project, to assess the quality of the data; Degree of fitting and finally through a structure model test and path coefficient of significance to verify the theoretical assumptions.

3.1. The Data Source

As the potential variables in the model data cannot be obtained by direct measurement, therefore in the process of selecting data, mainly using the index of each variable dimension design and according to the survey questionnaire survey questionnaire to collect data, The study lasted more than four months, from March 2014 to 2014 in mid-july, the middle of selected for overall investigated 260 emerging technology enterprises in our country, to meet the requirements of the method of SEM samples. Questionnaire mainly from relevant opportunities and related management ability two aspects to reflect the emerging technology enterprises entrepreneurship. Questionnaire using rating system, entrust the relevant units, a questionnaire within nationwide emerging technology enterprises, has recycled 226 questionnaires, the recovery was 86.92%. Among them, there are a total of eight questionnaires which have the missing data of 15% and above. After rejecting invalid questionnaire, this research received 218 valid questionnaires, the effective rate was 83.85%. Through questionnaire analysis found that, there is no obvious aggregation phenomenon, the survey effectively.

3.2. Missing Data Processing

For missing data, adopt the method of mean value interpolation processing, the item of the sample mean as an understudy to the item missing data values. Although the average interpolation method significantly improves the estimation accuracy, but there are certain limitations. Interpolation result will lead to variance in the estimated total mean and undervalued, and may cause the distortion of the sample distribution. But as a result of the questionnaire, the lack of overall data rate is very low, less than 3%, and the effect of the interpolation method of statistical analysis can be neglected.

3.3. The Emerging Technology Enterprises Entrepreneurship the Conceptual Model Empirically

3.3.1. The Reliability Test

The reliability is mainly refers to whether the questionnaire is accurate. Reliability analysis involves the consistency and stability of the test results, the purpose is how to control and reduce the random error. Said if use questionnaire test theory of reliability, the following formula can be used:

$$r_{XX} = 1 - \frac{S_T^2}{S_X^2} \text{ or } r_{XX} = \frac{S_T^2}{S_X^2}$$

Type in the S_T^2 Said true score variance; S_X^2 Said take-home scores of variance; S_E^2 Error variance.

Reliability coefficient commonly used are as follows

(1) Retest reliability: mainly using Pearson product moment correlation coefficient r of the formula to calculate.

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{\sqrt{(\sum X^2 - \frac{(\sum X)^2}{n})(\sum Y^2 - \frac{(\sum Y)^2}{n})}}$$

Parallel-forms reliability: According to the same design shows independently compiled by two parallel questionnaire, namely different titles but the content the same two questionnaires. Parallel-forms reliability is also called the equivalence coefficient. Two copies a certain time or at the same time to the same respondents between the scores of the correlation coefficient is available.

(3) 1/2 reliability: Use this letter, need to be corrected, the correction formula is szpilman - Brown (Spearman - Brown) formula:

$$r_{XX} = \frac{n \cdot r_{x_1x_2}}{1 + (n - 1)r_{x_1x_2}}$$

r_{XX} for 1/2 the reliability; $r_{x_1x_2}$ Said their score and the correlation coefficient of two subject, n questionnaire after relative to the change to the original length of multiples, calculate the reliability when $n = 2$ and a half.

(4) Libraries have to-Richardson: Library is the most representative formula DE Richardson formula:

$$r_{KR_{20}} = \frac{n}{n - 1} \left(1 - \frac{\sum_{i=1}^n p_i q_i}{S_X^2} \right)$$

S_X^2 : the variances of the total score for the questionnaire test, p_i said the number of people in the right proportion of total number of answers, p_i can be seen as the difficulty of the problem, $q_i = 1 - p_i$. Type of n for questionnaire contains the number of subjects.

(5) Cloning Bach reliability coefficient: Its computation formula for:

$$\alpha = \frac{n}{n - 1} \left(1 - \frac{\sum_{i=1}^n S_i^2}{S_X^2} \right)$$

Type of n for questionnaire contains the number of subjects, as the respondents in the first question i score variance, S_i^2 : the total score of variance for respondents questionnaire test.

Raters reliability: This method is primarily random quite a number of questionnaires, by two raters to separately according to the scoring system; And then according to every questionnaire scores calculated correlation coefficient, get the grader.

In this paper, reliability mainly adopts general inspection is Cronbach's consistency coefficient, DeVellis believes that its value within 0.65 0.70 for the minimum acceptable values; If value within 0.70 0.80, that the reliability of the questionnaire is good; If value within 0.80 0.90, that the reliability of the questionnaire is very good. Therefore, a questionnaire with good reliability coefficient in 0.80 above, using the SPSS17.0 to recycling effective questionnaire test, from the variable Cronbach 'a term of the reliability of measurement model, opportunity ability of six indexes of Cronbach's value of 0.811, operation management ability of five indexes are in value of 0.836, Cronbach's questionnaire overall Cronbach's value reached 0.876, indicates that the emerging technology enterprises entrepreneurship concept dimension has the very good reliability.

3.3.2. Validity of the Test

In measurement theory, the validity is defined as in a series of measurement, related to the purpose of measuring the true variance (that is, the effective variable) and the ratio of the total variance:

$$r_{xy}^2 = \frac{S_v^2}{S_x^2}$$

Said measurement validity coefficient S_v^2 , On behalf of the effective variables r_{xy}^2 , On behalf of the total variance.

Generally there are three kinds of commonly used validity index:

(1) Content validity, point representing test will measure the degree of the content and the expected response is induced, is a quite complicated problem. There are two kinds of estimate content validity of the method; \ominus By experts and logical analysis \ominus Statistical analysis. Because the content validity of subjective make its cannot be separately used to measure the validity of the table, but can be used to make general comments on the observations.

(2) Criterion validity. Refers to the results of the measurement and test will measure the external effect targets the relevance of the concept. Close degree is higher, said the test criterion validity is higher, according to the use of the length of the interval and can be divided into concurrent validity and predictive validity.

(3) Construct validity. Refers to the test to measure the theory of the concept of quality or degree. It involves a theory of concept or other variables in the relationship between the structure measurement, only in the theoretical framework of the whole measurement results are reasonable, good, to think that the measure to achieve a good construct validity. It is divided into convergent validity and differentiate validity. Convergent validity refers to the concept of project, in the same high correlation between each other. Differentiate validity refers to the concept of project, the low correlation

Table 1. Scale reliability test.

	Cronbach's Alpha		Item
Opportunity ability of reliability statistics	.811		6
The reliability of the operation management ability statistics	.822		5
The questionnaire reliability statistics as a whole	.876(UTE)(Non-standard items a)	.878(TE-The standardized item a)	11

Table 2. Correlation matrix of each item.

The Title	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
F1	1.000	.770	.492	.706	.351	.447	.333	.230	.464	.620	.498
F2	.770	1.000	.364	.527	.133	.367	.194	.147	.359	.403	.368
F3	.492	.364	1.000	.488	.306	.199	.227	.263	.318	.389	.366
F4	.706	.527	.488	1.000	.496	.327	.529	.496	.592	.741	.608
F5	.351	.133	.306	.496	1.000	.303	.217	.276	.522	.549	.407
F6	.447	.367	.199	.327	.303	1.000	.002	-.196	.099	.286	.161
F7	.333	.194	.227	.529	.217	.002	1.000	.345	.470	.498	.377
F8	.230	.147	.263	.496	.276	-.196	.345	1.000	.448	.300	.488
F9	.464	.359	.318	.592	.522	.099	.470	.448	1.000	.738	.699
F10	.620	.403	.389	.741	.549	.286	.498	.300	.738	1.000	.687
F11	.498	.368	.366	.608	.407	.161	.377	.488	.699	.687	1.000

with each other. By confirmatory factor analysis method to test respectively opportunity ability and management ability to construct validity.

As shown in Table 3, and judging from KMO and Bartlett ball inspection of factor analysis, Chi-square value of 1370.512 (df = 55) observations and expectations, there was no significant difference. KMO statistics (0.830) also shows that the sample is very suitable for factor analysis. So the sample can better support scale, namely good validity.

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4. MODEL TEST

The fit of the structural equation model of inspection, test whether hypothesis model and real data sample is consistency. About the overall fit of the model of measurement, there are many of goodness of fit is the most commonly used fitting index card square test (a goodness - of - fit test). Here is a matter of fact, chi-square fitting substandard degree 0 measurement, that is to say, a small card square value shows that the fitting is good, but the chi-square values associated with a sample size, making it not well for determining model fitting, in order to reduce the influence of sample size for fitting test, there is a direct associated with chi-square roughly normal, both chi-square value and the ratio of the degrees of freedom is less than 3, the model has good fitting. Besides, there are a lot of model fitting test indicators. But different indicators under different sample size, model complexity have different performance characteristics, we must according to the specific circumstances to consider. In this paper, maximum likelihood method is used to estimate the model using AMOS17.0, preliminary results are shown in Fig. (2).

Table 3. KMO and Bartlett 's test.

Sampling enough degrees of Kaiser - Meyer - Olkin measurements.		.830
Bartlett sphericity	Test The approximate chi-square	1370.512
	df	55
	Sig.	.000

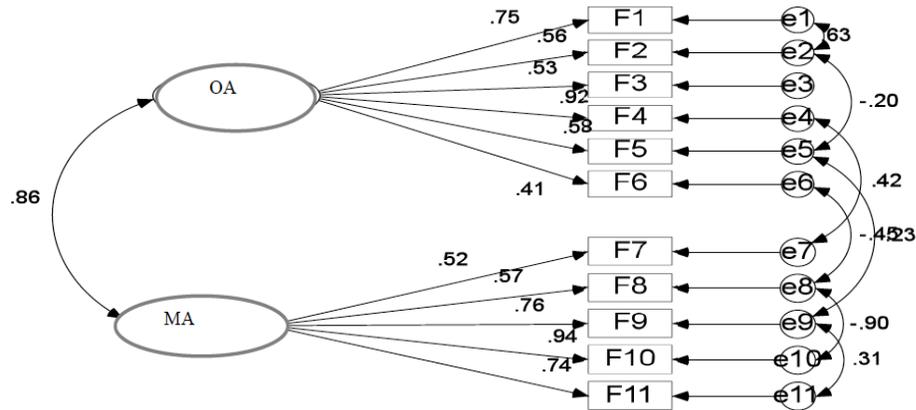


Fig. (2). The emerging technology enterprises entrepreneurship concept model test.

Table 4. Emerging technology enterprises entrepreneurship concept model fitting index.

Macro		Default Model	Saturated Model	Independence Model	Evaluation Standard
CMIN	NPAR	30	66	11	
	CMIN	99.918	.000	1399.534	
	DF	36	0	55	
	P	.000		.000	>0.05
	CMIN/DF	2.775		25.446	<3
RMR, GFI	RMR	.063	.000	.407	the smaller the better
	GFI	.927	1.000	.341	>0.9
	AGFI	.867		.209	>0.9
	PGFI	.506		.284	>0.5
Baseline Comparisons	NFI Delta1	.929	1.000	.000	>0.9
	RFI rho1	.891		.000	>0.9
	IFI Delta2	.953	1.000	.000	>0.9
	TLI rho2	.927		.000	>0.9
	CFI	.952	1.000	.000	>0.9
Parsimony-Adjusted Measures	PRATIO	.655	.000	1.000	
	PNFI	.608	.000	.000	>0.5
	PCFI	.623	.000	.000	>0.5
NCP	NCP	63.918	.000	1344.534	the smaller the better
	LO 90	37.889	.000	1226.331	
	HI 90	97.599	.000	1470.124	

Table 4. Contd....

Macro		Default Model	Saturated Model	Independence Model	Evaluation Standard
FMIN	FMIN	.460	.000	6.449	
	F0	.295	.000	6.196	the smaller the better
	LO 90	.175	.000	5.651	
	HI 90	.450	.000	6.775	
RMSEA	RMSEA	.079		.336	the smaller the better
	LO 90	.070		.321	
	HI 90	.112		.351	
	PCLOSE	.001		.000	the smaller the better
AIC	AIC	159.918	132.000	1421.534	the smaller the better
	BCC	163.430	139.727	1422.822	the smaller the better
	BIC	261.453	355.377	1458.764	the smaller the better
	CAIC	291.453	421.377	1469.764	the smaller the better
ECVI	ECVI	.737	.608	6.551	the smaller the better
	LO 90	.617	.608	6.006	
	HI 90	.892	.608	7.130	
	MECVI	.753	.644	6.557	the smaller the better
HOELTER	HOELTER.05	111		12	>200
	HOELTER.01	128		13	>200

Table 5. Modification Indices (Group number 1 - Default model) Covariances: (Group number 1 - Default model).

			M.I	Par Change
e7	<-->	e9	6.762	.085
e6	<-->	Ability to manage	4.577	-.040
e6	<-->	e9	8.663	-.145
e6	<-->	e7	5.312	-.117
e5	<-->	Ability to manage	5.770	.031
e5	<-->	Ability to chance	4.663	-.060
e5	<-->	e10	6.027	.047
e5	<-->	e6	8.491	.138
e2	<-->	e10	4.209	-.036

According to the results of the AMOS17.0 output from the view of the practical research, we only focused on the preset model (the Default model). For Saturated model, it is to point to AMOS to have minimum limit model of fitting, because in many cases, it does not provide the corresponding value, which could not judge the merits of the model, so don't care; And independent model refers to AMOS can fit

the model with the most limit, The introduction there is no correlation between the scalar case calculation results, so we usually only focus on the results of the prediction model.

Table 4 is AMOS output and sorted, part of the index is not model fitting effect evaluation indexes, so the last column has no corresponding evaluation standard. From the perspective model fitting effect, in absolute indicators fitting

Table 6. Regression weights.

			M.I.	Par Change
F10	<---	F5	7.235	.084
F10	<---	F2	4.585	-.060
F9	<---	F7	4.894	.108
F9	<---	F6	8.414	-.106
F8	<---	F2	4.003	-.063
F7	<---	F6	4.171	-.085
F6	<---	F9	6.712	-.165
F6	<---	F7	7.191	-.204
F5	<---	F6	4.595	.083
F4	<---	F8	4.438	.131
F1	<---	F8	5.046	-.162

effect, chi-square value does not reached the significant level of acceptable, because it's easy to be influenced by sample size, negligible P values here. Because the chi-square freedom than a fair result is obtained, $GFI=0.927>0.90$, $AGFI=0.867$, close to 0.9, $PGFI=0.506>0.5$; In the relative indicators fitting effect, $NFI=0.929$, $IFI=0.953$, $TLI=0.927$ more than 0.9, and $RFI=0.891$ also close to 0.9, $PNFI=0.608>0.5$; In the alternative indicators, $CFI=0.952>0.9$, $PCFI=0.623>0.5$, $RMSEA=0.079<0.08$. Therefore, comprehensive above all kinds of evaluation index, we think the model fitting effect is good.

5. CORRECTION OF THE MODEL

While emerging technology enterprises entrepreneurship concept model fitting results are good, we still need to look at the model whether there still exist which can be improved:

Because the model fitting is better, so give up, adhere to the initial design of the model.

6. THE RESULTS OF THE STUDY ANALYSIS

6.1. Path Analysis

By confirmatory factor analysis results, opportunity ability and management capacity correlation coefficient is big, the content validity is quite high; Opportunity ability and management ability for the emerging technology enterprises entrepreneurship can have a positive impact. Hypothesis H1 and H2 are verified.

6.2. Factors Influence Degree Analysis

6.2.1. Ability to Chance

In opportunity ability six influence factors, the relationship (0.75), the innovation ability (0.92) to the opportunity ability effect is opposite bigger, knowledge sharing ability and learning ability (0.56), (0.53), opportunity recognition

(0.58) for the opportunity to impact is relatively small (load factor reaches 0.5 or above), but, opportunity, ability development (0.41) for the opportunity to impact is minimal. The above data shows that the higher all kinds of ability, relatively entrepreneurship will be stronger.

6.2.2. Ability to Manage

Management ability of five factors, risk management (0.76), strategic ability (0.74) (0.94), the concept of ability of entrepreneurial abilities impact is bigger, cooperation ability and organizational capacity (0.52) (0.57) to the entrepreneurial ability impact is relatively small. The above data shows that entrepreneurial ability, strain capacity, leadership, organization ability and the decision-making ability are relatively important.

CONFLICT OF INTEREST

The author confirms that this article content has no conflict of interest.

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