

DIALECTICAL LOGIC AND EXPERIMENTAL RESEARCH ON INNOVATIVE LEADERSHIP

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Abstract

Communication of the humanities and sciences is a very important task for the contemporary innovative leadership research. Based on this, it is not only necessary to interpret it from cultural point of view, but also from the logical angle and pay more attention to the integration of the humanities and sciences in the intelligent age. The Continuing Engineering Education of Tsinghua University adopts the model of experimental study and practice, helping the learners understand how to promote business success and social responsibility by innovative leadership.

Looking back on the growth experience of Tsinghua University Science Park and Tsinghua Holdings, as well as enterprises that have more competitive advantages with their supports, it is the innovative leadership that keeps them alive and prosperous. Based on summarizing the innovative leadership both in the east and the west, this article attempts to identify the key factors that determine the effectiveness of innovative leadership and its formation mechanism, and reveal the thoughts and practices of innovative leadership that are practical for today's society. Through the experimental study on the dialectical logic of innovation, a new theory of innovative leadership and practical skills combining the advantages of the east and the west will be born.

Keywords: Innovation, dialectical logic, leadership lab., evidence-based practice

Normally, the so called dialectics can be established by using the structure of the phenomenon, the number and the connotations in the Book of Changes [1], which is the living source of the three-stage dialectics of "thesis-antithesis-synthesis." The structure of the phenomenon, the number and the connotations constitute an objective foundation of dialectics, not only because dialectics conduct static concept processing in the discrete natural circumstances without introducing time series vectors, but also because various elements and relationships can be inferred from the structure. In other words, the former is just a special pattern of the latter. To distinguish it from dialectics, we call this way of thinking based on the principle of Yin-Yang and the Five Elements, expanding and supplementing dialectics as the dialectical logic.

Most theories of western leadership focus on solving certain local problems of leadership with the method of scientific demonstration. Leadership concepts are decomposed into traits, behaviors and contingency issues that can be understood by existing theories, but the intricate connections and transformations have been destroyed and can't be restored to the original vivid whole [2]. In ancient Chinese philosophy, mankind and nature were considered as integral whole, even local problems need to be understood from a global perspective. Efforts are made to study the overall characteristics with both the holistic nature of the system and the nature of ecological evolution. However, it often lacks so called scientific evidence and going straightly to the conclusion.

1 THE DIALECTICAL LOGIC AND LEADERSHIP LAB. CURRICULUM

What we get from dialectical logic is never an accessory of formal logic, but the fundamental deepening of formal logic. It will inevitably lead to expansion of the entire logical landscape, just like the discovery of the new continent by Europeans and the formation of the whole concept of "earth" [3]. The theory of Yin-Yang is more fundamental than scientific theory. Therefore, one can only ask "Does scientific theory have Yin-Yang basis?" Instead of asking, "Is there any scientific basis for Yin-Yang theory?"

The structured mind map based on the eight direction pad from the Book of Changes is shown in Fig.1.

There are four Yin diagrams on the top: Kun, Xun, Li, and Dui, and the other four Yang diagrams at the bottom: Qian, Zhen, Kan, and Gen. Although asymmetric, they are well matched each other, maintaining stability in motions. The four Yin diagrams can be changed into the four Yang diagrams when they are flipped and swapped. Its number contains 9 integers from 1 to 9 and the sum of every three numbers no matter from the longitudinal, horizontal or diagonal direction is all 15, which is a balanced match with dynamic equilibrium. The way is that in every diagram one dominates two, the minority dominates the majority. Yang diagrams have more Yins and vice versa. The diagrams can be positioned in the four directions - east, west, north and south: Li, also known as Fire, is located in the South; Kan as Water in the North; Zhen and Xun as Wood in the East; Qian and Dui as Metal in the West. Therefore, the numbers of the Eight Diagrams formulate a left-handed number cycle: 6(Metal) → 1(Water) → 3, 4(Wood) → 9 (Fire) → 2, 5, 8 (Earth) → 7 (Metal). Every element is reinforced by the last element which is indicated by an arrow with a "+" sign, but restricted by the element before the last one which is indicated by an arrow with a "-" sign.

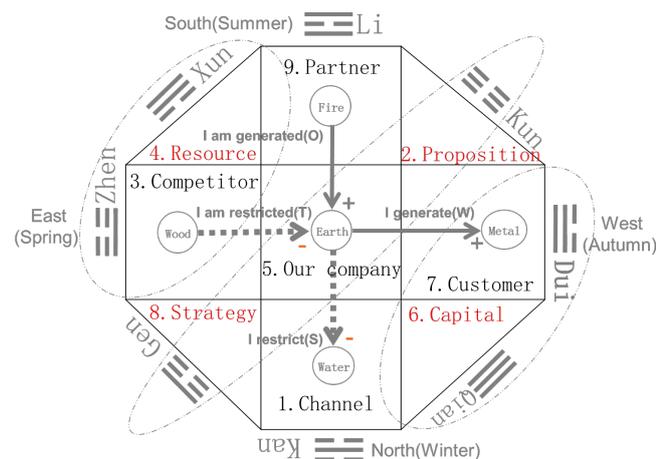


Fig. 1 The structured mind map based on the Eight Diagrams

Fig. 1 shows the reinforcement and restraint analysis of an actual business or hypothetical organizational situation. It helps find the answers for the questions above, which means "I reinforcement(S)" and "I reinforce(W)" refer to one's inherent strengths and weaknesses, while "I am reinforced by(O)" and "I am restricted by(T)" refer to the opportunities and threats from the environment. Confirmation of these problems are to bypass competitors for the new-ventures, to lock customers (increase customer stickiness) by creating new games, new game rules and patterns of non-direct competition. The so called mind experiment is the one that can't be conducted in practice with the current technology, but can be constructed in theoretical logic reasoning. Richness of alternatives determines the level of decision-making, and it is the effective innovation by decision makers the effective means that increase the diversity of alternatives.

The research on leadership theory of dialectical logic does not just stay at the level to summarize the key factors of leadership effectiveness, but carry out in-depth research and application of its generative mechanism as its main clue, revealed the true connotation and essential characteristics of leadership and extract the basic principles hidden behind leadership phenomena in different fields and different levels, clarified long-standing confusion of people about leadership and clear away those deep-rooted misunderstandings in people's minds. The Book of Changes is the foundation and source of Chinese culture and the philosophy for leaders to grow. Through the research of innovative leadership, new leadership theories and practical skills combining the advantages of the East and the West will be born. The research in this article is based on the Book of Change, the gene of Chinese culture, to reinterpret innovative leadership.

The experimental research of "control-comparison-evaluation" is a method to reveal the causal relationship between certain variables by artificial control on certain factors. The theory, experiment, and evaluation of the Leadership Lab are interlinked by evidence-based practice (EBP). The purpose is to explore and study thoughts and behaviors experimentally through leadership practice, debate and evaluation. In 2008, Tsinghua University Press published the book "Leadership Lab"[4]. This book tries to illustrate the key factors that determine the effectiveness of innovative leadership and its formation

mechanism, on the basis of summarizing the classics of Eastern and Western leadership, and eventually reveals the proper thoughts and methods of leadership suitable for the modern society.

The remarkable economic development, political progress and great practices of many politicians and entrepreneurs in China are closely related to the cultural background that determines the economic trends and political achievements in the future. In the year of 2011, in order to illustrate the series of achievements of the Leadership Lab on the curriculum research, Tsinghua University Press published the book "Facilitative Leadership"[5]. The book is to analyze the strength, weakness, opportunity, and threat, which is so called SWOT analysis, of the Customers, the Partners, the Channels and the Competitors based on the structure of the Eight Diagrams. The number of heaven(odd number: 1, 3, 9, 7) is left handed rotated, and that of earth(even number: 2, 4, 8, 6) is right handed. Its value Proposition, Resource integration, Capital operation and Strategic response are matched with the order of number of earth.

2 EBP OF TECHNOLOGY-PUSHED INNOVATION

The push of technology has led every company to become a missile that automatically searches for opportunities, and its object of search is all kinds of possibilities. They will otherwise become a "revolutionary martyr" and die before the victory of the revolution.

The decision of major investment events cannot be made without prediction. People often say that "I wish I had known this beforehand". It is the key for survival to be able to lead in the forefront of the industry and even the times. Keen insight requires a high degree of mental and physical efforts and wisdom of the leaders themselves. Being born with keen insight may be the gift of the creator, however, the keen eyes of more leaders are more rely on cultivation and practice. Under specific cultural background of enterprises, the Leadership Lab uses mind map to research and explore technology commercialization to provide answers for the leaders of government, enterprises, academic and research organizations to lead change and innovation.

By analyzing the growth process of Tsinghua technology companies, it can be seen that high technology is the basic characteristic of these enterprises. Most companies rely on the technology developed in Tsinghua University. Their initial management teams come from the Tsinghua's high-level and high-input R&D team. During their growth process, they further strengthened the market operations, through strengthening investment in scientific research, entering the incubation park, applying for investment from government funds, angel capital and venture capital. As the result, Tsinghua's research and development achievement have been developed into mature companies through incubating companies, growing companies, and then further expanded to new companies[6]. Fig.2 shows the technology transfer system of Tsinghua University and some companies and institutions settled in Tsinghua Science Park.



Fig. 2 The technology transfer system of Tsinghua University and some Companies and institutions settled in Tsinghua Science Park

With regards to the business model, it is necessary to clarify the scope and degree of investment, in other words, to clarify who are the competitors in the emerging industries, who are the customers of the enterprise, what business should be done by the company and its strategic alliances, and what can be handled to dealers and agents. The enterprise constitute a value network of co-opetition and symbiotic model with the Customer, Partner, Channel and Competitor. It must be identified that the roles and contributions of every member in the value network, and based on it, to build a business model that can generate the best benefits for the companies.

Because of the natural connection between universities and the knowledge economy, the Tsinghua Science Park has become a window for the incubating companies to promote their image, and an entrepreneurial paradise with the humanistic characteristics of Tsinghua University, focused on

attracting and incubating those high-quality entrepreneurial companies in the crucial and state-supported areas with a complete entrepreneurial team, and the capabilities of outstanding trans-ocean research and development, independent intellectual property rights in the international leading technological fields, and huge industrialization potentials. Tsinghua Science Park has become a link to promote discipline construction of Tsinghua University and its enterprise development through the interaction of government, industry, universities, and research institutions, and cultivate new economic growth points for the high-tech industries.

Looking back on the growth experience of Tsinghua Science Park and the enterprises with more competitive advantages by getting their helps, it is innovation that makes them alive and prosperous. Chinese companies should think more about how to form alliances with universities, study technology deeply and training their R&D teams in a long term and solid way. Good technology does not definitely mean being able to make profits, there are a lot of issues related to business models to be tackled to turn new technologies into business profits. In the early stages of a start-up company, it is very common that even the first class investors could be patient with business growth but impatient with profit. Therefore, it is suggested to making profit as early as possible, and success of a small business will lay the foundation for great success.

3 EBP OF MARKET-PULLED INNOVATION

The pull of market is like a kind of historical locomotive. You can catch on the train while it is starting and moving slowly, or you will be run over and "go back to before the liberation overnight".

In the business model, the enterprise should be treated as the "essence" and other elements as "utilities", mind map should be established with its logic and its structure of phenomenon, numbers and connotations by simulating the situation. The central subject is the essence with multiple utilities and other related elements as branches drawn from the central subject, until all relevant elements are clearly expressed. When the innovators want to realize corporate profits in the value network, there are not only competition between competitors, but also a vast space for cooperation. Therefore, enterprises constitute a value network of co-opetition and symbiotic model with the Customer, Partner, Channels and Competitors. These four elements are the constituent elements in each of the enterprise value network, in which the Proposition, Resource, Capital and Strategy have different contributions to the profit. The value proposition and capital operation clearly define the value of the customer and the company, and resource integration and strategic response describe how to deliver these two kinds of values.

Taking Tsinghua Holdings as an example, it implements high-tech industrialization by means of capital operations such as investment holding, merger-and-acquisition, and going to listing. From a strategic perspective, leaders systematically think and drive a series of innovative activities such as system innovation, mechanism innovation, design innovation, process innovation, and product and service innovation[7]. The formulation and renewal of strategy should be considered in a holistic way, aiming to establish a new model of market structure, rather than focus on the improvement of behavior and performance to adapt to the existing market structure. Part of the equity investment of Tsinghua holdings is shown in Fig.3.



Fig. 3 Some of the assets investment of Tsinghua Holdings

A good business model will put the enterprise in a good position for making profits. In order to clearly show that the enterprise's ability to make profits, it is necessary to closely matching its ability with the most important links in the value network. The value brought by disruptive technology to the market is completely different from previous technologies. On the one hand, it must turn disadvantages into

advantages, and take advantage embedded in the inherent weaknesses of large companies or strong competitors in the process of establishing a successful model, and take advantages of strengths embedded in its weakness, to create a brand-new game of "essence restrict utilities" instead of "essence reinforces utilities". On the other hand, it should identify opportunities in the threats, master core processes to realize professional specialization, create game rules of "utilities reinforce essence" instead of "utilities restrict essence", and put itself in a most favorable market position to make more profit.

Having a good understanding of this idea, people chosen to lead innovation according to their past contributions to the organization are usually not qualified candidates. It should be judged from whether he or she has the ability to cope with the future situations, and the performance to undertake three important responsibilities. The short-term responsibility is to make decisions on which capabilities, assets and processes should be used in new business across the interface of innovative growth business and maintenance of mainstream business. The long-term responsibility is to construct an intelligent structure of organization, and creating a growth engine to help the organization launch more successful growth business again and again. The sustainable responsibility is to detect new changes emerging in the environment and constantly educate employees to detect signals that indicate the changes in the environment.

4 THE CONCLUSION AND CRITICISM

Technology commercialization is the process of transforming technology into products and then transforming products into commodities, only technology push or market pull cannot constitute core competitiveness. The so called core competitiveness means that everything in the universe embraces Yin and Yang, which agitate and interact with each other to formulate harmony. This is manifested in the process from nothing to existence and from virtual to reality. Qian, Kan, Gen and Zhen are four Yang diagrams, and Xun, Li, Kun and Dui are four Yin diagrams. To demonstrate the transformation and change of everything in the world, we have to see how Yin and Yang flows in the four Yang diagrams and four Yin diagrams, the core formulated is the transaction structure of company’s business model. The Qian-Kun leading innovation is shown in Fig.4.

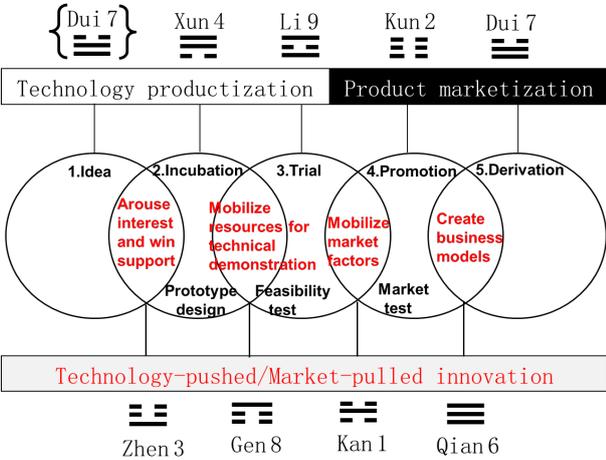


Fig. 4 Qian-Kun leading innovation

The technology commercialization process is classified as technology productization and product marketization respectively according to technology push and market pull. To have the enterprise growth engine run continuously, new technology must be used to promote the value of time, that is, Qian diagram pushes from the left to the right in the figure, which is an upward path. There is also a downward path, the market segment driven by the spatial value. That is, Kun diagram pulls from right to left. In other words, when the product enter market depends on the timing, and eventually depends on positioning of the product in the market.

In order to explore the connotation of technology commercialization, the product development is further divided into five phases: Idea, Incubation, Trial, Promotion and Derivation according to the process and project management. The five stages are connected with each other, and the interface resources for promoting technology commercialization are allocated at the later time of each stage to prepare for the

next stage. Since the eight diagrams can be upward or downward, there is a choice for innovative behaviors, which can be upward and downward as well.

The Eight Diagrams show the growth and decline process of Yang from gradual prosperity (1 → 3 → 9) to falling (9 → 7 → 1) with the value of odd numbers, and of Yin from gradual prosperity (2 → 4 → 8) to falling (8 → 6 → 2) with the value of even numbers. The Book of Changes usually uses numbers as the basis for positioning. It finds out the numbers and attributes by artificial or natural means, converting them into Eight Diagrams, expanding them into the Five Elements, and analyzing them based on dialectical logic. The strategic decision based on mind map has the characteristics of self-negation, reflexivity and humanity.

(1) The Selbstnegation

If $A > B$, $B > C$, then $A > C$. C will not be greater than A according to formal logic reasoning, which means that it is impossible for a smaller one to defeat a bigger one and a weaker one to defeat a stronger one. But in the Five Elements Law, if wood reinforces fire, and fire reinforces earth, wood will not reinforce earth, but restricts earth. The so called "continuous creation of life means change" refers to a common phenomenon in the universe that lives and things breed in endless succession, restricting as meeting the element next to the adjacent and changing whenever encountering the third. The fact that all lives and things keep emerging and growing all the time is "change". When "change" is understood as the fundamental logic of innovation, the interaction between Qian and Kun will be obvious and significant.

(2) The Reflexivity

As we can see from the Taiji Diagram, there is Yang in Yin and Yin in Yang. According to the diagrams in the Book of Changes, the prediction cannot formulate formal logic reasoning because of its reflexivity. This makes the interpretation to the Diagrams relatively casual and flexible: different people can have different interpretation and even opposite conclusion for the same diagram. This is very obvious in the Chinese culture. One of the characteristics of the Chinese culture is randomness and flexibility, which is also manifested in our understanding of the policies and implementation of the laws. This kind of characteristics is related with the reflexivity of thinking in the Book of Changes, which is not through strict reasoning of formal logics, but use of dialectical and holistic thinking to make conclusion.

(3) The Humanity

The humanity of thinking mode in the Book of Changes is the embodiment of balance and coordination, which constitutes a complete and all-inclusive system with dynamic balance and Yin-Yang harmonious combination of the nature and human. To clarify humanity with the law of nature, there is a mutual sympathy between the nature and mankind, which is also a major feature of the Chinese culture. It is a complete system included three components, i.e. the heaven, the earth and mankind, which has a great influence on our national culture which is inclusive and broad-minded.

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