COLLABORATIVE INNOVATION OF STRATEGIC EMERGING INDUSTRIES: A CASE STUDY OF THE NEW GENERATIONOF INFORMATION TECHNOLOGY ENTERPRISES IN CHINA

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ABSTRACT

The new generation of information technology industry studied in this study, is constructed as the first batch of national key support industry. On the ground of the analysis of the new generation of information technology industry in China, the current main problem faced by the enterprises, is being with relatively deficient resources, that is, resources of human, finance and property can't fundamentally meet the needs of the enterprise development, especially an extraordinary lack of high level talented people urgently needed by enterprises. This paper focuses on the problems existing in the collaboration of various resources in the new generation of IT enterprises with the application of collaborative innovation and technology innovation theory on the research of elements of the enterprise innovation, trying to solve some practical problems. The contents of the research mainly center on how each innovative factors Strategic innovation, system innovation, cultural innovation, organizational innovation, technological innovation, market innovation, management innovation within the IT enterprises collaboratively innovate and explore the relationship within the innovative factors and finally construct the collaborative innovation model.

Keywords: Collaborative Innovation; Emerging Industries; Information Technology; IT Enterprises

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1. INTRODUCTION

In the 21st century, the global economic environment has experienced enormous changes. The traditional development modes of Information Technology Enterprises are hard to go on.

Their foreign counterparts as well as encounter face many challenges and difficulties in selection of opportunities, decision making and construction.

The new generation of information technology industry studied in this study, is constructed as the first batch of national key support industry. On the ground of the analysis of the new generation of information technology industry in our country, the current main problem faced by the enterprises, is being with relatively deficient resources, that is, resources of human, finance and property can't fundamentally meet the needs of the enterprise development, especially an extraordinary lack of high level talented people urgently needed by enterprises. Financially, corporate debt ratio is high and operating funds are nervous. Environmentally, the office, business and equipment, buildings are hard to be guaranteed. What's more, the Enterprise management mode is extensive with weak basic management and relatively high cost of operating management. The enterprises also lack flexible quickly reflect market mechanism or strong control of market. This paper focuses on the problems existing in the collaboration of various resources in the new generation of IT enterprises with the application of collaborative innovation and technology innovation theory on the research of elements of the enterprise innovation, trying to solve some practical problems.

In recent years, scholars have explored collaborative innovation and made some achievement, providing an important theoretical basis to more research for innovative practice. Based on the existing literature, the thesis makes deep analysis of the internal elements of the collaborative innovation in the new generation of information technology enterprises to enhance their core competitiveness. The collaborative innovation in the text refers to the cooperation among the internal innovative elements in the new generation of IT enterprises, which leads to the improvement of innovation performance within the enterprises, thus enhancing their innovation ability. This paper primarily focuses on the three aspects below: 1.The influencing factors in the innovation activity 2. The construction and verification of the collaborative innovation model 3. The application of the model is solve the pragmatic problems. The contents of the research mainly center on how each innovative factors Strategic innovation, system innovation, cultural innovation, organizational innovation, technological innovation, market innovation, management innovation within the IT enterprises collaboratively innovate and explore the relationship within the innovative factors and finally construct the collaborative innovation model.

2. LITERATURE REVIEW

With the fierce market competition, enterprises began to pay attention to the importance of collaborative innovation. Scholars began to study how innovative factors promote synergistic blend of innovation and improve the innovation performance of enterprises, trying to bring a new awareness that the innovation is a whole system. Collaborative associations through combined research, consulting or training preparations are most essential communication networks for the industry than patents, and licenses Cohen et al. 2002. Many researches have done in past literature on the influence of industry collaboration Agrawal and Henderson (2002), Thursby and Thursby, (2007). Consequently, the costs and benefits of collaborative developments vary conditional on the institutional

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culture Owen-Smith and Powell, 2001; Levin and Stephan, 1991 and later it may then lead to variance influence of industry collaboration on publication outputs. The research on innovation networks highpoints the advantages of these networks to technology-based firms Rothaermal et al.(2007). Moreover, the mainstream of studies distillate either on large firms with developed R&D actions e.g. Fabrizio (2006) or spin-offs from university Grandi & Grimaldi (2003); Johansson, Jacob & Hellström (2005); Pérez & Sánchez (2003). This argument is in direction with the theory of knowledge- based which stressed that industries and their collaboration designs differ based on leading styles of knowledge (Asheim 2007; Asheim & Gertler 2005; Asheim et al. 2007).

In recent years, some Chinese academics and scholars have explored the synergy from philosophy, sociology, economics and management science perspective. Zhang Gang , Chen Jin and Qingrui 1997 have studied in depth about enterprise technology , organization and culture of collaboration and depicted that technology plays integral part in the development of enterprises. Guo Bin and Qingrui (1997) have explored the behavior of collaborative innovation and explained that the collaborative innovation is very important for organizations and pointed out many technical constraints . (Zhang Gang and Chen Jin;1997) highlighted that in collaborative innovation model, firm have worked on many technical, organizational and cultural factors as key sources and issues of innovation development. Zhuzu Ping; (1998) has studied different organizations, and indicated that culture, strategy, product and process have serious impact on business innovation. Peng Yi (1999) worked on the micro-level study of collaborative enterprises operational mechanism between "Competition - coordination - cooperation" . Peng Jisheng 2000 through the process of technological innovation research , analyzed its innovative features and the establishment of relevant mathematical models. Zhang Zong and Qing (2000) studied the technical innovation stage analysis. Furthermore, their research work highlighted a key role of corporate knowledge, systems and organizations in promoting technological innovation. Shen Xiaoping and Sun Dongchuan (2001) have studied many Chinese companies and their close linkage between enterprise technology and management.

They suggested future research by exploring this relation in building enterprise collaborative innovation model for future research and for management of collaborative technologies providing the foundation. Liu Jin and Yang Jiping 2002 said that from the perspective of economics and management to build a cluster of game model enterprise collaboration . Wang Fangrui (2003) built a dynamic model on the market through innovation and technology collaborative research . Zheng Gang (2004) worked on a comprehensive and innovative collaborative research enterprise technology innovation perspective of the elements of the process. They further explored the establishment of collaborative business model innovation elements. They expressed that the use of specific cases to verify the collaborative model. SOCIALIST (2005) made a comparative analysis of technological innovation, system innovation and industrial innovation similarities. He studied the differences while pointing out technical and institutional innovation is the driving force of the industry. Chen Jin and Wang Fangrui 2006 worked on the basis of the previous analysis of the dynamic model and find out that each element of the collaborative nature of collaborative innovation is collaborative management environment and processes.

Zheng Gang and Zhu Ling (2008) worked on the Haier Group Product Innovation Project for the case of several key factors of technological innovation process to be analyzed, and finally validated the theory by case . Bi Kexin , Sun Flower 2010 used panel data from 2000 to 2008 manufacturing enterprise technology activities and established a coordination degree model of product innovation and process innovation collaborative development Discoveries in 2008

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and concluded that China's manufacturing product innovation and process degree of innovation and collaborative development is not very high. Luke Bin and Guo Wei (2010) worked on Shaanxi textile industry and revealed the existence of the diffusion of technological innovation and industrial cluster knowledge of significant synergistic relationship. Wu occasion, Shi Chunsheng and Ming-Xia Liu 2011 established that enterprise was born and later grew on mature stages of organizational innovation and transformation elements and elements of collaborative model of technological innovation. They conducted a survey by circulating a questionnaires to 129 companies to validate the theoretical model. Zhang Xue and Zhang Pu (2012), expressed their work on knowledge creation area and identified that knowledge creation is integral for business activities with clients and in building a collaborative product input-output elements. Their work is an example of a business model for the establishment of input-output analysis, model deduction mechanism demo model. Feng Bo and FAN Zhi-ping (2012) studied the role of partner selection in knowledge innovation team focused on considering the synergies between the partners

3. THE MODEL BUILDING AND RELATED ASSUMPTIONS

Some scholars pointed out that the enterprise units within the hierarchy, the research object is mainly the function of all levels within the enterprise, Baum (2002) mainly studying the internal synergy between the elements of all levels. So the hierarchy analysis was carried out on the internal innovation elements, it was further analyzed at all levels within the enterprise, the collaborative relationship between for building a new generation of information technology enterprise synergy innovation model to provide more methods. Engel Herbert (1992) through to the enterprise level to study and put forward enterprise level point of view. The most obvious hierarchy within the enterprise is the first layer is the system, mainly including internal research and development, production, sales and after-sales service system, the process of mainly arrangements and guidance to the first layer of the work.

The second layer is mainly responsible for enterprise product research and development, manufacture and sales links, most of the resources and the enterprise internal staff are gathered in this link. The third layer is the major is the environment of an enterprise level, is the least obvious but had the greatest influence to enterprise's first two layers, it affects the enterprise internal employee ideas and impact on the development of the enterprise. Only the three levels of good together to promote enterprise development and progress.

Developing technologies permit new magnitudes of collaboration, concerning not only the arrangement on common objectives and the regular conversation of information, but also the conjoint performance of activities to comprehend innovation (Serrano, Fischer, 2007). The procedure of collaborative innovation is rather parallel to an internal innovation process accomplished within a single company (Verworn, Herstatt; 2002, or Cooper, 2008).Today innovation desires to emphasis on attractive product/process or services, produced through the rational usage of knowledge, to retain companies competitive. The empowerment is both technical and organizational on each stage of the Product Life Cycle (Mevellec, 2006).

Scholars found in the study of total factor, the effect of the elements in the process of collaborative work also is not equal, there is obvious hierarchy between elements, in order to further study on how a new generation of information technology enterprise internal elements of synergy, draw lessons from Engel Burt thought, studied factors can be divided into three levels, thus obtained in this paper, the concept of the model .This model mainly analyzes two basic questions:

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1 A new generation of information technology enterprise which elements exist collaborative innovation effect.

2 A new generation of information technology for collaborative innovation between internal elements is how the Management includes the organizational innovation and management innovation.

Management is the enterprise internal contact the operational layer and output layer, layer through the operational and performance management together, so as to improve enterprise innovation performance. The operational layer includes strategic innovation, technology innovation, market innovation and system innovation. System based on the enterprise internal value chain analysis, the main purpose is through the interconnected between enterprises strategy, technology, market and system innovation to achieve the innovation performance of the enterprise, enterprise strategy, technology, market and system innovation in the enterprise interior is clear. Cultural, mainly includes innovation culture. Corporate culture affects the enterprise internal staff working environment, thus affecting the enterprise innovation performance

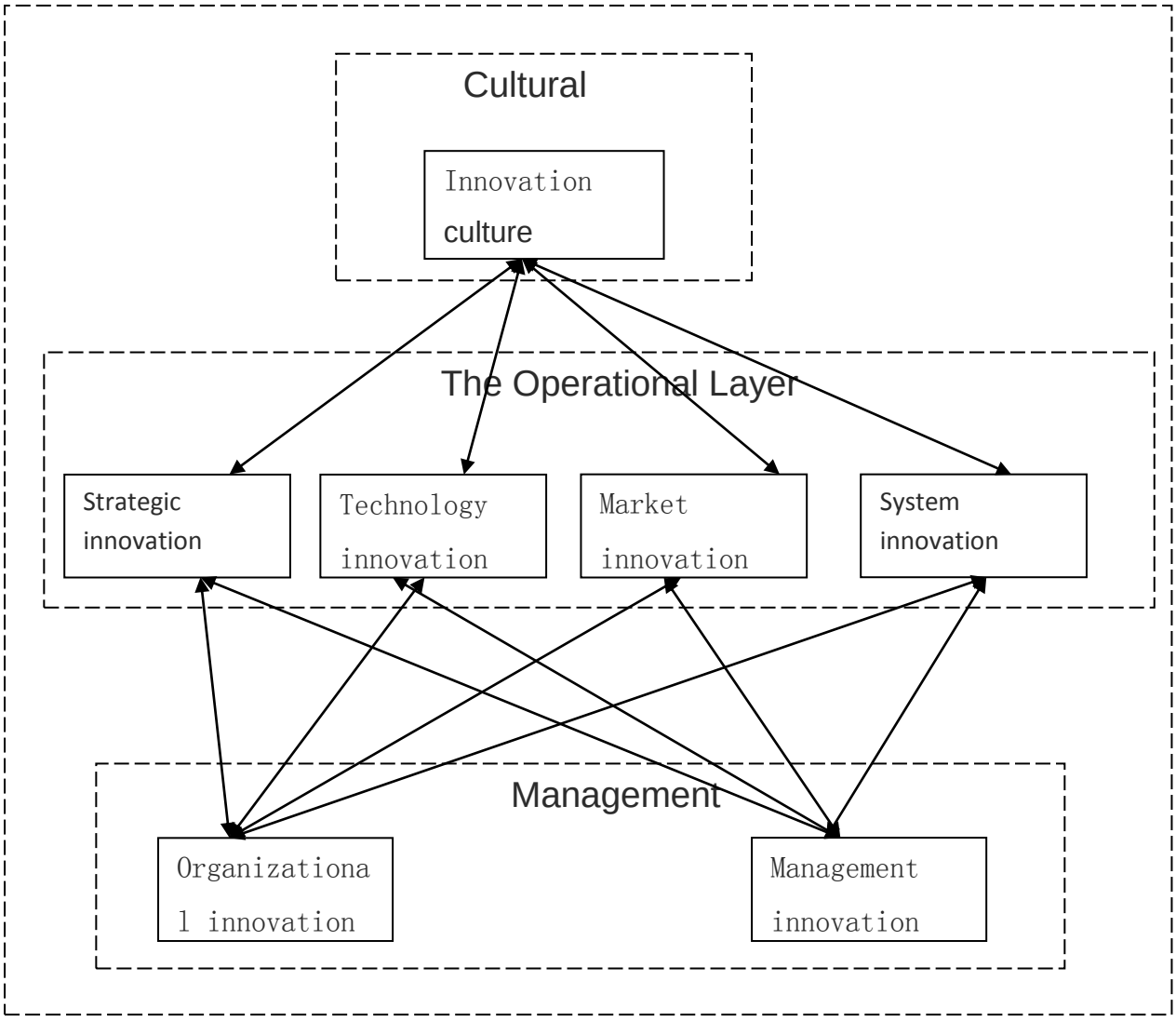

Figure .1**:** New Generation Information Technology Enterprise Collaborative Model

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4. EMPIRICAL ANALYSIS MODEL

4.1 Data Collection

The investigation object of this study is a new generation of information technology enterprise, according to the characteristics of the research object, using small-scale questionnaire survey, combined with the enterprise interviews for data collection activities. However, in order to improve the authenticity of the information received research, interviews with those affected by the degree of understanding and culture related. To the questionnaire survey to obtain the real situation, the survey questionnaire during the process of issuing the identities of respondents and length of service, to increase the rationality of the questionnaire investigation. The purpose of the survey is to know the influence of a new generation of information technology enterprise cooperative innovation synergy between the status quo and elements of the situation, the influence mechanism. As a new generation of information technology enterprises to further establish collaborative innovation model to provide information, can effectively enhance the innovation efficiency of the enterprise. The design of the questionnaire on the basis of the mature at home and abroad and referring to the questionnaire, in order to more accurately get real information within the enterprise, and considering the background factors such as respondents, as far as possible in the process of the design of the questionnaire in a comprehensible, and reduce the trouble people fill in the questionnaire, to save time.

The study of the questionnaire design starts from February 2012, after many team discussion and modification, determines the final version of the questionnaire, large-scale distributed in March, in June of the questionnaires were collected for analysis. The design of the questionnaire prepared in order to obtain more information, first please discussed within the team and try to fill in, some of the questionnaire easy to produce the ambiguity problem were modified, and finally to form the final draft of the questionnaire. In order to improve the recovery rate of the questionnaire, the questionnaire by mail, there is no feedback questionnaire about within one week of the enterprise, the secondary contact by phone or EMAIL, SPSS analysis was carried out on the recovery of questionnaire, the data is descriptive statistics and principal component analysis.

The survey, 1100 questionnaires were issued, recycling, 859, the total recovery rate 78.09% as shown in table 3.

Table .3: Questionnaire Sent to Recycling

Name	No of Questionnaires	Recycling	Recycle ratio
A large company	400	323	80.75%
Medium-sized companies	400	298	74.5%
A small company	300	238	79.33%

Through the inspection of recycling questionnaire, found that part of the questionnaire on the fill out obvious problems, these questionnaire belongs to waste volume, not included in the questionnaire statistics, no recycling questionnaire 241, 859 effective questionnaires were finally. Through the analysis of data, to organize the original questionnaire.

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4.2 Data Descriptive Statistics

Can be seen from the chart 2, to participate in the survey of more than 81% are 31-40 employees, these employees in the company's time for a long time, has certain understanding to the enterprise situation, 13% were 41 to 50 years old, the general is the top of the company, with 4% of people are under the age of 30, most of these is the new company's new employees, 2% of employees is 51 to 60 years old.

Under the age of 30

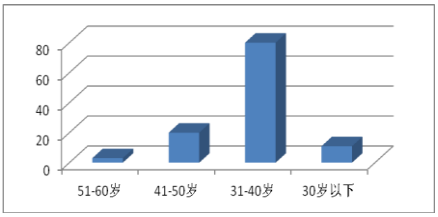
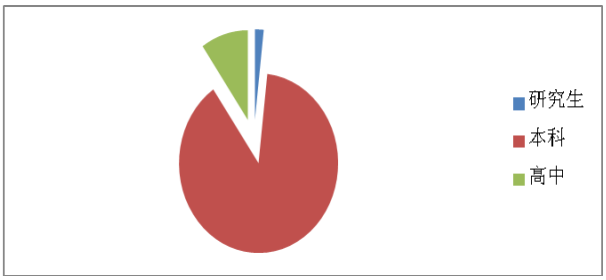


Figure .2: Employees Age Structure

Can be seen from the figure 3 below, to participate in the study of employees in more than half were undergraduate students, they know a lot about the company, the question is very objective, have very good improve the truthfulness of questionnaire investigation, the company has a few high school students, mainly in the service of answering the telephone, graduate students are mainly with the technological and data support.



Graduate student

Undergraduates

High school students

Figure .3: Employees' Education Level

Can be seen from the figure 4, grassroots employees accounted for 46%, middle employees accounted for 45%, senior staff accounted for 9%, this research is mainly by understanding grass-roots staff's role in the process of enterprise innovation, employees at the grass-roots level is the main force of enterprise innovation and motivation, innovation can not only rely on middle-level personnel, must also rely on the grass-roots staff in every new and improved measures are put forward in the process of production and research and development and innovation in a new way.

Series 1, senior employees, 9% and 9%

Series 1, people in the middle, 45% and 45%

Series 1: employees at the grass-roots level, 46%, 46

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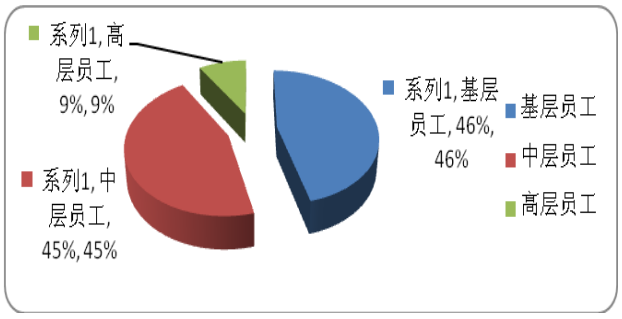

Figure. 4: Staff Position

4.3 Variable of the Reliability and Validity Test

Between do factor analysis, to examine the correlation between variables, the results such as shown in table 4, the variable of KMO value is 0. 859 0.6 or higher, and Baetlett value of 5272.227, significant for 0. 00, can be seen from the above three data variables in this paper is suitable for factor analysis.

Table. 4: KMO and Bartlett's Test

Table 4 KMO and Bartlett's test in this paper	.859
Bartlett sphericity of approximate chi-square test	2572.227
Sig.	.000

Can be seen from the table below 5 variables in this paper, the reliability of the test value is very high, the innovation performance of alpha coefficient is 0.843 0.6 or higher, alpha coefficient is 0.913 0.6 or higher of market innovation, organizational innovation of alpha coefficient is 0.808 0.6 or higher, alpha coefficient is 0.873 0.6 or higher of system innovation, strategic innovation of alpha coefficient is 0.868 0.6 or higher, technology innovation of alpha coefficient is 0.848, 0.6 or higher, the management innovation of alpha coefficient is 0.868 0.6 or higher, innovation culture of alpha coefficient is 0.858 0.6 or higher. In this paper, the main eight variables are passed the reliability test, and explain the questionnaire to fill in the situation is very good.

4.4. Factor Analysis of Four Variables

First, the survey data for factor analysis, the results are shown in Table 6 N = 2389 shows. According to the results of the factor analysis can be seen in this total extracted eight principal components, which explain the total variable reaches 66.804%. One of the main components of an innovation performance primarily by A1, A2, A3, A4 consists of four factors; main component two market innovation is dominated by A7, A8, A9 composed of three factors; principal component is dominated by three organizational innovation A10, A11, A12 noon three factors form; main ingredient four institutional innovation is dominated by A15, A17, A18, A19, A20 composed of five factors; principal component five strategic innovation is dominated by A21, A22, A23, A24, A25 composed of five factors; main ingredient six technological innovation by A26, A28, A29, A30 these four factors form; main ingredient seven main ingredient eight innovation management innovation performance by the A36, A37, A38, A39 these four factors components. The A5, A6, A16, A27, A31, A40,

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A41 because it does not fall within the above eight main ingredients, so be deleted and Eight ingredients have extracted.

4.5 Test Results

According to the results of the factor analysis section above come through structural equation model of the article in front of the model validation. First test the internal culture of innovation and enterprise strategy innovation, technological innovation, system innovation, market innovation, management innovation and organizational innovation if there is a synergistic relationship, shown in Figure 5

Figure 5 culture of innovation and the management and operation of layer collaborative model M0. As it can be seen from Figure 5, the model M0 relationship between the elements of the internal model TLI is 0.901, CFI 0.906 have passed the test. Figure 5 can be derived from a culture of innovation and strategic innovation is the negative impact of the technological innovation and institutional innovation, market innovation, management innovation and organizational innovation is positively affected.

Table .7: Model Fitness Results

Model Fitting results	Statistics	Reference
x 2	754.519	n/a
Df	344	n/a
x 2/df	2.193	<3.0
TLI	0.901	≥0.9
CFI	0.906	≥0.9
RMSEA	0.076	≤0.08

Fitting results can be seen from Table 8, a culture of innovation and strategic innovation is negatively affecting its coefficient is -0.432, and the impact of technological innovation coefficient is 0.122, and system innovation impact factor is 0.381, and the impact factor is market innovation 0.263, and management innovation impact factor is 0.154, and organizational innovation impact factor is 0.192. Description culture of innovation and technological innovation, system innovation, market innovation culture and enterprise system innovation, market innovation, technological innovation, management innovation and organizational innovation there is a positive synergy. Synergies management innovation and organizational innovation is there to prove the hypothesis presented in this paper, that paper internal innovation.

5. CONCLUSIONS AND FUTURE RECOMMENDATIONS

In the fourth section of this article to verify the assumption that the third part of the validation results are; verify that the corporate culture of innovation and technological innovation , system innovation, market innovation , management innovation, organizational innovation has a positive synergy from the fourth part of the test can be seen that a culture of innovation and strategic innovation is the influence coefficient is -0.432 , that does not generate synergies between innovation and strategic innovation culture , and the fundamental reason is the new generation of information technology companies are currently in the process of transformation, strategic innovation guiding role of innovation performance is not well reflected, but as a constraint to innovation factor in performance. Now a new generation

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of information technology innovation strategy of enterprises has shifted, started by the previous defensive strategy into an offensive strategy, now the main goal is to enhance the company's market share, due to the new generation of information technology enterprise strategy to prepare preliminary work is not done, but corporate culture on the implementation of the strategy has played a negative role.

Through the above research findings validate the new generation of IT synergies between the internal elements of the preceding six validate assumptions made , five assumption has been verified. Therefore, in the development stage should pay attention to corporate culture synergy with other elements, made the following recommendations based on this:

1. Normative Regulate Management Attention to the Management: A new generation of IT companies should standardize their management innovation system, so as to improve the company's efficiency, fewer errors reduce costs, create awareness among employees. Should therefore focus on the next generation of information technology within the enterprise execution management. The final step is to strengthen the corporate culture flexible and management rigid coordination, publicity and management of corporate culture. The new generation IT enterprises should regulate the management innovation system in order to improve efficiency, reduce error cost and foster staff's cooperation awareness. Thus, it's necessary to pay high attention to the strengthen internal execution management. Besides, it should be noted that the coordination between culture and administration should be strengthened, that is, the propaganda of enterprise culture and management.

2. Importance to the Internal Learning and Communication: In today's competitive society, the new generation IT companies must have their own core competence to survive in such fierce competition environment, which is embodied as the technological innovation capability of enterprises. Many scholars have also proved that enterprise culture promotes the innovation capability of enterprises by research.

3. Inspire Staff Enthusiasm Motivate Employees' Working Enthusiasm: First, employees must recognize the company's vision, let employees know the company's development goals, by making the employees with the company's target goal of consistent corporate culture. Secondly, through the promotion of enterprise culture, establish a vision of individual employees, executives should approach communicate with employees.

Firstly, make employees aware of the business vision as well as development goals. Secondly, the propaganda of the corporation culture and the communication with leaders help employees own their vision.

4. Perform Social Duties: The new generation IT enterprises should actively perform their social responsibilities for the sake of raising social image and fame, thus reducing publicity expenses and win customers and the whole society's support and identification. Meanwhile, this help enroll excellent workers and improve employee's loyalty and performance.

5. Internal Study and Communication: Enhancing study and communication among employees is an important way to improve communication and develop technology innovation. Such as holding activities among department which brainstorm new ideas and stimulate further development.

6. Improve Staff Loyalty: Loyalty of staff can be improved by boosting their self-satisfaction through organization innovation, mutual coordination as well as harmonious working environment and interpersonal relationship. Furthermore, establishing fair compensation

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system, training mechanism, and promotion mechanism. Enterprises should give employees challenging work and stimulate the potential.

7. Occupy the Customer-Oriented Market: To meet the current requirement of customers, enterprises should make market innovation, provide new product &service. Besides, enterprises are advised to do refinement marketing based on the existing customer's resource, enhancing their images and competitiveness to occupy new market.

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Appendix

Table .1: Enterprise Collaborative Innovation Index System

Index	Indicators		
指标类型	Variable	Indicator	References
Market innovation	A5	Strong brand building ability	Cooper1979
	A6	Good cooperation with leading customers	Moenaert 1990
	A7	Good master of customers's requirement	Kim & oh 2002[36]
	A8	Accurate prediction of future market	Leenders&Wierenga2008
	A9	Ability of setting up business model in marketing department	Zhang Huasheng1999
Organizational innovation	A10	Communication of Information and knowledge between different departments promotes collaborative innovation	潘开灵2006
	A11	High attention from senior leaders	陈劲2007
	A12	Flexibility helps innovative organizational structure	Thomke1998
	A13	Application of information and communication technology	Garayannis1999
	A14	Establishment of market-oriented culture	Garcia-Moralesa et al2007
Institutional innovation	A15	Establish learning and training system encouraging innovation	Ballot2001
	A16	Extensive and widely shared organization flow	郝斌任浩2008
	A17	Full empowerment of staff's innovation	潘开灵2006
	A18	Establishment of organizational platform to promote sharing knowledge and information among staff.	Kahn1996
	A19	Provide resource support for innovation	Shipton 2000
	A20	Encourage innovation	Bharadwaj、Menon2000
Strategic innovation	A21	Corporate executives have dedicated staff responsible for the development and implementation of innovative strategies	郑刚2004
	A22	Corporate executives clearly the extent of innovation strategy	Drnevich&Kriaueiunas2011
	A23	The company's vision and excellent design continuous improvement	余江2005
	A24	Corporate investment in high-tech efforts	宝贡敏2006
	A25	Strategic change in favor of the ability to play a central	张宏云2007
Technology	A26	Matching degree of process innovation and product innovation	Ford 1996
	A27	Regular joint meetings to coordinate the interests between the various departments, so as	Mumford2000

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innovation		to ensure the normal development of efficient new product	
	A28	Company executives have dedicated leadership among technology and other non-technical coordination of departments	A K Gupta1985
	A29	Technological innovation activities have a special committee to conduct cross-functional decision-making advisory	Kahn1996
	A30	The current business has a clear and rational technological innovation strategy	Bharadwaj2000
Culture innovation	A31	Use of corporate internal network to communicate with colleagues more efficiently to provide innovative learning reached	Scott & Bruce1994
	A32	Collective enterprises to encourage and support innovation more staff involvement	Ekvall1996
	A33	To fully cooperate to promote innovation among employees	West & Richter 2007
	A34	Employees in the enterprise can give full play to their strengths to promote innovation	郑建君2009
	A35	Corporate strategy, culture, organizational, technical, marketing, systems and management can collaborate	郑刚2006
Management innovation	A36	Concerned by the company's technology platform and modular and standardized documentation	Kogut et al 1992
	A37	The company's intellectual property rights owned by regularly audit	Nonaka1994
	A38	Technical supervisor for intellectual property management efforts	Teece1997
	A39	Product research and development equipment utilization	吴晓波2007
	A40	The degree of network file management technology	Chesbrough2003

Table .2: Article Related Assumptions

Assumption	Describe
H1	Enterprise innovation culture and innovation strategy has positive synergy
H2	Enterprise innovation culture and innovation have positive synergy
H3	Enterprise innovation culture and innovation have positive synergy
H4	Enterprise culture of innovation and market innovation has a positive synergy
H5	Enterprise culture of innovation and management innovation has a positive synergy
H6	Enterprise innovation culture and organizational innovation has a positive synergy

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Table .5: The Reliability Test Results

The variable name	Number of samples	Number	α coefficients
Market innovation	323	5	0.913
Organizational innovation	323	5	0.808
System innovation	323	6	0.873
Strategic innovation	323	5	0.868
Technology innovation	323	5	0.848
Innovation culture	323	5	0.858
Management innovation	323	5	0.865

Table. 6: Factor Analysis Results

Name	Project	Loading								α coeffcient
		F1	F2	F3	F4	F5	F6	F7	F8	
F2 Market Innovation	A7Good eye of customer needs		.751							0.913
	A8Accurate predictions of future market		.826							
	A9Marketing department the ability to set up business model		.809							
F3 Organizational Innovation	A10Information and knowledge between different departments to communicate normally help to promote synergy			.652						0.808
	A11 degree of attention , the higher the more senior leadership and promoting collaboration			.641						
	A12 conducive to innovative organizational structure should be flexible enough			.646						
F4Innovation	A15 encourage the development of innovative learning and training system				.916					0.873
	A17 innovative fully authorized staff				.909					
	A18 set up to promote the exchange of information and sharing of knowledge among employees organizational platform				.912					
	A19 companies provide resources to support innovation				.914					
	A20 enterprises to encourage innovation				.937					
F5Strategic Innovation	A21 corporate executives have dedicated staff responsible for the development and implementation of innovative strategies					.914				0.868
	A22 corporate executives clearly the degree of innovation strategy					.903				
	A23 designed excellent vision and continuous improvement					.908				
	A24 high-tech enterprise investment efforts					.889				

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	A25 play a strategic change in favor of core competencies					.889				
F6Technology Innovation	A26 matching degree of process innovation and product innovation						.820			0.848
	A28 senior leadership have someone responsible for the technical coordination with other non- technical departments						.807			
	A29 Expert Committee A29 technological innovation activities across functions to make decisions Advisory						.798			
	A30 current enterprise has a clear , rational technological innovation strategy						.853			
F7Culture of innovation	A32 collective enterprises to encourage and support innovation more staff involvement							.811		0.858
	A33 To fully cooperate to promote innovation among employees							.843		
	A34 employees in the enterprise can give full play to their strengths to promote innovation							.867		
	A35 corporate strategy, culture, organizational , technical , marketing , systems, and management can collaborate							.840		
F8Management Innovation	A36 by the company concerned and document technology platforms modularity and standardization								.845	0.865
	A37 regularly on intellectual property rights owned by audit								.832	
	A38 technology officer of intellectual property management efforts								.823	
	A39 product development utilization equipment								.832	

Table .8: Model fitting Coefficients and Hypothesis Testing

Project	Estimate	S.E.	C.R.	P	Hypothesis	Assumptions
whculture<-->zlstrategy	-.432	.019	-4.812	***	Not supported	H1
whculture<-->jsTech	.122	.038	2.539	***	Supported	H2
whculture<-->zdsystem	.381	.027	5.940	***	Supported	H3
whculture<-->scmarket	.263	.022	5.589	***	Supported	H4
whculture<-->glmanagement	.154	.029	3.273	***	Supported	H5
whculture<-->zzorganization	.192	.025	3.35	***	Supported	H6

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