

Research on Intellectual Capital Business Model in China: A Case Study in K Group

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Focus on the practice of intellectual capital business model (ICBM) in high technology enterprises in China would be very important to the development of Chinese economic reform. The case study of K Group shows that we should examine the intellectual property right (IPR) protection system from three-dimensional perspective constituting law, economics and management to fully understand the ICBM. Policy recommendations following for the analysis can then help Chinese high technology enterprises strengthen their international competitiveness and raise their IPR protection level higher in the future.

1. Introduction

With the development of globalization and the knowledge economy, intangible assets have now taken an increasingly important role in competition. Many Chinese enterprises have begun use intellectual capital business model (ICBM) lately. Since China is still in the initial stage of ICBM practices, issues and problems pertaining to the model are not fully explored and understood. Our objective in this paper is to highlight these issues and problems through examination of a case study – K Group.

In what follows, the basic concept of intellectual capital is explored in section two. In section three, we identify key components of the ICBM. We examine the case of K Group together with a discussion of the evolution of ICBM in China in section four. Sections four and five explore facets of intellectual capital formation methods and innovation strategies of the K Group. Intellectual property rights protection system in ICBM at K Group and resulting outcomes of carrying out the ICBM at K Group are examined in section six.

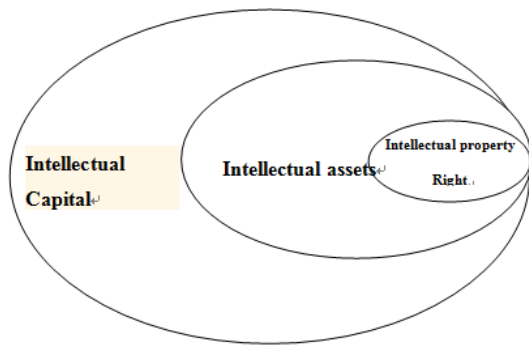
2. The Concept of the Intellectual Capital

Galbraith (1967) first came up with the concept of Intellectual Capital. Romer (1986) further developed this concept in his *Four Factors of Production* theory. Stewart (1991) claimed that intellectual Capital would become the most valuable asset in America, and that it was the most valuable asset which could bring profit to an enterprise, and eventually to the country. Edvinsson (1996) pointed out that

intellectual capital was the sum of the material capital as well as the non-material form of capital of a knowledge enterprise. He asserted that there was a difference between the real market value of such capital from the book value. For example, real market value of Microsoft is significantly larger than its book value. Stewart (1991) considered the skills and knowledge of an employee, the loyalty of the customer, the culture of the company and the team knowledge in regulation and operation as part of the intellectual capital.

The basic tenet of the knowledge economy is that the intellectual capital is at the heart of intellectual asset creation. This activity, however, takes place only when these assets are protected by property rights. Figure 1 below depicts the structural link among and between these three components.

Figure 1: Intellectual property--Intellectual assets -- Intellectual Capital



From the figure on the left, we come to know that intellectual property right is the core part of the intellectual capital theory as well as the closest part connected to the enterprise's interest.

Many Chinese companies gradually came to know the theory of intellectual capital after they have been challenged in terms of IPR. During the legal process of protecting the interest of the company, they understood the relationship between intellectual property right, intellectual asset and intellectual capital.

IPR plays an important role in the intellectual capital system, normally having its physical carrier, such as trademark, copyright, patent, etc. However intellectual asset is more abstract, and is materialized in the process of production and in the management process, such as process flows, database, ERP software and so on. Thus the connotation of intellectual capital is quite illusive. Figure 2 elaborates on this point with respect to traits, method and realization of intellectual capital.

Figure 2: The Connotation of Intellectual Capital

Trait	Method	Result
Human resources	Intellectual asset	IPR
Experience	Program method	Patent copyright
Art and techniques	Innovation document	Trademark
Skill	Procedure picture	Business secret
Creativity	Database design	

Among the three, the most difficult in terms of control is the human capital as it is hidden within the experienced skilled workers, creative R&D workers, and the senior managers. It is embedded in their innovative thoughts; it exists in their mind. Thus the intellectual capital is a company's core capital. It is not always realized in the balance sheet of the company.

Another difficulty in the measurement of IPR is nature of the capital. For example, 1) Individual innovation belongs to the individual while positional innovation belongs to the company. 2) Liquidity exists in the producing skills which can be moved along by the workers. These two obvious features in the IPR system make it difficult to manage and control the human capital within the organization. However, if we can manage human capital well, we can let those knowledge workers provide huge profit for the company, especially in the knowledge economy.

Intellectual capital is the integration of intelligence and knowledge. This integration is not a simple combination or addition of human capital, structural capital and customer capital. It is a business model that integrates all of them together. The better and closer this integration becomes, the higher and greater the value of Intellectual Capital will be. Therefore, intellectual capital is becoming an absolutely essential part of enterprise operation.

3. Intellectual Capital Business Model (ICBM)

Sweden's famous insurance and financial services company Skandia released the first intellectual capital report in the world under the leadership of Professor Leif Edvinsson (1994). This intellectual capital model together with its application at Skandia was considered as a great milestone in the transformation of industrial economies into the knowledge economy. The elements of ICBM as worked out by Edvinsson are as follows:

$$\text{Intellectual Capital} = \text{Human Capital} + \text{Structural Capital} + \text{Customer Capital}$$

$$\text{IC} = \text{H} + \text{S} + \text{C}$$

Human capital, structural capital and customer capital respectively play the role of the main force, the platform and the network of intellectual capital management. Figure 3 summarises the basic tenets of each of the three types of capital.

Figure 3 : Three Basic Elements of the ICBM (H+S+C)

Human capital :

This means the quality of the employees inside the enterprise, which includes ability of knowledge and technology as well as experience, which makes up the engine of enterprise innovation and performance improvement as well as the foundation of Intellectual Capital.

Structural capital :

This means the supporting structures inside the enterprise, including patents, concepts, model, working processes, information systems, quality control system, operation regulations and so on. It also provides a platform for innovation and development. It is the combination of soft technology and hard technology in enterprise.

Customer capital :

This means the important relationships inside and outside the enterprise. It is a key factor of ICBM, Which shows the important organizational relationships between the business partners, relationships with the local government, community etc.

As the core of ICBM, human capital is the basis and driving force for an enterprise's existence. The value of the Skandia ICBM showed that these critical elements could provide sustainable competitive advantages for the company.

The ICBM is becoming an essential business component of an enterprise. Its application in management not only helps increase economic efficiency but also enhance competitiveness of the enterprise. In China, research on themes related to the intellectual capital (IC) theory began in the 1990s. **Tan Jinsong** (2001)¹ argued that IC was a kind of human capital. **Chen Jiagui** (2003)² divided IC into four types which included the class of IPR, contract rights, relationship type and comprehensive intangible assets. **Li Ping** (2007)³ believed that the essence of IC was the ability to convert the resource to the enterprise value. Nonetheless, the researchers generally agreed that IC would be one kind of intangible assets that could ultimately create value for the enterprise.

As mentioned above, the theory and practice of ICBM in China is still in the initial stage. And more research is needed to move this forward. Hence our research began with a case study in high-tech enterprises in the Pearl River Delta region. After several years' efforts, we managed to educate many CEO of enterprises in the region. Now more and more leaders of high-tech enterprise have realized that ICBM plays an important role in the development of economic reform in China. They have also realized that ICBM can provide a useful reference for enterprises to fundamentally enhance their international competitiveness and put the enterprises on the right track.

4. Case Study of Ka Shui International Holdings Limited

From 2010 to 2013, we conducted a case study in Ka Shui International Holdings Limited in Shenzhen in China with the help of the working team within the enterprise. This was a typical representative of the high-tech enterprise in China. Through continuous exploration, the commercial pattern of ICBM of this company had set a successful example.

4.1 Brief introduction of Ka Shui

Ka Shui was established in 1980 in Hong Kong and was a leading company in providing one stop solution and distinct professional service in Magnesium, Aluminum, Zinc Alloys die casting and plastic injection molding. Currently, Ka Shui has over 270000m² land area, over 5000 employees with a HKD 900M annual sales.

¹Tan JinSong. Intellectual Capital Accounting Research [M] Beijing: China Financial and Economic Press, 2001

²Chen Jiagui ,Multinational M & A and large state-owned enterprise reform, [J] China Industrial Economy, 2003 (4)

³Li Ping, Mechanism of value conversion of intellectual capital development. [J] Modern Management Science, 2005

Ka Shui has made contribution to innovation, productivity, market development and one stop solution for customer with great achievement in technology and customer relationship, while fulfilling its social responsibility. In order to meet the rapidly growing demands for its products and services, Ka Shui conceived management innovation in 2009 and cooperated with the European Research Center in Economics College of JINAN University in China in launching the Intellectual Capital Management there. And Ka Shui's efforts in the development of human capital, structural capital and relational capital led the College to a great success.

4.2 Intellectual Capital Business Model (ICBM) in Development of Strategy in Kai Shui

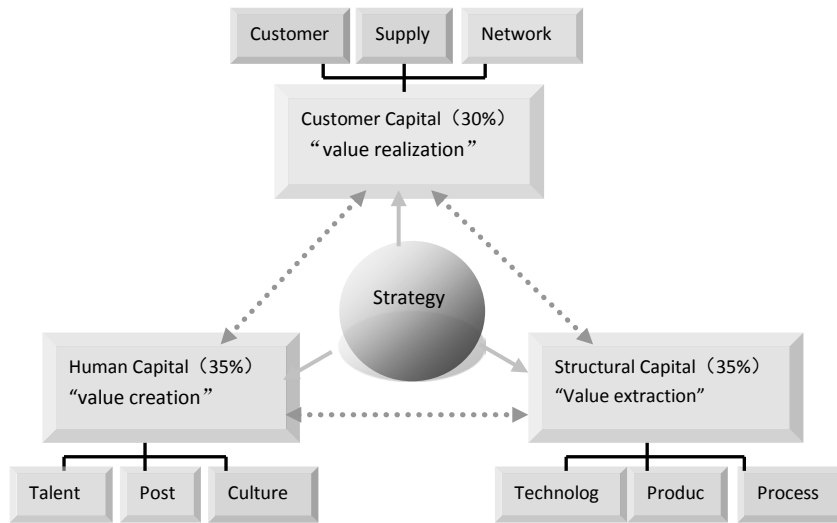
The application of the model is divided into the following steps: Development of the strategy, setting up of a team to carry out the strategy, measuring the progress, motivating the knowledge workers, and paying attention to the IPR protection system. Each of the steps is explained in brief below:

1. Develop a strategy for the intellectual capital model. In order to meet the long-term target and develop the core competitiveness for the enterprise, Kai Shui should make out a correct strategy of the ICBM.
2. Set up a special working team to carrying out the ICBM in both the operation and management systems. The CEO of Ka Shui should identify the key issues in value creation and value extraction for its ICBM. In order to carry out the ICBM smoothly in the enterprise, it is necessary to set up a special working team who would follow the strategy and apply the learned information in operating and management systems.
3. Taking measurement of how the strategy is developing is a crucial step. Ka Shui should measure intellectual capital in terms of quantitative and qualitative measurements in order to get a physical and non-physical index. As the public company in Hong Kong stock market, Ka Shui would need to provide company's financial reports to its stock holders and let them see how the application of ICBM has contributed to the profit.
4. Pay much attention to Human capital, especially to the knowledge workers. The CEO of Ka Shui will have to motivate the knowledge workers, especially the engineers, technicians and the skilled-workers in order to get a greater contribution from them for the enterprise.
5. Pay much attention to set up an IPR protection system. The CEO of Ka Shui should make a special effort to set up an IPR protection system in order to protect the enterprise's R& D properties by creating a patenting system.

4.3 Strategy in ICBM

Development of a strategy is an important step in the economic growth of an enterprise. Our case study shows that Ka Shui has made a very successful growth in the economic front since the adoption of the ICBM system. The development of strategy is divided into three parts, which is explained in detail in Figure 4.

Figure 4: General Trinity Strategy in IC Business Model



Here we can offer more detailed information about human capital, customer capital and structural capital:



In this figure, there are eight main elements in the human capital: (1) build up a database on human capital; (2) build up a managerial staff assessment system; (3) build up an enterprise staff training college and education system; (4) design career planning of research staff; (5) build up the post responsibility system; (6) build up performance appraisal mechanism; (7) improve enterprise incentive mechanism; and (8) build up EQ managing system to all staff in the company.



There are five main contents in the customer capital: (1) set up control system and network between suppliers and dealers; (2) set up analysis system and make out development strategy toward competitors; (3) establish very close relationship between enterprises and local government; (4) build up very good relationship between enterprises and Commerce and Industry Bureau, Tax Bureau, commodity inspection and testing Bureau, Custom House; and (5) develop a good relationship between enterprises and famous research institutions in China as well as in the world.



There are nine main contents in the structural capital: (1) Build up perfect financial control system; (2) build up production process improvement system; (3) build up Intellectual Property Right protection management system; (4) build up risk control system; (5) build up ERP management system; (6) build up cost operation control system; (7) improve on R& D center; (8) build up ISO quality control system; and (9) build up logistics management system.

There are three important segments in ICBM, which includes the value creation, value extraction, and value realization. The human capital and structural capital play the key role in value realization. For example, the whole business model would not work if the human capital and structural capital do not function well. In our research, we have put much attention on the human capital and structural capital because we know they are the driving force for the existence of the ICBM.

5. The Innovation Practice in Human Capital and Structural Capital

In order to motivate creative thinking of human capital and maximize the value creation, the establishment and improvement of Talent Database was considered as the top priority of the eight measures.

5.1 Talent Database and Management Cadre Evaluation System

Ka Shui developed its Talent Database on the system of Electronic Article Surveillance (EAS), which supplied an information platform for reserving and querying the talents as well as forming a basic information and evaluation report of talents.

In addition, the management cadre evaluation system had been established in the enterprise. According to the evaluation report, the personnel were divided into core talent, key talent and secondary talent categories to put "the right people in the right position" and to encourage different kinds of talents that would make more contribution to the enterprise.

5.2 Set up Education and Training System to Employees

As early as 2005, Ka Shui had set up a school of management in order to nurture core staff, especially skilled workers, technical talents and intellectual workers with management skills. Its aim was to promote the "people-oriented" culture within the company. To achieve the aim, Ka Shui had developed four different courses that covered most all areas of the management, technology, organizational culture, and personal interest training. The personal interest training course included singing, dancing, swimming and various kinds of sports. These courses were provided to many of the employees in the company. As a result, the employees' level of intelligence had improved. They became more productive and made better contributions to the company.

5.3 Set up R & D Center and Employee Career Design for Researchers

The R&D center was founded in 2006 and had been cooperating closely with institution and academies such as Hong Kong Productive Bureau, Hong Kong Polytechnic University, Tsinghua

University, Harbin institute of technology, South China University of Technology and others. Ka Shui group also participated in the establishment of a number of national and trade standards for the industry.

Figure 5: Detailed Information about the R&D Center



From the Figure 5, we can see how the R & D center made contribution in the development of the intellectual property right.

Researchers are the most creative-thinking knowledge workers with regards to human capital. As we see, effective training and good management helped them realize their own value and the proceeds of "value creation", "value extraction" and "value realization" in the enterprises. In order to develop knowledge workers' works ethic, Kai Shui had provided a growth map for each employee in accordance with their personality and hobby, which organically combined with their personal goal, departmental goal and the group's goals. The growth map also helped the employees design their personal career.

6. IPR Protection System within ICBM in Ka Shui

As we had guessed, the intellectual talent was the most important resource in new technology creation and technology transfer, and the IRP protection system had been the key point in ICBM.

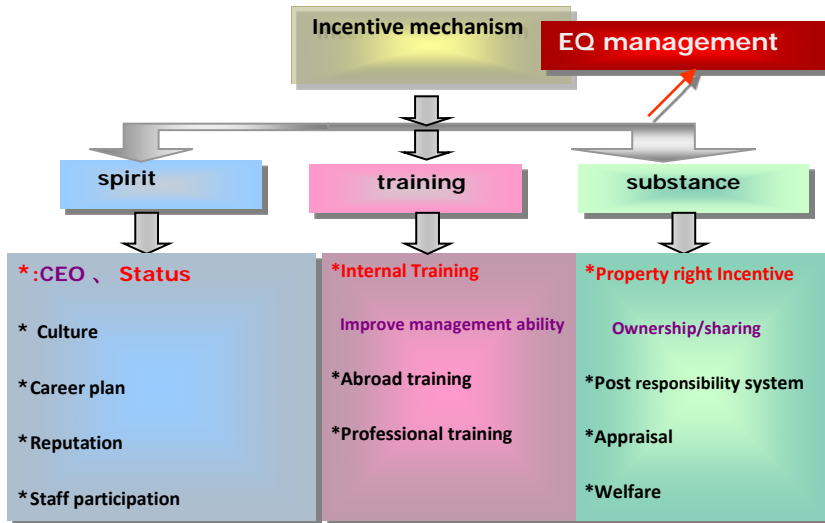
In academia, research on IPR began in the field of law then extended to management. Research from the perspective of economics was also in the rise, where IPR was no longer a single but interdisciplinary field. In this way, ICBM had provided a new perspective to IPR protection system. This result helped us focus on the IPR protection system in the structural capital. As a matter of fact, nearly all tangible and intangible assets had been incorporated in the structural capital which ensured a smooth operation of the value creation, value extraction and value realization in the company.

The IPR had become the key point in management of ICBM. In order to get more new technology and IPR products, Ka Shui had made out some important decisions, including the follows:

6.1 Set up an incentive system for the technical and intellectual workers

The CEO of Ka Shui company had understood that technical talents and intellectual workers would be more crucial than any other elements in the management of enterprise and that they would have to pay much attention to them. The company had realized that the technical talents and intellectual workers would be the source for the technological innovation and the long term development of the enterprise.

Figure 6: Structure of Incentive System



In order to encourage the most creative-power of the R&D workers, the CEO of the company had made up "Growth Map" and "Career Design" to technical talents and intellectual workers, which was combined with business strategy of the company. As a result, they had created the highest value for the company and the individual workers.

6.2 Set up Four Modules for the Intellectual Property Right Protection Management System

Ka Shui group had administered effective intellectual property right protection management system in order to maximize its capital value.

Figure 7. Four parts of Intellectual Property Right Protection Management



6.3 Set up Innovation in the Management System

Ka Shui group had taken the lead to implement total quality management (TQM) model for the company since 1998. Ka Shui had introduced the advanced “intellectual capital management” model in 2009 for the company’s further productivity improvement and value creation. In the operation of this ICBM, they had paid much attention to set up an IPR protection system in order to get more benefits from new technology and to increase their international competitiveness. Figure 8 presents a diagrammatic representation of the interface between innovation management and intellectual capital management.

Figure 8: Innovation Management System



6.4 Results

In 2012, Ka Shui had attained a record high performance. Even in the uncertain global economic environment, Ka Shui had recorded a growth of 31.7% to HK\$1,568,958,000 (2011: HK\$1,191,698,000), and profit attributable to owners of the company had also reached HK\$125,894,000 (2011: HK\$62,820,000), representing a substantial increase of 100.4% over the previous year.

Ka Shui benefited from management innovation in market research and achieved a remarkable sales growth of 75.5% in its magnesium alloy die casting business segment during the year under review. This business segment had become a major growth driver for the Group in 2012, contributing 32.1% of the Group's overall turnover. In addition to its magnesium alloy die casting business, the Group's plastic injection molding business had also recorded a sales growth of 84.4% during 2012. This resulted from the continuous increase in the shipment of smart-phone, which led to a persistent rise in the demand for plastic protective cases.

Realizing the IC as one of the main contents, the aim of the ICBM was to encourage the enterprise to pay specific attention to the role of the soft skills and soft science in the business. Through innovation of the technologies, the IC had added value to the enterprise by combining integrated production techniques constantly. With the ICBM system in place, Ka Shui seem to be proud of its ability to respond quickly to the changes in the global environment. The enterprise looks into the future with a sense of pride for greater achievements.

7. Conclusion

Intellectual capital research involves many disciplines, including economics, management, law, and psychology. In recent years, this stream of research has become equally important for the knowledge based economy. Through this case study we have made it clear that there exists a close relationship between the IPR protection system and the ICBM system. Our study has showed that the success of the company relied upon the CEO of Ka Shui, whose understanding of the ICBM system gave the enterprise a core competence for competing in the global market.

In fact, the application of ICBM has positively impacted on the Chinese enterprises, especially the high technology enterprises. The success of Ka Shui strongly supports our argument that the application of ICBM system would make all Chinese enterprises pay more attention to the role of the soft skills and soft sciences to add value in their businesses.

In conclusion, we would like to point out that there is still a long way for the Chinese enterprises to achieve a successful integration of the IPR into their businesses. In our views, many problems still exist in the transfer of new technologies and the creation of technologies within the Chinese enterprises. However, we are hopeful that more and more enterprises would adapt the ICBM system for their businesses to protect their intellectual properties in future. We also hope that research and reflection on ICBM in Chinese enterprises will continue along theoretical and evidence-based lines as pursued in this paper.

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Reference:

- Chen Jiagui. 2003. Multinational M & A and large state-owned enterprise reform. *China Industrial Economy*, 4.
- Edvinsson, Leif. 1994. Visualizing IC. *Swedish Insurance Magazine*.
- Edvinsson, Leif. 1997. Developing intellectual capital at Skandia. *Long Range Planning*, 30(3) : 366-373.
- Galbraith, J. K. 1967. *The New Industrial State*. New Jersey : Princeton University Press.
- Li Ping. 2005. Mechanism of value conversion of intellectual capital development. *Modern Management Science*, 7.
- Romer, Pau;. 1986. Increasing returns and long-run growth. *Journal of Political Economy*, 94 : 1002-37.
- Stewart, T. A. 1991. Brainpower. *Fortune* (June 3).
- Tan Jin Song. 2001. *Intellectual Capital Accounting Research*. Beijing: China Financial and Economic Press.