



Research Article

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Empirical Study of Evaluation on the Soft Power of Science and Technology

Industrial Park Based on Improved AHP

Fuyang Xue¹, Yong'an Bao² and Wei Liu³

Enterprise School of Hohai University, China

ABSTRACT

University Science and Technology Industrial Park is a kind of special incubator of technological enterprises. It is constructed on one or several research-based universities, equipped with abundant knowledge, talents, information and scientific products. It is significant to upgrading industrial structure, promoting economic growth and encouraging innovation. People have paid wide attention to Science and Technology Industrial Park since the first of its kind was established. However, soft power is far from emphasized. Therefore, it is necessary to address both the hard power and the soft power to improve the strength of Science and Technology Industrial Park. This paper discusses ways of improvement from macro and micro perspectives by literature review method, interview, questionnaire and AHP. It constructs an evaluation index system for analysis and conducts the empirical study by Belize Jiangsu Science and Technology Industrial Park of Jiangsu Maritime Institute.

Key words: University Science and Technology Industrial Park; soft power; AHP; empirical study

INTRODUCTION

It is pointed out in the Outline of the Twelfth Five-Year Plan for Economic and Social Development that we will adhere to independent innovation, making breakthroughs, supporting the development, guiding the future, accelerate the construction of a national innovation system, focus on improving innovation capacity, promote scientific and technological achievements into practical productive forces and promote economic development driven by technological innovation [1]. To promote the transformation of scientific and technological achievements, make scientific and technological innovation a driven force and build an innovative country, it is necessary to strengthen science and technology enterprise incubator building. Technology Enterprise Incubator is an important force in the national scientific and technological innovation. It is an essential base that attracts and gathers talented scientific and technological personnel. The objective of technology enterprise incubators is to provide a range of basic services and value-added services for incubating enterprises, and support the growth of SME. Technology Enterprise

Incubator falls into different types based on different criteria. According to different body composition, it can be divided into enterprise incubators, University Science and Technology Industrial Park, professional incubator, virtual enterprise incubator and International enterprise incubator [2].

With the development of technology enterprise incubators, University Science and Technology Industrial Park is leading the progress among others, playing upon resources, intelligence and other advantages of its own. University Science and Technology Industrial Park has collected a wealth of resources to promote the transformation of scientific researches and nurture small and medium technological enterprises and entrepreneurs [3]. It links scientific researches and enterprises, provides an important platform for commercialization, industrialization and internationalization of products, and adds new vitality to the development of regional economy.

Outline of the Eleventh Five-Year Plan for National University Science and Technology Park initiate that University Science and Technology Industrial Park is an integral part of the national innovation system and a key base for regional economic development and technological progress as well as one of the main sources of second pioneering in high-tech zones. It is an inalienable part of the higher education system with Chinese characteristics and an important platform for education combined with research and production, serving the society and training innovative talents [4]. Under such guidance, comprehensive universities have strived to establish a University Science and Technology Industrial Park. China's first University Science and Technology Industrial Park of Northeastern University was established in 1989. By the end of 2010, 86 University Science and Technology Industrial Parks have been launched with an independent area of 8,145,000 square meters. 6617 incubating enterprises have been settled, among which, 4364 graduated successfully. By 2010, 4606 researches have been transformed to products. 5603 have applied for patent, 2333 of which are for innovation patent [5].

Since the foundation of new China, University Science and Technology Industrial Park has gained momentum of development. In particular, these Parks are equipped with advanced incubating areas, public facilities, transportations and communication networks. However, the development of soft powers, such as concept, development strategy, team building, institutional building and culture building, are lagged hard powers, which may lead to an imbalanced structure. Therefore, efforts must be made to bring the soft power to a higher level, break the existing bottleneck and achieve healthy and sustainable development so that the Parks can contribute more to the society [6].

LITERATURE REVIEW

Soft power is a concept developed by Professor Joseph Nye of Harvard University to describe the ability to influence the behavior of others to get the outcomes you want. Three main resources of soft power are culture, political value and foreign policy. Cultural attraction is relative global rather than national, namely, culture should have the ability to attract other countries. Political value refers to the concept or ideas of the rule, which is also international. Foreign policy is the ability to shape the development of international rules, decisions or political issues [7-9].

The concept of soft power attracted much attention since its spread to China. The 17th Party Congress Report pointed out in the discussion of promoting socialist cultural development and prosperity that in modern times, culture has increasingly become an important source of national cohesion and creativity, an important factor of comprehensive national strength in competition and colorful cultural life has increasingly an ardent desire of our people. We will adhere to an advanced socialist culture, encourage an upsurge in socialist cultural construction, stimulate the cultural

creativity of the whole nation, enhance cultural soft power of the nation, better protect the basic cultural rights and interests of our people, enrich the social and cultural life and calls for a more uplifting spirit [10]. This is the first that that soft power was written in Party Congress Report, indicating that the construction of the soft power is vital to China's development.

Many researches have studied soft power since its spread to China with different focus under different definition. Wang Zuoshu (2007) discussed the difference between “hard power” and “soft power” in *Construct the Soft Power of Socialist Harmonious Society*. He proposed to improve China’s soft power by enhancing governance of CPC, building a harmonious culture, inspiring national spirit of innovation, establishing socialist core values and advocating to treasure Chinese traditional festival [11]. Chen Yugang (2007) pointed out in *On the Construction of China’s Soft power in Global Context* that the core of soft power is its value significance. Development, stability and harmony should be the focus. The harmony of the three is an organic whole. Stability is the prerequisite for development, development is the guarantee for development and harmony is the target of stability and development [12].

Deng Xianchao (2006) said in *Approaches to Improve China’s Soft Power* that China still faced difficulties and challenges [13]. Han Bo (2009) defined the soft power in his book, *Soft Power: From China’s Perspective*, as an ability to promote the object in accordance with the expectations of the subjective and help the subjective to get what he wants by appealing to emotion, reason and faith. He also illustrated the relationship between the hard power and the soft power, analyzed regional soft power and enterprise soft power and provided suggestion to developing national soft power [14].

What’s more, Chen Yugang (2007) thought enterprise soft power was an ability to interact with stakeholders and achieved consensus of values and conducted anticipated behaviors [15]. Yu Chaohui (2008) constructed four-force model for enterprise soft power. It attributed the soft power to image influence, resources integration, cultural guidance and environment adaptation [16]. Li Chunyan (2010) thought that soft power was defined as strong cohesion and the ability to play employees’ creativity, release their potential and improve the overall combat effectiveness [17]. Wang Hongliang (2007) thought that enterprise soft power was represented by strength and competitiveness [18]. GaoKun (2006) thought that it was an institutionalized ability and had four levels: rules, processes, teams and principles [19].

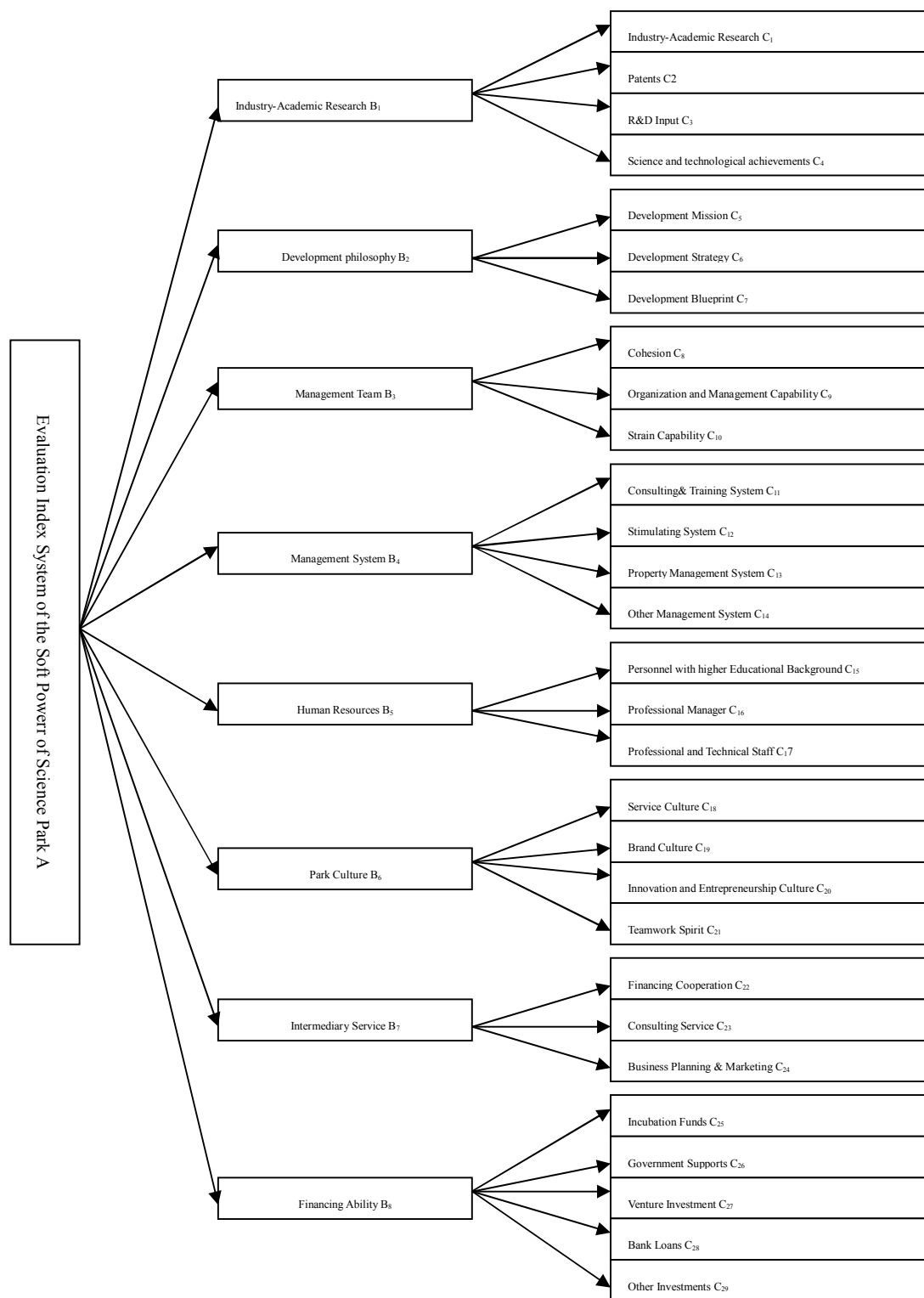


Fig.1 Evaluation index system of soft power of Science and Technology Industrial Park

Soft power was originally proposed on the national level. It then quickly expanded to all other areas, such as regional soft power, enterprise soft power, individual soft power, etc. Regional soft power refers to the ability of cultural attraction, public service capacity and people’s quality of a region. Enterprise soft power refers to the development strategy, development idea, human resources and public influence of an enterprise. Individual soft

power refers to personal ability, mental ability, charisma and moral cultivation and so on.

The strength of the University Science and Technology Industrial Park can be divided into hard and soft power. Soft power refers to the development idea, vision, strategy and culture of the Park as well as its ability to provide fundamental services and value-added services under macro policy. National macro policy is what the Park rests upon. The Park cannot maintain long-term development without the support of the policy [6].

THE CONSTRUCTION OF EVALUATION INDEX SYSTEM FOR SOFT POWER OF SCIENCE AND TECHNOLOGY INDUSTRIAL PARK

"Nothing can be accomplished without norms and standards." Thus, it is necessary to establish a scientific evaluation index system for soft power under the principle of objectivity, scientific, systematic, feasibility, simplicity, combining quantitative and qualitative features.

Among previous literatures, several of them are paid special attention, including *On the Culture of the University Science Park*[20], *Analysis on Factors That Influence the Core Competitiveness of University Science Park*[21], *Evaluation Study of Soft Environmental of Chongqing Science Park*[22], *Research on the Construction of University's Technological Enterprise Incubator Cultural Systems*[23], *Research on Evaluation Index System of Chongqing Science Park and Analysis of Factors That Influence the Soft Power of University Science Park Based on DEMATEL*[24-25], and *Research on Evaluation Index System of the Incubator Soft Power of Technological Enterprise*[26]. Surveys were conducted in Nanjing University – Gulou National University Science and Technology Park, National University Science Park Nanjing Industrial University, National University Science Park of Southeast University, National University Science Park of Nanjing University of Aeronautics and Astronautics, National University Science Park of Nanjing Institute of Technology and University of Science and Technology Industrial Park of Zhejiang University. This paper constructs the soft power system from micro perspective. It consists of 8 dimensions and 29 indicators, as is shown in Fig. 1 [27].

EMPIRICAL ANALYSIS

Belize Jiangsu Science and Technology Industrial Park of Jiangsu Maritime Institute is studied. AHP is introduced to construct judgment matrix to calculate weight distribution. Relative importance degree and consistency test are two measurements of reasonability and feasibility of the system.

(1) Construct judgment matrix

Based on AHP theory, n evaluation elements (Y_1, Y_2, \dots, Y_n) are selected and scaled from 1-9 according to relative importance degree of every two elements [16].

Judgment matrix is an important measurement to rank according to relative importance degree and sequence. In the judgment matrix, a certain element B at a higher level is set as the evaluation standard. Every two elements in the lower level of B are compared to determine the elements of the matrix. For example, if B has n elements, its judgment matrix is like the following.

B	Y ₁	Y ₂	---	Y _j	---	Y _n
Y ₁	a ₁₁	a ₁₂	---	a _{1j}	---	a _{1n}
Y ₂	a ₂₁	a ₂₂	---	a _{2j}	---	a _{2n}
⋮	⋮	⋮	⋮	⋮	⋮	⋮
Y _i	a _{i1}	a _{i2}	---	a _{ij}	---	a _{in}
⋮	⋮	⋮	⋮	⋮	⋮	⋮
Y _n	a _{n1}	a _{n2}	---	a _{nj}	---	a _{nn}

In the judgment matrix Y, element a_{ij} refers to relative importance of a_i to a_j according to standard B. The value of a_{ij} is derived from data, experts' opinion and experience of the subject after thoughtful consideration.

1) For B, if a_i is {extremely more important, much more important, a little more important, more important} than a_j , then a_{ij} scores {9,7,5,3} respectively;

2) For B, if a_i is {less important, a little less important, much less important, extremely less important} than a_j , then a_{ij} scores {1/3,1/5,1/7,1/9} respectively;

3) For B, if a_i is as important as a_j , then a_{ij} scores 1;

4) For B, if the comparison between a_i and a_j falls in between, then a_{ij} scores 2,4,6 and 8 or its reciprocals.

(2) Relative importance degree calculation and consistency test

After the establishment of judgment matrix, it is necessary to calculate the weight of the relative importance sequence between element in this layer and those who are connected with it. This is called single sequence. It is the basis to rank according to the importance of all factors to the top layer.

1) Relative importance degree calculation

Get the maximum characteristic root and then get its corresponding characteristic vector W, there is:

$$B W = \lambda_{\max} W \quad (1)$$

Components of W (W_1, W_2, \dots, W_n) are weight coefficient in line with the relative importance degree of n elements.

2) Consistency test

Pairwise comparison method and conversations with the decision makers are unable to have absolute consistency. Thus, consistency test is needed to judge to what degree the inconsistency is accepted.

When the judgment is fully consistent, there should be $\lambda_{\max} = n$. Otherwise, the equation is not right. Thus, we can take $\lambda_{\max} > n$ or $\lambda_{\max} - n$ as an index to measure the derivation from the consistency.

Use CR (Consistency Ratio) to conduce the consistency test. There is:

$$CR = \frac{CI}{RI} \quad (2)$$

CI Consistency Index is an index to measure how far the judgment matrix is apart from the consistency. The consistency of thinking of judges when they do pairwise comparison is described as:

$$C.I. = \frac{\lambda_{max} - n}{n - 1} \quad (3)$$

RI is known as random consistency index. For a judgment matrix with order 1~9, the solution is described as follows. Construct 1000 random sample matrices for each order are from 1~9. Numbers of the main diagonals are always 1. Use 1,2,3,4, 5,6,7,8,9 and their reciprocals randomly to fill in two triangle area. For the transpose position, use the reciprocal of the random number to replace it. Calculate the consistency index CI for each 1000 random sample matrices of order 1~9 and average the result. The averaged random consistency index RI is shown in Table 1.

Tab. 1: Averaged random consistency index RI

The order of the matrix	1	2	3	4	5	6	7	8	9
RI	0	0	0.53	0.89	1.12	1.26	1.36	1.41	1.45

Here we prescribe that when $CR < 0.1$, the consistency of the judgment matrix is acceptable. When, $CR \gg 0.1$, there is a necessity to adjust the judgment matrix.

(3) Empirical analysis

Construct the judgment matrix $A-B$, B_1-C , B_2-C , B_3-C , B_4-C , B_5-C , B_6-C , B_7-C and B_8-C based on previous literatures and researches on the Science and Technology Industrial Park as well as the surveys. They are shown as follow:

$$A-B = \begin{pmatrix} 1 & 1/5 & 1/3 & 1/3 & 1/2 & 1/4 & 3 & 2 \\ 5 & 1 & 3 & 3 & 5 & 2 & 7 & 6 \\ 3 & 1/3 & 1 & 2 & 3 & 1/2 & 5 & 4 \\ 3 & 1/3 & 1/2 & 1 & 2 & 1/2 & 4 & 3 \\ 2 & 1/5 & 1/3 & 1/2 & 1 & 1/4 & 4 & 3 \\ 4 & 1/2 & 2 & 2 & 4 & 1 & 6 & 5 \\ 1/3 & 1/7 & 1/5 & 1/4 & 1/4 & 1/6 & 1 & 1/2 \\ 1/2 & 1/6 & 1/4 & 1/3 & 1/3 & 1/5 & 2 & 1 \end{pmatrix} \quad (4)$$

$$B_1-C = \begin{pmatrix} 1 & 4 & 2 & 6 \\ 1/4 & 1 & 1/2 & 2 \\ 1/2 & 2 & 1 & 4 \\ 1/6 & 1/2 & 1/4 & 1 \end{pmatrix}, B_2-C = \begin{pmatrix} 1 & 2 & 3 \\ 1/2 & 1 & 2 \\ 1/3 & 1/2 & 1 \end{pmatrix} \quad (5)$$

$$B_3-C = \begin{pmatrix} 1 & 1 & 3 \\ 1 & 1 & 3 \\ 1/3 & 1/3 & 1 \end{pmatrix}, B_4-C = \begin{pmatrix} 1 & 3 & 2 & 1 \\ 1/3 & 1 & 1/2 & 1/3 \\ 1/2 & 2 & 1 & 1/2 \\ 1 & 3 & 2 & 1 \end{pmatrix} \quad (6)$$

$$B_5 - C = \begin{vmatrix} 1 & 3 & 5 \\ 1/3 & 1 & 3 \\ 1/5 & 1/3 & 1 \end{vmatrix}, B_6 - C = \begin{vmatrix} 1 & 3 & 1/2 & 2 \\ 1/3 & 1 & 1/4 & 1/2 \\ 2 & 4 & 1 & 3 \\ 1/2 & 2 & 1/3 & 1 \end{vmatrix} \quad (7)$$

$$B_7 - C = \begin{vmatrix} 1 & 4 & 5 \\ 1/4 & 1 & 3 \\ 1/5 & 1/3 & 1 \end{vmatrix}, B_8 - C = \begin{vmatrix} 1 & 4 & 2 & 5 & 3 \\ 1/4 & 1 & 1/3 & 2 & 1/2 \\ 1/2 & 3 & 1 & 4 & 2 \\ 1/5 & 1/2 & 1/4 & 1 & 1/3 \\ 1/3 & 2 & 1/2 & 3 & 1 \end{vmatrix} \quad (8)$$

The characteristics vector of the comparison judgment matrix is the relative importance vector of elements. Then, calculate the characteristics vector W and the maximum characteristics value λ_{\max} (with $A - B$ as an example)

1) Calculate the sum of line a_j in the comparison judgment matrix $A - B$:

$$a_j = \sum_{i=1}^n a_{ij}, \quad (j = 1, 2, 3, \dots, n) \quad (9)$$

Here are:

$$a_1 = \sum_{i=1}^8 a_{i1} = 18.833, \quad a_2 = \sum_{i=1}^8 a_{i2} = 2.876, \quad a_3 = \sum_{i=1}^8 a_{i3} = 7.616, \quad a_4 = \sum_{i=1}^8 a_{i4} = 9.416, \quad a_5 = \sum_{i=1}^8 a_{i5} = 16.083,$$

$$a_6 = \sum_{i=1}^8 a_{i6} = 4.876, \quad a_7 = \sum_{i=1}^8 a_{i7} = 32.000, \quad a_8 = \sum_{i=1}^8 a_{i8} = 24.500$$

2) Important elements in the comparison judgment matrix $A - B$ are divided by the sum of line a_j . We can get a new matrix T . Suppose $T = (a_{ij}^*)$, there is:

$$a_{11}^* = \frac{a_{11}}{a_1} = \frac{1}{18.833} = 0.053, \quad a_{12}^* = \frac{a_{12}}{a_2} = \frac{0.2}{2.876} = 0.070,$$

and we can get $a_{13}^*, a_{14}^*, \dots, a_{88}^*$ by the same way.

The normalized matrix is:

$$T = \begin{vmatrix} 0.053 & 0.070 & 0.044 & 0.035 & 0.031 & 0.051 & 0.094 & 0.082 \\ 0.159 & 0.116 & 0.131 & 0.212 & 0.187 & 0.103 & 0.156 & 0.163 \\ 0.106 & 0.070 & 0.044 & 0.053 & 0.062 & 0.051 & 0.125 & 0.122 \\ 0.212 & 0.174 & 0.263 & 0.212 & 0.249 & 0.205 & 0.188 & 0.204 \\ 0.018 & 0.050 & 0.026 & 0.027 & 0.016 & 0.034 & 0.031 & 0.020 \\ 0.027 & 0.058 & 0.033 & 0.035 & 0.021 & 0.041 & 0.063 & 0.041 \\ 0.159 & 0.116 & 0.066 & 0.106 & 0.124 & 0.103 & 0.125 & 0.122 \\ 0.265 & 0.348 & 0.394 & 0.319 & 0.311 & 0.411 & 0.219 & 0.245 \end{vmatrix}$$

and get $W_1 = \frac{\sum_{j=1}^8 a_{1j}^*}{n} = \frac{0.053+0.070+0.044+0.035+0.031+0.051+0.094+0.082}{8} = 0.0575$. There

are $W_2 = 0.1534$, $W_3 = 0.0791$, $W_4 = 0.2134$, $W_5 = 0.0278$, $W_6 = 0.0399$, $W_7 = 0.1151$, $W_8 = 0.3140$.Thus, $W = (0.0575, 0.1534, 0.0791, 0.2134, 0.0278, 0.0399, 0.1151, 0.3140)^T$ is the characteristics vector of judgment matrix, which is the rank of relative importance weight of element $B_1, B_2, B_3, B_4, B_5, B_6, B_7, B_8$ to the top layer A.

3) Calculate the maximum characteristic value λ_{max} of comparison judgment matrix A-B:

$$(A - B) \bullet w = \begin{pmatrix} 1 & 1/5 & 1/3 & 1/3 & 1/2 & 1/4 & 3 & 2 \\ 5 & 1 & 3 & 3 & 5 & 2 & 7 & 6 \\ 3 & 1/3 & 1 & 2 & 3 & 1/2 & 5 & 4 \\ 3 & 1/3 & 1/2 & 1 & 2 & 1/2 & 4 & 3 \\ 2 & 1/5 & 1/3 & 1/2 & 1 & 1/4 & 4 & 3 \\ 4 & 1/2 & 2 & 2 & 4 & 1 & 6 & 5 \\ 1/3 & 1/7 & 1/5 & 1/4 & 1/4 & 1/6 & 1 & 1/2 \\ 1/2 & 1/6 & 1/4 & 1/3 & 1/3 & 1/5 & 2 & 1 \end{pmatrix} \begin{pmatrix} 0.0575 \\ 0.3140 \\ 0.1534 \\ 0.1151 \\ 0.0791 \\ 0.2134 \\ 0.0278 \\ 0.0399 \end{pmatrix} = \begin{pmatrix} 0.4659 \\ 2.6633 \\ 1.0340 \\ 0.9648 \\ 0.6498 \\ 1.8201 \\ 0.2266 \\ 0.3223 \end{pmatrix}$$

There is:

$$\lambda_{max} = \sum_{i=1}^n \frac{((A - B) * W)_i}{nW_i} = \frac{0.4659}{8 \times 0.0575} + \frac{2.6633}{8 \times 0.314} + \frac{1.034}{8 \times 0.1534} + \frac{0.9648}{8 \times 0.1151} + \frac{0.6498}{8 \times 0.0791} + \frac{1.8201}{8 \times 0.2134} + \frac{0.2266}{8 \times 0.0278} + \frac{0.3223}{8 \times 0.0399} = 8.085$$

4) Consistency test:

$$C.I. = \frac{\lambda_{max} - n}{n - 1} = \frac{8.085 - 8}{8 - 1} = 0.0121$$

$$CR = \frac{CI}{RI} = \frac{0.0121}{1.41} = 0.0086$$

As $CR = 0.086 < 0.1$, the consistency of A - B judgment matrix is satisfying.

Apply this method to other judgment matrices $B_1 - C, B_2 - C, B_3 - C, B_4 - C, B_5 - C, B_6 - C, B_7 - C$ and $B_8 - C$ and conduct the consistency test. See Table 2. The results show that all of the matrices have satisfying consistency.

Tab. 2: Consistency test of the matrix

Variables Matrix	λ_{max}	n	RI	CR
$B_1 - C$	4.195	4	0.89	0.0730
$B_2 - C$	3.047	3	0.53	0.0443
$B_3 - C$	3.000	3	0.53	0.0000
$B_4 - C$	4.010	4	0.89	0.0037
$B_5 - C$	3.041	3	0.53	0.0387
$B_6 - C$	4.033	4	0.89	0.0124

$B_7 - C$	3.086	3	0.53	0.0811
$B_8 - C$	5.069	5	1.12	0.0154

After the weights of all elements are acquired, calculate the weight of all elements about the target layer A. The results are shown in Table 3.

Tab. 3: Weight of evaluation index system of soft power of Belize Jiangsu Science and Technology Industrial Park

Target layer	Standard layer		Scheme layer		Combination	
	B_j	Weight	C_j	Weight	Weight	Weight
Evaluation index system for soft power of Belize Jiangsu Science and Technology Industrial Park	Scientific research resources	0.0575	Scientific research resources	0.512	0.029	
			Patents	0.225	0.013	
			Investment in R&D	0.276	0.016	
	Development idea	0.314	Scientific achievement above provincial level	0.075	0.004	
			Development vision	0.539	0.169	
			Development strategy	0.297	0.093	
			Development vision	0.114	0.036	
	Team management	0.1534	Team cohesion	0.429	0.066	
			Team management ability	0.429	0.066	
			Team coping techniques	0.142	0.022	
	Management system	0.1151	Consulting and training system	0.351	0.040	
			Incentive institutions	0.110	0.013	
			Property management system	0.189	0.022	
			Other institutions	0.350	0.040	
			Ratio of personnel with higher education	0.633	0.050	
	Human resources	0.0791	Ratio of managers	0.261	0.021	
			Ratio of professionals	0.106	0.008	
			Service culture	0.277	0.059	
	Culture	0.2134	Brand culture	0.096	0.020	
			Innovation culture	0.466	0.099	
			Team spirit	0.161	0.034	
			Finance cooperation	0.665	0.018	
	Intermediary services	0.0278	Consulting	0.231	0.006	
			Business planning and marketing	0.104	0.003	
			Incubating fund	0.408	0.016	
	Financing ability	0.0399	Government support	0.099	0.004	
			Venture capital investment	0.262	0.010	
Bank loans			0.070	0.003		
			Other investment	0.161	0.006	

From Table 3, the rank of importance of the first-class index is development idea, culture, management team, management systems, human resources, scientific research resources, financing ability and intermediary services. The rank of importance of the second-class index is development vision, innovation culture, development strategy,

team cohesion, team management ability, and service culture, ratio of personnel with higher education, consulting and training system.

SUGGESTIONS ON IMPROVING THE SOFT POWER OF BELIZE JIANGSU SCIENCE AND TECHNOLOGY INDUSTRIAL PARK

Bear in mind scientific development idea

First, Science and Technology Industrial Park should base its development on macroeconomic policies under the guidance of *Long-term Science and Technology Development Plan (2006-2020)*. Second, it should be market-oriented and focuses on market segmentation and market positioning to form its own characteristics. Third, it should make the full use of all the advantages of the university. Meanwhile, the Park should fully take local economic, political and cultural factors into consideration and plan for its own development.

Enhance culture building

With the development of Science and Technology Industrial Park, soft power plays an increasingly important role in the completion as the hard power between Parks less stands out. Culture is an integral part of the soft power. It is the backbone and driven force of the Park. University has rich cultural resources which can be taken good use. The Science and Technology Industrial Park is suggested to put in place relevant institutions and mechanism to absorb useful resources and turn them into its own strength. Thus, service culture and innovation culture that is conducive to its development can be created so as to enhance the incubating ability.

Enhance human resources building

People are the subject of Science and Technology Industrial Park. People play a key role in strategy-making and strategy-implementation. Human resources are the No.1 resources of the Park. It matters whether the Park can run well and achieve sustainable development. Human resources of the Park can be briefly divided into two categories, one is the leadership, and the other is other staff.

Leaders play a "leading" role in University Science and Technology Industrial Park. The ability to lead the team to some extent determines the overall development of the Park. Therefore, we should enhance human resource building by optimizing the structure of leadership. People with leading engineering and social science background should be given a place in the management team. Besides, female leaders are also encouraged to take a position.

Meanwhile the management team should bear in mind the concept of lifelong learning. They are encouraged to improve themselves through practices, thereby enhancing their leadership and management capabilities. Second, training on management team should be done on a regular base so as to enhance their execution ability, operational capability and competence. What's more, scientists, outstanding professional and technical personnel and young talents should be introduced to provide intellectual support for the development of the University Science and Technology Industrial Park.

Improve financing system

Funding is a necessary condition for the growth and development of SMEs. It can also be a major obstacle to technological enterprises. Science and Technology Industrial Park should improve the financing system for incubating companies to address the shortage of funds. First, we should establish diversified investment entities, including government investment, bank loans, venture capital investment and other investment with the government investment as the dominant way, bank loans as the core and other investment as a supplementary. Secondly, we should improve the institution of financing system, making it more institutionalized and standardized, thus motivate investors to invest in incubating companies. Third, we should actively explore new ways of financing and expanding

financing channels. A combination of technological and financial mechanisms is emphasized to accelerate the development of new financial service institutions and accelerate the development of financial intermediaries that provide guarantees for technological enterprises.

Improving management system

Good and effective management system is fundamental to the growth and development of Science and Technology Industrial Park as well as an important part of the soft power. First, we should put in place an incentive system that is conducive to identifying people's effective demand. Second, we should improve relevant training and consulting system. Science and Technology Industrial Park is a service-oriented organization. Regular training will enable the personnel to provide better services to incubating enterprises. Besides, coaching on entrepreneurs serves as a necessary approach to address their difficulties and challenges.

Balance all elements of the soft power

Factors such as concept, culture, and management system should accord with each other. The formation of culture and management system should originate from development ideas and development strategies. And the latter two should match human resources. All these elements need to be linked as a whole.

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