Internationalization of Enterprises

Based on Benchmarking and Gap Analysis

Yihuan Liang

Master of Philosophy

The Hong Kong Polytechnic University

2010

The Hong Kong Polytechnic University

Department of Building and Real Estate

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Yihuan Liang

A thesis submitted in partial fulfilment of the requirements for the Degree of Master of Philosophy

Nov 2009

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Abstract:

Against the backdrop of intensifying economic globalization and China's entry into WTO, various markets in China are opened up to overseas corporations while Chinese enterprises are also enjoying better access to the international market, which remarkably facilitates and accelerates the internationalization process of Chinese enterprises. However, most Chinese enterprises, having so long been subject to government intervention and protective policies, encounter great difficulties in adopting themselves to intense competitions in the free market during the transitional phase. There are a host of problems worth research and attention for those Chinese enterprises which are seeking international market presence and success. The construction industry and business has been playing a significant role in China's national economy, therefore, experiences of those Chinese construction companies in establishing and elevating their status in the overseas market are illustrative cases worth serious study and detailed analysis. Focusing on Chinese construction enterprises as the study subject and applying the benchmarking study as the major research method, the current paper first draws a comprehensive assessment of various operational aspects of a few selected world-leading construction enterprise according to the Balanced Scorecard, then formulates a highly quantitative benchmark system, next completes a case study of a typical Chinese construction company CSCEC by measuring its performance indicators against the target indicators in the benchmark system, and finally offers suggestions to guide those enterprises to better their future

practices by defining and analyzing the discrepancies found in the research. The paper finds its value in providing a set of practicable and feasible performance evaluation methodology which can be applied to any China-based construction enterprise willing to compete in the international market and is expected to shed some light on the overall transformation process of those companies to be global players.

Key words： Chinese Construction Enterprises; Internationalization; Benchmark Study; Balanced Scorecard; Management

Acknowledgements

The research is supported by a postgraduate studentship provided by The Hong Kong Polytechnic University. I would like to express my sincere gratitude to Professor Heng Li, my chief supervisor, for his invaluable guidance and numerous constructive comments to my research; the research cannot be completed without his help. for his comprehensive support throughout the completion of this research project; the research cannot be finished without his support.

Catalogue

CHAPTER 1 APPROACH CHOICE IN INTERNATIONALIZATION OF CHINESE CONSTRUCTION ENTERPRISES

1.1 Analysis of China's Construction Market

With a sustainable, stable and fast development of China's social economy through the past 30 years' reform and opening up, especially with a big development of real estate trade as a pillar industry in the 21st Century and investments from both the public and private sectors in infrastructure as way to boost economic growth, China's construction industry enters a new era of energy-efficient and well-coordinated development. During the 11th five-year plan period, investment and development fields have been expanded owing to improvement of economic environment and increase of injection of capital liquidity. China's total investment in fixed assets basically determines market scale of construction projects, resulting in both the annual average growth rate of the gross product and profit growth rate of China's construction industry reaching a high 25% and business climate index remaining high since the 11th five-year plan period. The gross output value of China's construction industry in 2007 exceeded 5 trillion RMB, accounting for nearly 20% of the international construction market, the second largest construction market after the

United States. The figure1.1 shows an increase of the total investment in fixed assets and the gross product of construction industry from 2000 to 2007 indicate a great potential in China's construction market.

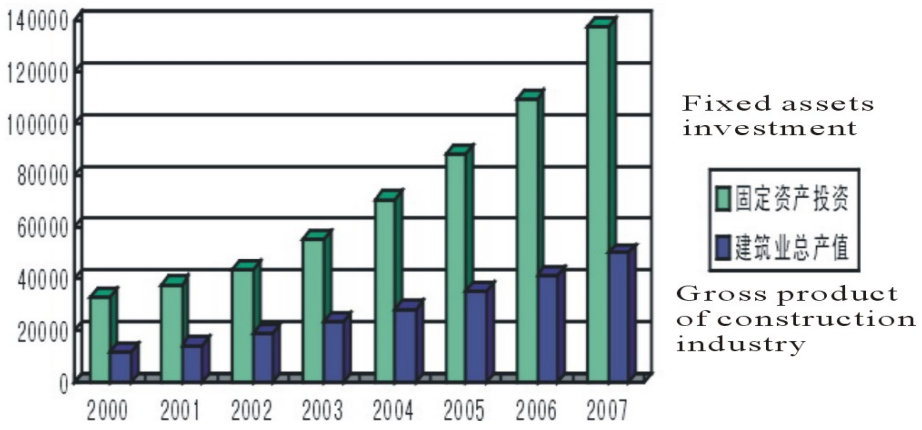

Figure1.1 2000-2007china's fixed assets investment and the gross product of construction

"The Chinese construction and engineering industry generated total revenues of $187.5 million in 2008, representing a compound annual growth rate (CAGR) of 12.4% for the period spanning 2004-2008." (Construction and Engineering in China Industry Profile. 2009) What's more, "The performance of the industry is forecast to accelerate, with an anticipated CAGR of 14.8% for the five-year period 2008-2013, which is expected to drive the industry to a value of $374.1 billion by the end of 2013"by the Datamonitor (a famous business information research group).according to the prediction of the Ministry of Construction, the gross output value of the construction industry will exceed 9 trillion RMB by 2010, and the added value will be over1.5 trillion RMB, accounting for more than 7% of China's total GDP. The

sustainable and fast development of China’s economy and undergoing urbanization provide a golden opportunity for the sustained development of construction industry, especially in the new round of city infrastructure building and real state development in China. The opportunities for future development of construction industry are most evident in the following aspects.

According to the statics released by the World Bank, the average level of infrastructures in OECD countries is still substantially higher than that of China, particularly in roads and railways. The average level of China’s infrastructures can only match that of the developed countries in 1980s. All these discrepancies leave a wide space and huge potential for the development of China’s construction industry. The investments in traffic facilities and infrastructures in China are mainly government funded. During the 11th five-year plan period, the planned investment in traffic facilities and infrastructure amount to top 3.8 trillion RMB, an increase of more than 70% on that in the 10th five-year plan period. “Infrastructure investment is a key element of China's Tenth Five Year Plan, and is focused on roads, rail systems, bridges, ports, and airports.” (Parker, Philip M. 2003).

The Construction industry has contributed to the sustainable development of China's economy. According to statistics from the State Statistics Bureau, the construction industry accounts for 6.6% of the national GDP, making it the 4th biggest industry over the last five years Road traffic: according to “The National Expressway Network Plan”, the highway traffic mileage will reach 55,000 km in 2010. On the basis of the

designated targets of road and waterway traffic by the Ministry of Communications, a major road network will be formed by 2020, connecting China's national level highways and other major highways; an expressway network will be built in the east and central areas of China and also a major high ways in the west; 45 major transportation hubs and 96 national transportation hubs will be built. The total mileage in China will reach 2,000,000 km in 2010, 40,000 of which are expressways. The total mileage in China will top 2,500,000 km by 2020, more than 70,000 of which are expressways. It is quite foreseeable that the future 10-20 years is the new era for the sustained and stable development of China's road and bridge constructions.

Railway construction: According to the Ministry of Communications, China will continue its large-scale road construction over the next 15 years. Under the ministry's plans, the total mileage of China's highway network will reach 3mn km by 2020. (China Infrastructure Report Q4 2009)The investment will exceed 1.5 trillion RMB. According to "The National Mid- and Long-Term Railway Network Construction Plan", China will build eight passenger-dedicated lines throughout the country in the future 15 years including four "vertical" routes and four "horizontal" routes and separate passengers and cargos in busy lines. The total mileage of the operable national railway will reach 100,000 km by 2020, an increase of 33% than the current figure.

Port construction: "The National Ports Mid- and Long-term Development Plan"

shows, the Ministry of Communications will further widen channels of raising funds, expand the investment scale of water transportation construction, and make greater efforts to strengthen the construction of infrastructures along Yangtze Channel and inland waterway ports in the following 5 years. The large-scale construction of waterway ports and reforms on enlarging, specializing and modernizing the current berths will provide larger market and more opportunities for developing the construction industry.

Environmental protection and city construction projects will become the priority on the development agenda.

Environmental protection：With the optimization of economic structures and enhanced environmental protection awareness in the public，the environmental protection and energy-saving projects will become the priorities. Infrastructures for environmental protection purposes, such as water and waste treatment plants and power stations will become new growth points attracting more investments.

Urban construction: The 17th Session of the CPC Congress Meeting saw a proposition to speed up China’s urbanization process and urban constructions. However, according to the National Bureau of Statistics, the current urbanization rate is only 31% in China, 15% lower than the world average level. On the basis of an analysis of China’s economic growth potential and population growth rate, the

urbanization rate in China will be expected to reach 50% in 2020, which means the urbanization rate must rise by 1.5% annually. Meanwhile, from the perspective of city planning and land uses, the current functional layout in most cities in China now is far from reasonable. In order to maximize the land value in urban areas, it is required to redesign and reconstruct those old city districts, which will result in a large scale of reconstruction of housing projects in cities' residential areas.

Metro System: the 21st Century is a new period for developing and completing city metros systems in China. At present time, more than 40 metropolises in China have a million-odd population, more than 30 of which have started building subways and express rails or are preparing for building a subway system. About 15 cities have submitted their plans of building a urban metro network with 60 lines, 1600 km in length funded by 500 billion RMB investments. In the 11th five-year plan, traffic mileage of subways and light-track rails in large cities will surpass 1500 km, with over 200 billion RMB investments, which will become an important part of infrastructure construction.

China's real estate construction industry enjoys a promising prospect for future development.

During the 11th five-year plan period, along with the fast urbanization process, the speed for expanding and improving people's living conditions will be greatly accelerated. The statistics shows, every 1% increase in urbanization rate will fuel more than 2% growth in GDP, and increase 16 million urban citizens. If it is counted

by 20 square meters per person, there will be 3200 million square meters of newly-added houses, something equivalent to the entire housing area of a small or medium-sized developed country in Europe. It is quite foreseeable that China’s real estate development market has a great future. However, suppose the fast growth rate of China’s urbanization will sustain until 2020, the urban population will increase accordingly to account for 65% of the total population at that time. Compared with the current urban population, it means there will be 1600 million newly-added urban residents over the next ten years. It brings up an enormous demand for urban infrastructures, such as residential areas, traffic facilities and architectures for public and government functions. The real estate price increases rapidly in the 11th five-year plan period. To promote the healthy development of the real estate market, the government stipulated a series of macro-regulative policies in the real estate market to stabilize house pricing, including regulating loan interest rates, taxation and land leases. All these measures and policies have played a significant role in maintaining the sound development of China’s real estate market and industry. Boosted by a brisk demand for housing in the domestic market and constant flow of investments in housing projects, real estate development projects will remain as the focus of attention and prioritized sector for development in China’s overall construction industry till 2020.

China’s score has historically been high in this category, on account of the large size of the market and strong growth. The government's stimulus plan is expected to sustain high growth in the sector in the coming years. It is this combination of factors

that work to give China a high score in the Infrastructure Market category, which in turn boosts its overall score in the Asia Pacific Business Environment Ratings. (Datamonitor.2009)

1.2Analysis of Chinese Construction Enterprises

1.2.1Major nation-funded projects help upgrade the technological level of construction enterprises.

Over the recent years, the implementation of the major national projects not only creates golden opportunities for Chinese construction enterprises, but also becomes a huge impetus for developing their construction technology. The successful completion of those major projects brings in many breakthroughs in every aspects of construction industry in China, which includes the Three Gorges Project, the Project to divert water from the south to the north, the Qinghai-Tibet Railway, the Hangzhou Bay Bridge, the Shanghai Yangshan Port, the National Stadium, CCTV Broadcasting Tower and the Shanghai World Financial Center. Based on the experiences acquired and accumulated from constructing these major projects, Chinese construction enterprises have mastered and built up a large number of new technologies on modern architectures and constructions. They have developed the capability and capacity to handle various types of construction projects. The technological level of Chinese construction enterprises have been lifted up to advanced international standards in certain aspects.

1.2.2 Chinese construction enterprises have achieved a good start in their internationalization process.

Chinese construction enterprises are actively expanding their business into the international market and have achieved a good starting so far. A growing number of construction enterprises begin to go abroad, so that the reputation of Chinese construction enterprises gradually starts to build up in the international construction market. For instance, "Engineering News Record" (ENR) selected the world's Top 225 international contractors in 2008(The Top 225 by ENR, 2008) .51 Chinese companies were put on the list, two more than the previous year. It hit a record in terms of the number of Chinese companies being selected, about one-fifth of the total 225. Meanwhile the list also highlights that China had the largest number of enterprises entering ENR225.

Chinese construction enterprises' access into the international market and overall competitiveness are at a low level.

"*Although Chinese international construction enterprises have gained great stride in the global market, their scale of overseas operations is still small relative to their European, Japanese, and North American counterparts*."(Low Sui Pheng and Jiang Hongbin,2003)

From another perspective, the overall strength of the industry is still weak. The list also reveals that although China ranks high in terms of the number of construction companies on the list, market shares of those 51 listed Chinese enterprises are still

small compared with those of their major international rivals. The international business turnover of Chinese contractors rose from US$16.289 billion last year to US$22.677, an increase of 39%, but the turnover only accounts for 7.3% of overseas turnover of ENR225, the same with last year. The total sum of overseas businesses of these 51 listed Chinese companies is only equivalent to that of HOCHTIEFF, which ranks first in the ENR225 with a turnover of US$21.313. In the first 100 ENR companies, there are only 13 Chinese companies, while most of other Chinese companies are at the bottom of the list. All these facts lead to the conclusion that there is still a gigantic gap in overall competiveness between Chinese construction enterprises and their international rivals.

1.3Existing Problems in the Internationalization Strategy of Chinese construction enterprises

It is evident that China has a huge construction market with a big potential. Firstly, Enormous large investment projects provide a golden platform for the development of China’s construction enterprises. At the same time, the construction enterprises make best use of this great opportunity in improving their own capability and competitiveness. What’s more, they make a number of breakthroughs in types of projects and also in constantly upgrading their construction technologies, some of which are even in the leading edge of the international market In addition, Chinese construction enterprises get a strong impetus from low labor cost. Theoretically, we

are supposed to be more competitive in the international market. However, there is a big gap between Chinese construction enterprises and their giant competitors in their international market shares.

What has caused this? What is our problem?

First, our construction enterprises seem to be close to or in the lead of international standards from the perspective of technological level and scale of completed projects. Second, our design ability and construction ability are good enough to compete with those of other countries. Last but not least, thanks to the development of our construction machinery industry and construction enterprises' huge investment in equipments, our mechanization level has been greatly improved, gradually catching up with the developed nations.

Through analysis, we can easily conclude that the gap between our construction enterprises and world construction giants does not lie in technology, design and construction capacity or equipments, but in management level and development scale. The reasons are stated here. Many big construction enterprises in China have started from the age of planned economy, but developed since reform and opening up. They are either run in the domestic market for a long time without any experience of internationalization management, so they are difficult to develop internationalization; or they are operated a small-scale internationalization business in some countries and regions, so they have internationalization experience in these countries and regions,

while lack it in the global market and systematic internationalization management pattern. Although Chinese construction enterprises are now provided with construction technology and production capacity of international standards and a certain internationalization management, owing to the complicated competition in the international market, their single-market management experience is inadequate for adjusting to the multi-outlet market. As a result, the existing problem of our construction enterprises is in internationalization management pattern, not in technology or production capacity. Thus, the focal point of internationalization of the group is to improve the internationalization management ability.

1.4 Approach Choice in Internationalization of Chinese construction enterprises

1.4.1Benchmark Study

1. Definition of Benchmark Study:

"a physiological or biological reference value against which performance is compared' (Zairi,1992). In its narrowest sense, therefore, "*benchmarking in a business context is concerned with comparing a company's performance with that of competing organizations in an attempt to improve how it performs the same, or similar, functions*" (Watson, G H, 1992).Shoham and Fiegenbaum argue that "*the procedures an organization espouses to employ performance-enhancing strategies are more important than the strategies themselves. Fundamentally, the benchmarking process is one of comparison. It identifies and learns from analogical comparisons*

between the activities, strategies, methods, or outcomes of one's own organization and those of other organizations." (Shoham and Fiegenbaum,1993)

So Benchmark study is a process of endless discovery and study—a process to find and criticize the best benchmarking practice to integrate the most valuable into the development of the organization. Benchmark study is a process to improve the quality and work procedures, and is to make a relatively formal assessment of the best-in-class in the organization or outside in the aspects of the current work flow, products and services, and then improve them.

2. The Origin of Benchmark Study:

In the late 1970s, Xerox decided to adopt Benchmark study, comparing and analyzing the products from U.S. Xerox and those from Fuji Xerox. The management leaders in Xerox, U.S., discovered that Fuji Xerox sold the same products at the price of the cost of American Xerox. This astonishing discovery became a fuse of a successful cost-lowering activity in the manufacturing process by American Xerox. This innovative benchmark study activity achieved so remarkable outcomes that the managers of American Xerox took it as the basic measure for performance improvement in the company.

Xerox has made such a remarkable achievement in the benchmark study that it is considered as the real pioneer in the benchmark study. The benchmark study has been

given a brand new meaning in the activities by Xerox. Besides products process and business-supporting process, Xerox has adopted benchmark study in every area of the organization. The modes for benchmark study are not limited to the company itself or its rivals but expand to every potential benchmark study partners engaging in the same or similar activities. Xerox creates a brand new perspective for benchmark study. Benchmark study became the tool to stop market shares from declining (the drop of Xerox's market shares reached about 30% in the late 1970s and the early 1980s), and to regained the market shares (since ten years of benchmark study, the market shares rose about 10%).

Nowadays, many organizations are benefiting from the experience of IBM and Xerox, using benchmark study as a tool to strengthen them. Many experts consider benchmarking must contain many factors, such as (Randhir Auluck ,2002) "*Planning: involves internal scrutiny, analysis of strengths and weaknesses, flow charting of 1)processes, measurement of performance, preparation for benchmarking.*

2) Analysis: involves identifying potential partners, exchange of information, site visits and observations of process.

3) Implementation: involves adaptation of processes and implementation.

4) Review: involves review and repeat as part of the continuous improvement philosophy."

3. Purposes and Effects of Benchmark Study:

What is accurate definition of the process? (Randhir Auluck,2002) said:"*Internal benchmarking is a good starting point, but can be limiting.*

Benchmarking against direct competitors is useful, but difficult particularly at a process or strategic level.

The best results come from functional benchmarking where comparisons of similar processes are made between comparable, but not competing, organizations.

Long-term benchmarking partnerships offer the greatest potential for continuous improvement".

Establish challenging but practicable target.

Decide how to achieve the target.

Find out the gap between the organization and its rivals in performance.

Maintain the competitive advantage and make breakthroughs in performance.

To promote effective management practices of a certain functional department in the organization.

Test the effectiveness of strategies of the organization.

Identify the future strategies and resources investment plan of rivals.

Clarify the gap between the organization and world top enterprises.

Plan the activities that need urgent improvement

Be clear about the advantages and disadvantages of the organization.

Be helpful for the managers to implement the improvement plan.

Understand ongoing technological reform and management practice.

Improve the satisfactory level of the stakeholders.

Learn from the world top organizations.

Two main reasons for adopting benchmark study are to set a target for the organization and decide how to achieve it. In the past, the establishment of the target is based on the past performance level of the organization. This limitative method failed to set up an effective relation between the target of the organization and the excellent standard. The target of the organization was occasionally higher than the performance of the organization. However, it was usually that the target is far lower than what should be achieved or what was supposed to achieve.

Although the core of benchmark study is to provide us with an idea to discover, comprehend and then make proper innovations to improve the performance of the organization, the unique value of this method is to let us know what we can do and how to change and improve the current way of act and management pattern to do what we are suppose to.

4. Types of Benchmark Study:

Five Types of Benchmark Study, as follows:

1. Internal

2. Competitor

3. External (in the industry)

4. External (cross-industry)

5. Comprehensive

The most common used benchmark study is comprehensive adoption of internal and external benchmarks. It is more ideal to use comprehensively. According to the features of the topic, we choose external benchmark study, adopting competitor benchmark study, industry benchmark study and cross-industry benchmark study.

5. Procedures for Benchmark study:

In brief, the benchmark study includes the following procedures:

Decide what you wish to benchmark

Scope definition

Choose benchmark partner

Determine measurement indicators

Data collection

Analysis of the discrepancies

Make improvement plans or new procedures

Monitor progress and plan ongoing benchmark study

1.4.2Research aim and objectives

The subject of the current research is Chinese enterprises undergoing transformation to international corporations. The fact that China has adopted and implemented a market economy for only 20-odd years while its western competitors have enjoyed a highly developed market economy for over 300 years predetermines that those Chinese enterprises, once entering the global market, will contend with plenty of competition on all fronts. A case in point is Chinese construction enterprises. China's construction industry has long been the pillar as well as the booster to its economy. With China's economy more closely integrated with the world economic landscape, a growing regiment of Chinese construction enterprises are now entering and competing in the international arena. However, those construction companied from China are commonly found with problems like inadequate management expertise, insufficient knowledge or poor access to business information, and on top of that, lack of dexterity to adopt themselves to highly diversified foreign markets. Given these constraints, those Chinese construction enterprises are facing enormous difficulties in establishing overseas market and are stranded in the infant stage of development in their internationalization process. Therefore, the aim of this paper is to provide the above-mentioned enterprises with a set of methods for self-monitoring and self-evaluating of their performances against standards generated from those benchmark companies and more importantly, constitute a solid basis for their further improvements and sustained growth.

1.4.3 The case study

Huawei studies IBM (Huawei: Globalizing through Innovation) Managing Global Innovation Springer Berlin Heidelberg

Brief introduction to Huawei:

In October 1987, in a shack in Shenzhen Bay, 43 years old Ren Zhengfei established Huawei. The registered capital was 24,000 RMB.

In 1992, Huawei began to produce Public Branch Exchange, with sales of 100 million RMB. The company had 100 staff at that time.

In 1997, the number of the staff reached 5600. The sales were 4.1 billion RMB.

In 1999, the number of the staff reached 15000. The sales were over 10 billion RMB for the first time, reaching 12 billion RMB. The overseas sales were US $53 million.

In 2005, the sales reached 45.3 billion RMB, among which US $3.28 billion were overseas sales. The sales of overseas market surpassed that of the domestic market for the first time.

In 2007, the global sales were US$ 16 billion, the overseas sales accounting for 72%, about US$11.5 billion. Figure1.2 shows the Oversea contracted sales was increased from 27billions RMB in 2002 to 160 billion in 2007, the overseas contracted sales raised about 100biliions in the 5 years.

Figure1.2 2002-2007 Hua Wei's overseas contracted sales

After five years benchmark study on IBM, Huawei has linked itself to world practice in management system, which systematically ensures Huawei's rapid internationalization. In recent years, Huawei has been certified by British Telecom, French Telecom and Vodafone in the areas of strategy-planning, procedures-operating, management system, quality control and human resources management. It means that after benchmark study and self-reform, Huawei has become a multinational corporation.

The first step to implement benchmark study is to find and decide the benchmarks. We can take top construction enterprises as our benchmarks, but what kinds of construction enterprises are top? How to define? These are problems to be solved in the chapter. We will define what international top construction enterprises are from the following steps, and then select our benchmarking enterprises.

1.4.4How to use the benchmarking study in this research

Application of Benchmarking in this paper: first choose Chinese construction enterprises as the subject; then define the internationalization of the Chinese construction enterprises including their overseas market expansion and competitiveness enhancement as the process under study; set up a benchmarking system by selecting four best-performing international construction enterprises widely recognized by experts and the public, colleting quantity and quality indicators from their performances according to the balanced scorecard, then nondimensionalize the collected data, assume the optimal metrics and complete the benchmarking system for successful international construction enterprises; measure the specific Chinese construction enterprises against the benchmarking system, find out the discrepancies and problem-ridden areas to guide further improvements and executive activities. Those suggested goals and measures must be integrated into the overall operational strategy of the enterprise and a tracking-and-feedback system needs to be put in place to evaluate the measures and provide timely modification and rectifications. By setting up the benchmarking system, the paper aims to guide the Chinese construction enterprise to reengineer and optimize their execution process while strengthening their presences in the international market.

CHAPTER 2 Enterprises to be benchmarked in this study

2.1 Introduction

The first step to implement benchmark study is to find and decide the benchmarks. We can take top construction enterprises as our benchmarks, but what kinds of construction enterprises are top? How to define? These are problems to be solved in the chapter. We will define what international top construction enterprises are from the following steps, and then select our benchmarking enterprises.

2.2Definition of International Top Construction Enterprises

2.2.1 First, by worldwide and the industry

“International Top” is a subjective concept, so we can select from those well-acknowledged enterprises to define the range of “international top” benchmarking.

We can refer to the ranking of construction enterprises entering Fortune 500 (by turnover) in 2008 in the following Table2.1. Their ranking in Fortune 500 amply demonstrates their advantage in scale, which is adequate for the demand in scale of an

international top enterprise. （The Top 500 by turnover, Fortune,2008）

Table2.1 The ranking of construction enterprises entering Fortune 500 by turnover in 2008

Name of Companies	Fortune 500	Construction Industry in Fortune
Vinci, France	169	1
Bouygues, France	172	2
ACS, Spain	270	3
China Railway	341	4
China Railway Construction	356	5
HOCHTIEF，Germany	377	6
China State Construction Engineering	385	7
Skanska, Sweden	411	8
Ferrovial, Spain	424	9
China Communications Construction	426	10
FCC, Spain	440	11
China Metallurgical Group	480	12
Eiffage, France	488	13
Fluor, U.S.	500	14

From another sight of the famous magazine-ENR, the Table 2.2ranking of the top 20

international contractors (by international turnover) in ENR 225 in the table below.

Table2.2 In 2008 the top 20 international contractors by international turnover by ENR

Name of Companies	ENR International Contractors
HOCHTIEF	1
Vinci	2
Skanska	3
STRABAG	4
Bouygues	5
Bechtel	6
SAIPEM	7
TECHNIP	8
Bilfinger Berger AG	9
Bovis Lend Lease	10
Fluor	11
ROYALBAM	12
FCC	13
Balfour Beatty	14
KBR	15
CCC	16
Chiyoda	17
China Communications Construction	18
ACS	19
Construora Odebrecht	20
China State Construction Engineering	21

The table of ENR's ranking reflects the degree of internationalization of these

international contractors and their international market shares, and is the best way to reflect their comprehensive strength (ENR Top255 International contractors, 2008)

2.2.2 Second，by “generally acknowledged status in the industry”

In defining international top enterprises, we should know which enterprises are well-acknowledged in the industry besides the global ranking and the industry ranking.

50 experts voted respectively for one of the 2008 ENR255 Top 20 enterprises. They gave their scores based on factors like degree of internationalization, enterprises’ scale, recognition from the inside of the business, enterprises’ performance and achievements, speed of growth, technology level and management models. The final result is showed as the following:

Table 2.3 50experts mentioned time about the top 20 enterprises

Name of Companies	Skanska	HOCHTIEF	Vinci	Bouygues	Fluro	FCC	Bechtel	Balfour Beatty	ACS
Times	13	12	9	6	5	1	1	2	1
Reason In the parenthesis are the times mentioned.	High degree of internationalizatoin（3） Large scale（2） High degree of recognition in the industry（2） Good performance（4） Rapid development（2）	High degree of internationalizatoin（5） Large scale（2） Influencial（2） General strength （2） Good performance（1）	High degree of internationalizatoin（2） Large scale（4） Good performance（3）	High degree of internationalizatoin（2） Large scale（2） Wide scope of business（2）	High degree of internationalizatoin（3） High technological level（2）	Large scale（1）	Unique management pattern（1）	General strength（1） High degree of internationalizatoin（1）	High position in the industry（1）

The “Expert Investigation” decide which enterprises are acknowledged leaders in the industry. We investigated 50 famous experts in the construction industry by

questionnaires in academic exchanges, including well-known scholars and elites in the industry. They are required to choose the most top enterprise from the top 20 in the said ENR 225 (The ranking is random in the questionnaires and they don't know the ranking of this year) and give us reasons for the success of these enterprises. Figure 2.1 from two-dimensional distribution map by times mentioned and the ranking in the industry is shown below. From the perspective of recognition degree, we choose nine as the benchmarking enterprises, SKANSKA、HOCHTIEF、VINCI、BOUYGUES、FLUOR、BECHTEL、FCC、BALFOURBEATTY、ACS.

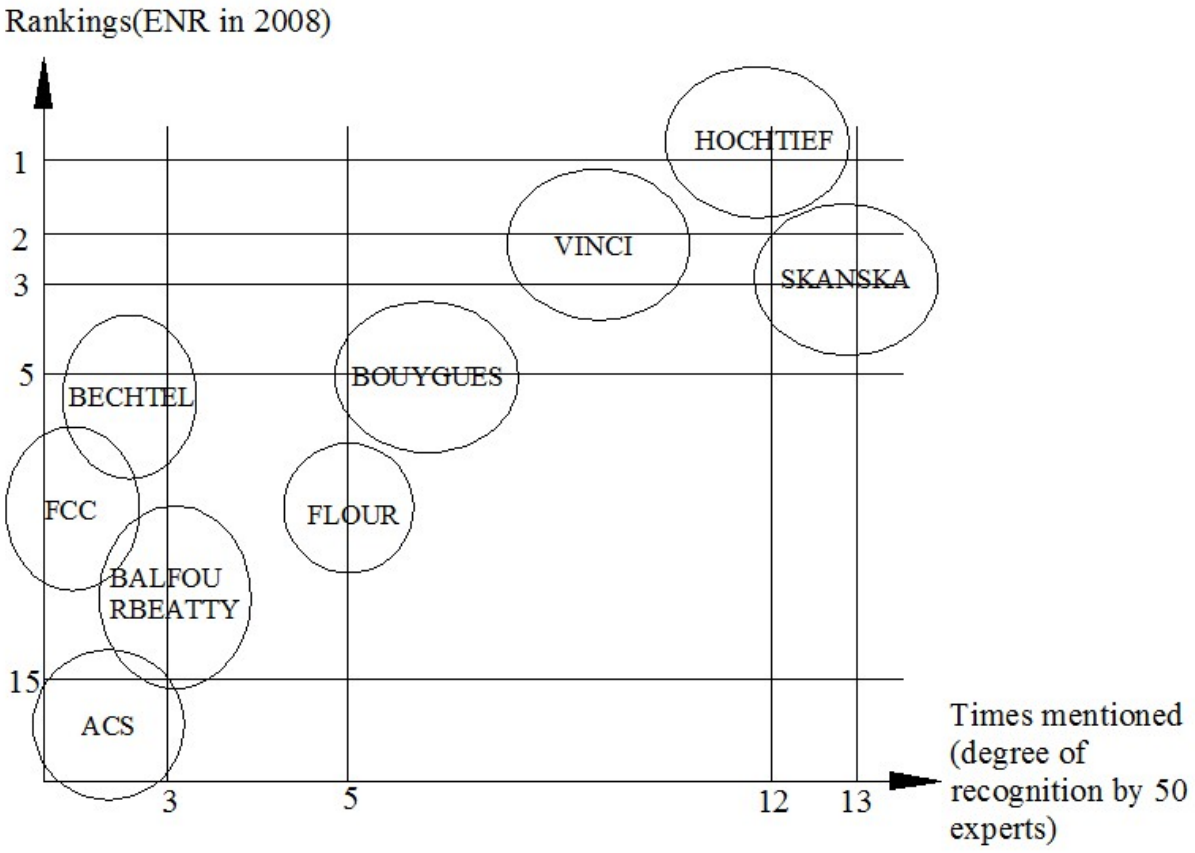

Figure2.1The two-dimensional map by times mentioned and ranking

2.2.3Third, by “Business Scope” and “Geographical Scope”

The distribution map below is drawn in two dimensions, business scope and geographical scope, dividing nine contractors into four groups. We can pick one benchmarking enterprise from each group, in which way top enterprises come up.

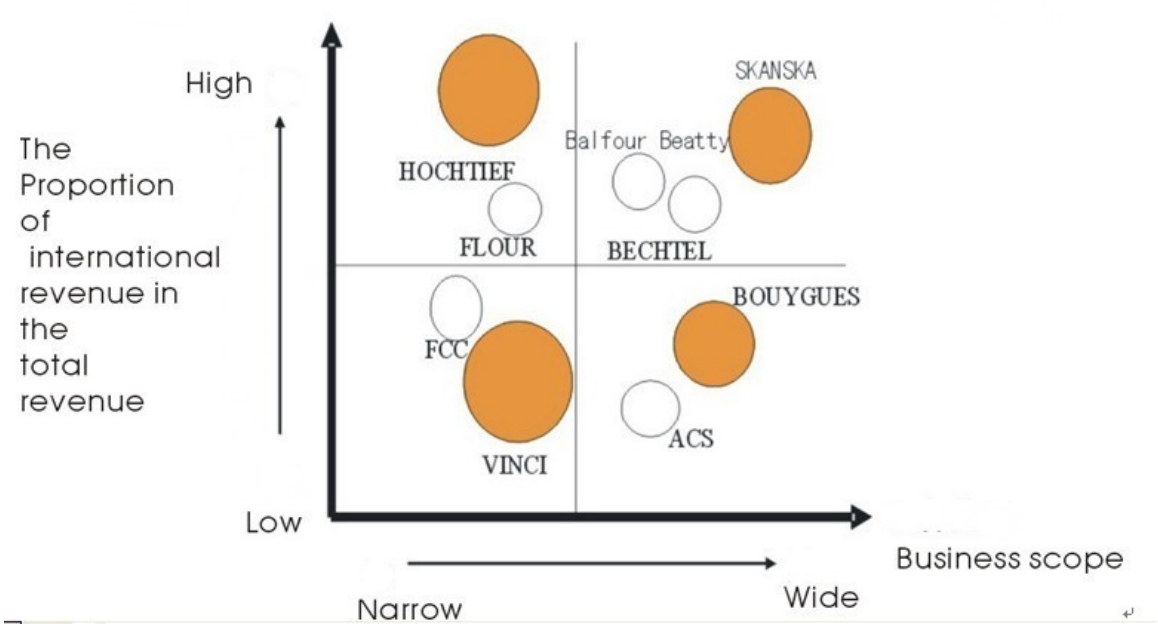

Figure2.2 The distribution map by business scope and geographical scope

Here, we have four benchmarking construction enterprises, SKANSKA, HOCHTIEF, BOUYGUES and VINCI. They have different factors for success, which can offer guidelines for our benchmark study.

SKANSKA: Internationalization mode of “Leading role in capital operating ability”

HOCHTIEF: Innovation mode of “Leading role in innovative ability of industrial

value chain".

VINCI: The most profitable contractor in the world "Leading role in shareholders' value"

BOUYGUES: The mode of diversity management of "Leading role in professional ability".

2.3 Brief Introduction to Benchmarking Enterprises

2.3.1SKANSKA

History of SKANSKA

In those world famous construction contractors, it is easy to notice SKANSKA. The company is the geographically largest project construction and facilities management corporation in the world. It has nearly 120 years legendary history. SKANSKA is not only a Fortune 500 company, but also ranks in the top three of ENR 225 for a long time, even being consecutively four times on the top. Its history and management pattern are worth learning.

By the end of 2007, the company had 60,000 employees with annual net sales revenue of over US$18.5 billion. The main businesses are project construction, real estate development, commercial building development, infrastructure investment and relevant consulting services. The businesses are mainly in over ten countries and regions, such as Sweden, America and Britain. The rate of the average return on assets

and that of the average return on capital are over 17.5% and 16.1%. The dividend remain more then €0.7.(Skanska Annual Report,2007)

SKANSKA can provide products and services from housing and commercial development, project development, and communications to information technology. The company are active in selected home markets in Europe, the US and Latin America.

In the beginning of last century, SKANSKA was only engaged in housing developing business in Stockholm. In the period from 1920s to 1950s, SKANSKA expanded its businesses from Stockholm to the surrounding areas, the main business still being housing development. What's more, it began to start commercial building development, and then contracted to build some historic projects, such as the first asphalt road in Sweden and the longest concrete cross-arch bridge in the world (before 1963). During this time, SKANSKA tried to start businesses in other regions. Although it was the leader of project construction in Sweden, it still was unknown in other countries.

In the time for international expansion, SKANSKA began to enter the international market since 1950s. Depending on its own advanced technology and adaptability to local culture, SKANSKA successfully entered the Middle East and African markets, and then CIS and Eastern Europe. In spite of an initial success on the international expansion, SKANSKA was still

considered to be an unremarkable Swedish construction company. The situation was reversed after it contracted to build a series of huge water conservation projects and infrastructure projects in Latin America, Africa and India. From then on, SKANSKA has entered a rapid international expansion age. The expansion of American market was an important strategy for SKANSKA to establish a status of international benchmark. The company set up a new mode based on the American strategic expansion, and then put it in other European countries successfully. It has completed its business layout in the world. （Skanska strategy, by Skanska company,2007）

With the development in the new century, SKANSKA has begun regional expansion through M&A, and also treated the regions selectively. It adopts the principle of "concentrating on the domestic market". Its products are mainly products and services about real estate and project construction. It acts as the role of the leader in construction, green construction and the pioneer harmoniously uniting nature and construction.

Introduction to SKANSKA's Business Mode (Skanska Commercial Development,2006)

- Construction: residential construction, non-residential construction and public projects. The construction businesses of SKANSKA are mainly distributed in Sweden, Norway, Denmark, Finland, the Czech Republic, Britain, the US and Latin America.

Residential development: Residential development projects occur only in some markets, Sweden, other Nordic countries, the Czech Republic and Russia. The units in charge of the businesses are SKANSKA Residential Development Nordic and SKANSKA Residential Development Czech.

- Commercial development: mainly in charge of sponsoring, developing, renting and dealing with commercial assets projects. The businesses are central on office buildings, shopping centers and logistics centers. The units in charge of the businesses are SKANSKA Commercial Development Nordic and SKANSKA Commercial Development Europe, covering the markets of Stockholm, Copenhagen, Gothenburg, Warsaw, Prague, and Budapest.

- Infrastructure: mainly in charge of privately financed infrastructure projects, such as roads, bridges, schools and factories.

Organizational Structure of SKANSKA

Organizational structure of SKANSKA is shown as follows:

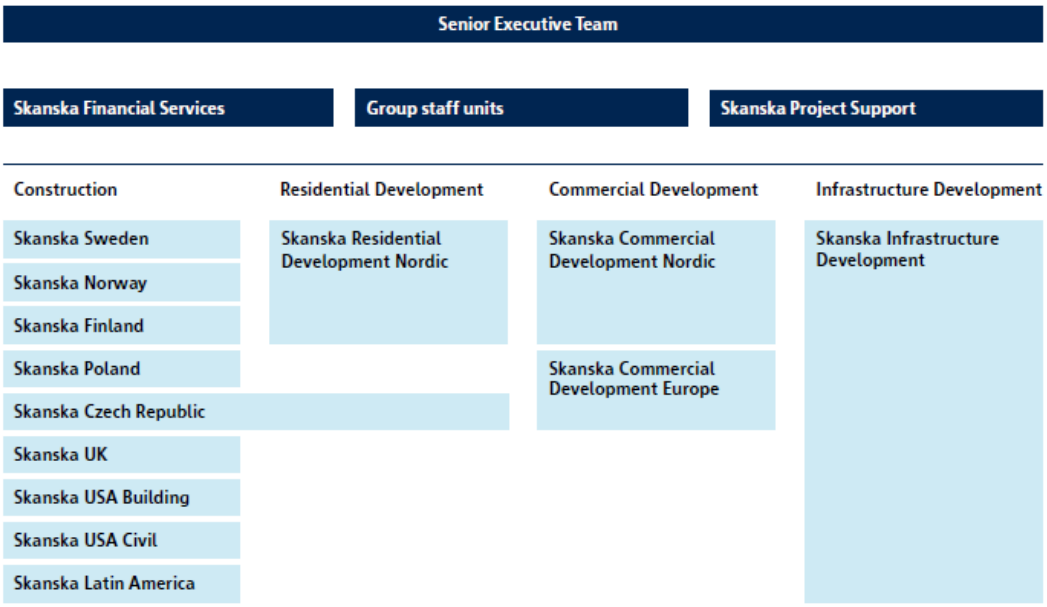

Figure 2.3 Group organization and reporting structure

(Skanska Commercial Development, 2007)

SKANSKA has a good organizational structure, adopting unit management pattern. Four units are set up according to different types of businesses, while to different business regions there are regional subdivisions in every region. There are also branches or subsidiaries in every region subordinated to subdivisions. Therefore, business operation and expansion are independently in charge by the branch in the region.

In addition, headquarter of the company directly manages their service departments, including Group staff units plus the support units SKANSKA Financial Services and SKANSKA Project Support. They provide backup to the business units related to such fields as human resource training, project financing, risk management and financial support.

The main function of SKANSKA Project Support is to provide the Group or its subsidiaries with professional knowledge and technology related to construction projects, mainly huge and complicated ones, such as underground foundation construction, bridge, tunnel, power station, petrochemical project and airport, and then offers backup at different stages of the project. The support includes flexible support, project plan, project start-up support, risk management in the project construction, project evaluation and the second evaluation, efficient implementation, risk assessment, and professional website design.

The main function of SKANSKA Financial Services is to provide the Group and its branches with backup and services of financial management and control, project financing and financial risk.

The Group Staff Unit provides the Group and its branches with human resources management and backup services, including regulation of recruitment system, training and assessment system.

The organizational structure of the SKANSKA Group is characterized by clear decentralization, enabling senior executive leaders to focus on development and strategic problems, avoiding competitions inside the company. It is also beneficial to form an advantage of complementary businesses. Each business unit has its staff unit

and other resources to conduct its operations effectively. The competitions among units can improve the overall efficiency of the company. Under this structure, the company adopts a unified information management system and the global training program, which are better for the talented.

Vision and Strategy (Skanska annual report 2007)

The mission of SKANSKA is to develop, construct and maintain a good environment for living, tripping and working.

The vision of SKANSKA is to become market leader and the preferred company in the fields of project construction and project development.

The target of SKANSKA is to create value for clients and stakeholders. Project is the core business of the company, and value comes from profitable projects with good operation.

In the area of project construction, SKANSKA is committed to pursue outstanding operating performance and capital flow, striving to become leader of the market in scale and profit-making ability.

In the area of project development, SKANSKA strives to become leader in the related projects, such as housing, office, commercial estate and infrastructure projects.

In order to attain operating target and financial target, the following development strategies are adopted by the company:

Focus on engineering construction and project development

Become an international company and leader in the selected markets

Make full use of comprehensive resource advantages of the Group: Brand, Professional Staff and Financial Strength

Recruit, develop and retain the talented, and add diversity in the talented

Distinguish risk and control systematically

Promote “Green” construction standard in the whole operation

Become leader in the construction industry in the aspects of sustainable development, especially in occupational health and safety, ethics and environment

Make full use of the trend of urbanization and our professional knowledge to become a city builder

Make full use of the potential to coordinate with the advantage in purchasing.

Make full use of high-efficiency advantage in the large-scale construction industry.

Unique ability——Strong Capital Operating Ability

Shareholders are competitive in financial strength and capital operating experience: SKANSKA became a listed company in 1965. Since 1991, the market value of the company stock has remained at 1.25 billion Korunas.

Before 2006, 10 largest shareholders in Sweden accounted for 35% in shares and 48% in voting power. In 2007, 10 largest shareholders are companies of investment, insurance, bank and fund, accounting for 32.3% in shares and 52.5% in voting power (See Figure2.4). The largest shareholders are industrivarden and AM pension, being the leading investment company and pension insurance company in Sweden

Shareholder	Series A shares	Series B shares	% voting power	% capital stock
Industrivärden (investment company)	15,010,700	17,314,800	27.0%	7.7%
Alecta (retirement insurance company)	0	29,500,000	4.8%	7.0%
AMF Pension and AMF Pension Funds	0	20,330,000	3.3%	4.9%
SHB Pension Foundation	1,600,000	2,800,000	3.0%	1.1%
Swedbank Robur Funds	0	14,545,652	2.3%	3.5%
SEB	1,167,000	1,693,916	2.2%	0.7%
SEB Funds	0	11,717,477	1.9%	2.8%
Carnegie Investment Bank	1,149,196	22,954	1.9%	0.3%
SHB	1,000,000	285,406	1.7%	0.3%
SHB Pensionskassa	1,000,000	0	1.6%	0.2%
10 largest shareholders in Sweden	**21,161,700**	**114,111,459**	**52.5%**	**32.3%**
Other shareholders in Sweden	1,215,867	175,103,640	30.2%	42.1%
Shareholders abroad	86,096	101,626,905	16.5%	24.3%
TOTAL	**22,463,663**	**396,089,409**	**100.0%**	**100.0%**

Figure2.4 the l0 largest shareholder's voting power and capital stock

(from Skanska Commercial Development 2006)

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The unique competitive edges coming from capital operating ability: Based on large shareholders' capital and experience, SKANSKA launched frequent purchasing in the

internationalization expansion after 1991, greatly improving its performance. On the other hand, based on solid financial strength, SKANSKA achieved success in the areas of housing, commercial property and PPP. In addition, SKANSKA is more competitive in some super-huge projects and financing projects, relying on its capital strength.

2. 3.2 HOCHTIEF

History of HOCHTIEF (Annual Report 2007 by Hochtief)

In those world-renowned construction project companies, HOCHTIEF is representative. It has a 130-year-old history and has begun its multinational operations for more than eighty years. Its history is worthy of studying that it developed from an unknown builder to a world-known construction enterprise.

HOCHTIEF ranked on the top of ENR 225 in 2008 for its outstanding performance over US$23.86 billion on the total revenue. It also ranked 377 in Fortune 500.

In 2007, the number of staff in the corporation was over 50, 000. The sales were €14.07 billion, international market sales accounting for 89%. Pre-tax profit was € 329, 050,000, and after-tax profit was 151,336, 000. Rate of Return on Common Stockholders' Equity (ROE) was 13%.

Introduction to Business Structure

HOCHTIEF is an international construction services provider. For all types of complicated projects we offer a range comprising four modules—design, investment, construction and operation. Thanks to our global network, we are on the map in the world's major markets, including Germany, other European countries, Americas and Asia-Pacific Area. The types include office buildings, shopping centers, airports, power stations, hospitals, port facilities, stadiums, expressways and railways.

The services of HOCHTIEF span the whole cycle of the project, including four modules:

Development: including planning, design, investment, financing and marketing of the property

Construction: including traditional construction, standard operating, civil engineering and infrastructure projects, which are the core competitive edges of HOCHTIEF.

Services: including planning, logistics, equipment management, assets management, insurance, environmental engineering and construction management.

Concessions: including airport management, cooperation and contracting extraction in PPP.

Organizational Structure （Annual Report 2007 by Hochtief）

The structure of HOCHTIEF is being adjusted with external environment and its own businesses.

The current HOCHTIEF Group comprises a management holding company and six corporate divisions, HOCHTIEF America, HOCHTIEF Asia Pacific, HOCHTIEF Concessions, HOCHTIEF Europe, HOCHTIEF Real Estate and HOCHTIEF Services. See Figure 2.5:

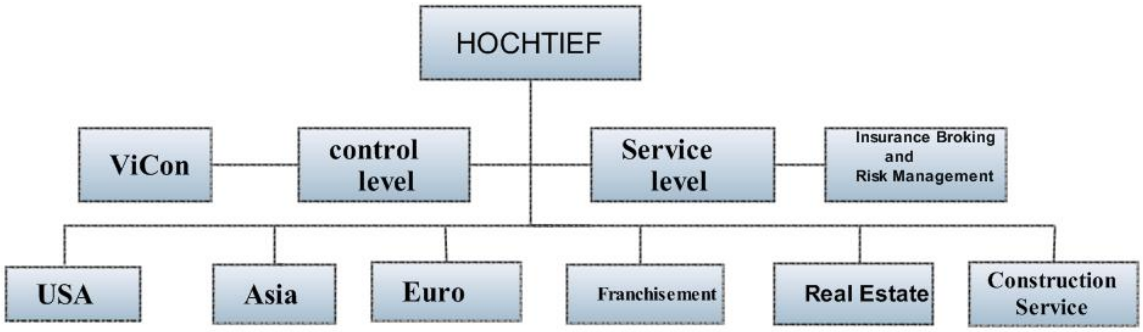


Figure2.5： the organizational structure of Hochtief

The management holding company has a control level and a service level. The control level is responsible for the strategic and organizational development of HOCHTIEF Aktiengesellschaft, while the service level offers its services to the entire Group, for example in connection with human resources, financial, legal and purchasing issues.

The companies HOCHTIEF Insurance Broking and Risk Management Solutions, and

HOCHTIEF ViCon are on the level below the management holding and act as service providers for all Group units.

In its broker function, HOCHTIEF Insurance offers insurance services covering the entire life cycle of infrastructure projects, real estate and facilities. It also insures construction projects and facility management services. In addition, HOCHTIEF Insurance performs reinsurance services.

HOCHTIEF ViCon (Virtual Design and Construction) was newly founded in 2007. HOCHTIEF ViCon offers services which covers all phases of a building structure's life cycle: from development, planning and design through to operation of a building. HOCHTIEF ViCon manages the administration, maintenance and provision of 4D models (model management) for all project parties and provides consultancy services for ViCon use. By applying the ViCon method, all dimensions of a project can be captured digitally, including technology, cost, time, and utilized space and consumed energy.

Vision and Strategy

1) Vision:

"HOCHTIEF is building the future. – Along with our partners, we expand horizons, link people and organizations, create new ways to think and act, and continually enhance the values entrusted to our care."

2) Strategy:

i) Strategic management in the entire project phases:

The strategy of HOCHTIEF is to provide services in the entire project phases and create a stable income stream for the long term.

ii) Update our products and service portfolio:

Our product and service portfolio covers every link in the project value chain. We will update our products and service portfolio in all phases.

iii) Take Innovation as HOCHTIEF's Competitive Edge:

If we want to meet challenges in the future, it is necessary to have innovative thinking and solutions. Experts think that knowledge and unique skill are the reasons for HOCHTIEF's excellence. Currently, HOCHTIEF has got 133 patented technologies.

Become a satisfactory employer

It is extremely important for HOCHTIEF to have a group of excellent and high-qualified employees both now and in the future, especially when we are striving to promote advanced products and services, we need a group of employees who can provide multi-service in high-standard quality. For this reason, the priority in HOCHTIEF is human resources development in order to recruit or keep good employees. We have realized that a healthy enterprise culture and good fame will play a unique role in attracting the talented.

3) Unique ability—Innovative Mode of Industrial Value Chain.

HOCHTIEF offers our clients convincing purpose-designed and comprehensive services along the entire value chain of construction, such as development, planning, construction, property management and assets management (See Figure2.6 below).

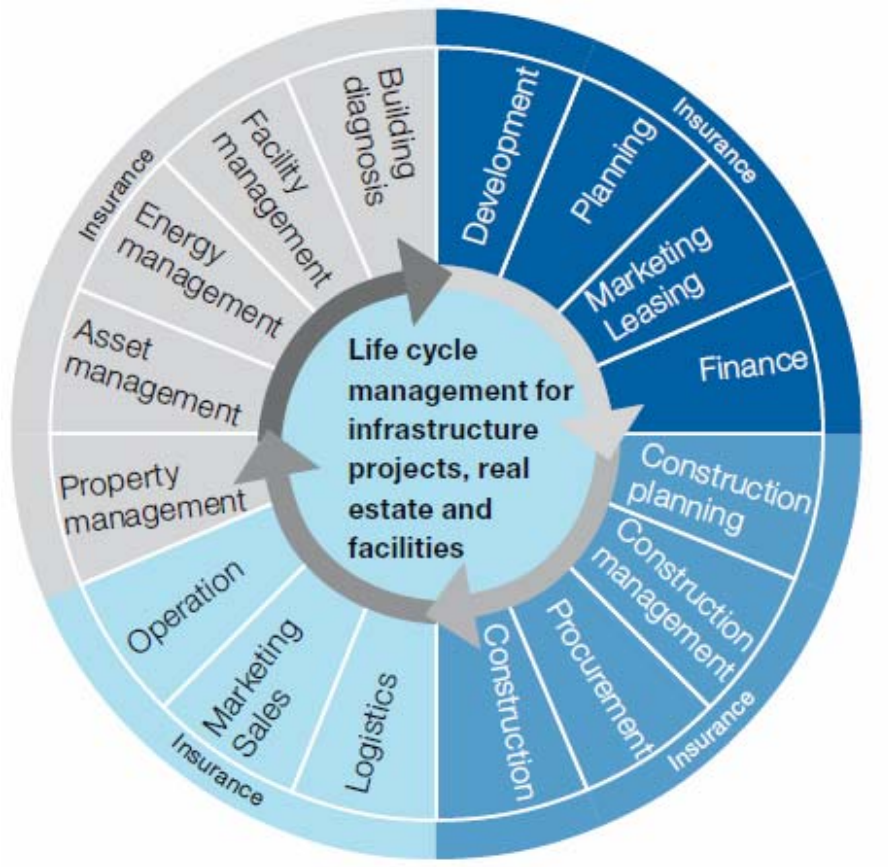


Figure2.6 the Circle of the industrial value chain

The Hochtief take an end-to-end view of our projects and take the overall life cycle of our buildings into consideration. These services are the optimal strategic

complement to our construction and project activities while creating a stable income stream for the long term. We believe in sustainable growth and we are committed to our ethical principles and do everything we can to promote fair business conduct.

2.3.3 VINCI

Brief Introduction to VINCI

Established in 1899, Vinci has become one of the largest companies in construction and related services worldwide, headquartered in Paris. It has 2500 offshoots. From the beginning, VINCI has been engaged in operating a management pattern integrating construction and concessions. By the end of 2007, VINCI had 158 000 employees. (Li Biao et al.2007) The businesses of VINCI cover more than 90 countries and regions in the globe, €30 billion in annual sales. (Annual Report 2007 by Vinci,2007)

Business

Four Core Businesses in VINCI：

1) Concessions

VINCI Concessions draws on its expertise in project design, structuring, engineering, financing to build and operate transport infrastructure under long-term concession contracts or public-private partnerships (PPP). VINCI is the largest privately-run concessionaire of expressway and parking lot.

2) Energy

VINCI Energies is market leader in France and a major player in Europe in energy and information technology services, providing the interface between equipment manufacturers and users. Its operations are realized by 760 network units. Its operations are in the energy infrastructure, manufacturing, service and telecommunications sectors, where it develops solutions that are both local and global.

3) Road

Eurovia builds, renovates and maintains road and motorway infrastructure (roads, expressways, railways and airports), carries out urban, industrial and retail development projects, and is expanding into complementary environmental and service business activities. Eurovia is Europe's biggest producers of roadwork's materials.

4) Construction

Market leader in France and a major player in the world construction market, VINCI Construction brings together an outstanding combination of capabilities in building, civil engineering, hydraulic engineering, multi-technical maintenance and services. It has strong roots in its local markets in France and other countries in Europe through its networks of subsidiaries.

Organizational structure

The Vinci Group consist of Concessions and contracting, the Concessions is Europe's leading operator of transport infrastructure concessions and the world's biggest private operator of motorway concessions. It controlled the 5 companies directly. The

other branch is contracting, Construction's business is divided into three major complementary components.

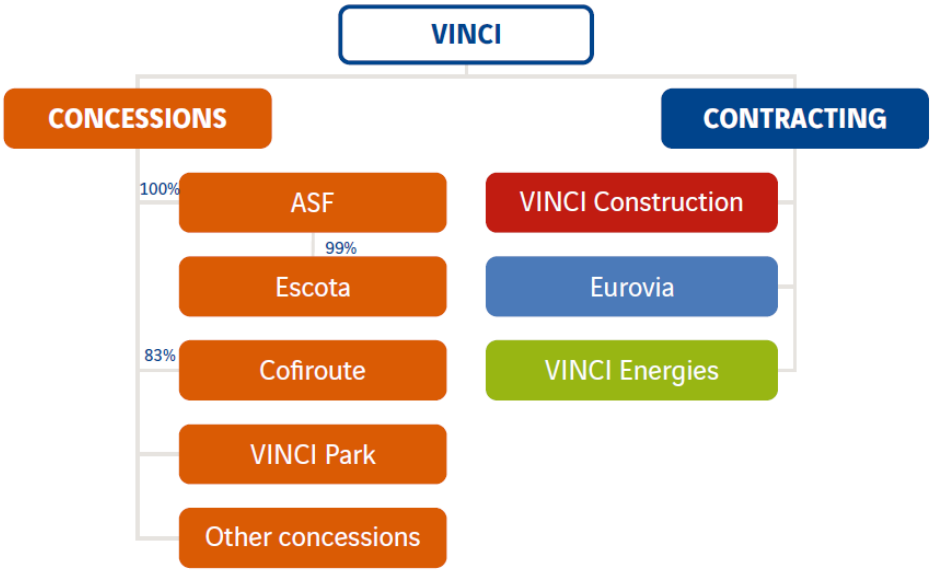


Figure2.7The Organizational structure of Vince

Vision and Strategy

Vision: Our vision is based on our unique commercial mode. (The Vinci Group Strategy 2003)

Strategy:

The combination of construction and concessions——Valued-created commercial mode

This unique mode helps VINCI become world leading construction and concessions Group.

1) Unique ability—the most profitable contractor

In the past ten years, the annual average growth in VINCI's revenue is 3.7%. The

annual average growth in net profit is 31% and the annual average growth in market value is 26%. The following three abilities result in its profit-making mode:

- Ability in risk management of construction contracting businesses:

First, VINCI selects projects or stages of projects with low risk and high profit. VINCI invests more in management and technology upgrading. Its competitive strategy is to retreat from traditional stages of construction projects, whose features are low profit, big investment and high risk. Second, VINCI is trying to reduce risks in the process of the project, and to manage and control the cost of the project, its subsidiaries by the use of management system. It extends management into every organization and project. The use of information tool not only improves management efficiency, but also reduces its cost. In this way, VINCI can effectively control the project operating risk.

- Financing ability in construction contracting businesses:

In recent years, BOT and PPP promote the combination of VINCI and financial groups based on common interest. After years of development, VINCI has formed a steady financing channel and updates its financing methods.

- Ability in combining construction project contracting and project operation:

As for concessions, VINCI participates in the project from the earliest stage, tightly around the whole value chain. The most profitable part will be completed by different subsidiaries. Those less profitable parts, such as project construction, will be sourced out. In the whole process, the subsidiaries in charge of construction project

contracting and those in charge of concessions services will make a packing service plan. There will be no delay in the transition period. It will shorten the cycle time of the project and reduce the total cost. In this way, VINCI can balance the relation between schedule and cost to produce synergies.

2.3.4 BOUYGUES

As one of the largest construction contractors in the world, BOUYGUES ranked second of ENR225 in 2005 and 2006. It ranked fifth in 2008. BOUYGUES ranked 172 in Fortune 500 in 2008, the highest in the construction project industry. (Registration Document 2008 by Bouygues)

Types of Businesses

Bouygues is a diversified industrial group with a strong corporate culture. Its businesses focus on five sectors: construction, property development, roads and telecoms/media.

1) Mainstay——Construction

Construction is the basic business in BOUYGUES. Founded in 1999, BOUYGUES Construction has become a competitive company integrating construction, municipal engineering, public engineering, and power installation and maintenance as an organic work. The main businesses are divided into project financing, construction and public

engineering and power installation and maintenance. Its subsidiaries have a clear division of labor, but there is also cooperation.

2) The largest road contractor——Road

In 1986, BOUYGUES purchased Screg Group, so Colas became the world's top roadworks contractor. Founded in 1922, Colas began operations in Africa and Indian Area in 1930s and then continued to make acquisitions in Asia and North America. At the same time, its businesses begin to be diversified, involving in construction and municipal engineering.

3) Leader in Paris Residential Market——Real estate

The annual average growth rate of real estate business from 2001 to 2007 was 14%. The annual average growth rate of operating profit reached 30%. Its businesses accounted for 13% of Paris residential market. The fast growth of businesses of BOUYGUES Immobilizer is due to low interest rate policy in France and the rapid development of French economy. Real estate becomes a safe investment.

4) Telecom and Media

Besides the above three businesses related to construction, BOUYGUES also operates businesses in telecom and media.

Organizational Structure (Bouygues in Brief 2007)

The organizational structure of BOUYGUES is a flat structure of decentralization. The corporation has five wholly-owned or holding subsidiaries in different businesses. These subsidiaries divide into different units or companies according to its business regions and fields. These companies are independently in operations, which can produce products and services to manage with the change of market. (See Figure2.8)

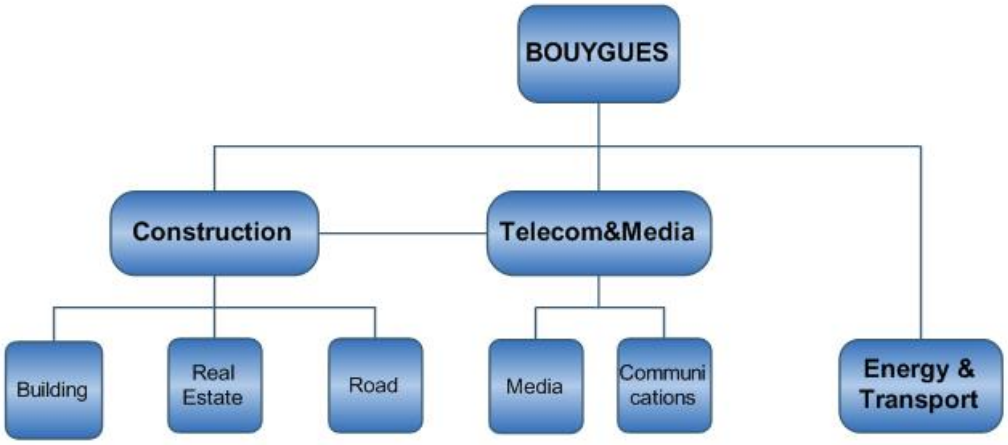


Figure 2.8 the organizational structure of Bouygues

The management style of BOUYGUES is strategic control. The concrete operating pattern is: the corporation participates in subsidiaries' strategy-policy, approves its strategy-planning and supervises the effects of every strategic action; the corporation disseminates the codes of ethics to every enterprise and employee, to ensure

coordinated operation of the Group. Secretariat divides into Departments of risk management, finance supervision, information communication, human resources and Law Committee. They provide auxiliary services to these departments on risk management, legal affairs, financing insurance affairs, resource sharing and human resources.

Vision and Strategy

1) Protect our people interest first

The first value in the code of ethics is “People are our greatest resource”. It is the best reflection of the company’s value degree towards people. In actual management activities, BOUYGUES adopts many measures to practice it.

2) Responsibility for social environment

BOUYGUES pays special attention to effects on society and environment by its businesses, so the company takes measures to win a good reputation.

3) R&D and innovation

Innovation, research and development are decentralized in Bouygues. Each subsidiary has its own department or lab, in line with the specific nature of its activities. Coordinated by the e-lab created in 1994, the Group’s Research provides a platform for exchange and discussion, and aims to pool the experience and good practices of employees and businesses. For customers, it is one of the criteria applied in choosing

a product or service. Innovation is factor of motivation. Employees are encouraged to always do better and to find new ways of working in order to improve customer service.

Unique ability——mode of diversified expansion

In more than 50 years, BOUYGUES has expanded the scale of the company by purchasing and organic growth. Weighing the importance of strategic meanings, the order of expansion is diversity, overseas operation, vertical integration and horizontal union.

1) **Diversity**: Generally speaking, diversity is an important way for rapid expansion of many enterprises. The enterprises enter other industries through capital operation or other methods in an appropriate time. The advantage is to diversify risks brought by professional operations while expansion. The most important diversified method is to engage in real estate, media and telecom.

2.4 Summary

Since it is possible to employ different standards to define an international top benchmarking construction enterprise, the final result will be different. The above selecting method is only one of them, so its final combination is not the only choice. There are still many possibilities. But no matter which one, it is necessary to abide by the following three principles with six standards.

1) The first principle is that our international top construction benchmarking enterprises must be well-recognized. “International Top” is a subjective concept. We should choose a well-acknowledged “international top” benchmarking enterprise. Thus we should adopt recognition degree as the standard, for this standard is irrefutable.

2) The second principle is that international top construction benchmarking enterprises should be representative, for no enterprise can be the best practice in every aspect. Moreover, the history of each successful enterprise is different. Since there is no enough resource and limitation on practicability, we can only choose limited top enterprises as the models. Therefore, the chosen enterprise combination can represent the best combination of the benchmarking enterprises. We can have four standards to control the representation of international top construction benchmarking enterprises.

- Region: The comparison must be conducted between enterprises with high degree in internationalization and those low in internationalization.

- Business: The comparison must be conducted between enterprises with single business and those with comprehensive businesses.

- Profit: The enterprises should have their own unique profit-making mode.

- Management: The construction enterprises should transit from traditional builders to international construction enterprises.

3) The third principle is that the chosen international top benchmarking construction enterprise should be referable for China's construction group.

The above standards are what we should follow in choosing international top benchmarking construction enterprises. Their relations are shown in the Figure2.9. The system was imitated by the Balanced Scorecard, It abide by three principles: well-recognized, representative and be referable with 6 standards which is: well-acknowledged, region, profit, business, management and the study value.

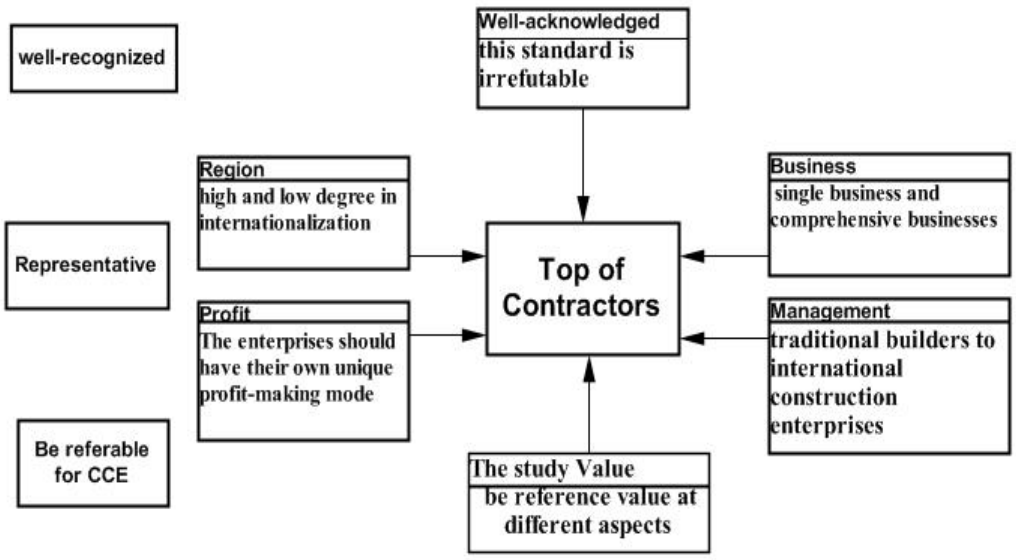


Figure2.9 the six standards of the top contractor

CHAPTER3 INDICATOR SYSTEM OF INTERNATIONAL TOP CONSTRUCTION ENTERPRISES

3.1 Introduction

According to the procedures in benchmark study, we should set measurement indicators in analyzing the benchmarking enterprises, that is, Benchmarking Indicator System. In setting up the benchmarking indicator system, we can refer to “Balanced Scorecard” (BSC), and then adjust and specify those indicators.

3.2 The Balanced Scorecard

Indicator System of Balanced Scorecard

Balanced Scorecard (BSC) is a performance measurement framework. Initially, Kaplan and Norton proposed that “*the BSC was a ‘regular’ performance measurement system incorporating both financial and non-financial measures. However, in the mid-1990s they started to emphasize the strategic nature of the instrument*” (R. S. Kaplan and D. P. Norton,1992) The Balanced Scorecard (BSC) is a relatively new approach to strategic management and performance measurement and control, which has generated substantial interest in the academic and industrial communities.

In their opinion, the main purpose of a BSC was to communicate the firm's strategy to the employees and to help implement that strategy. which aligns business activities to vision and strategy of the organization and monitor organization performance against strategic goals.

BSC suggests that we view the organization from four perspectives, financial perspective, customer perspective, internal process perspective and learning and growth perspective, to help the enterprise tackle the problem in balancing realization of short-term interest and sustainable development.

Balanced Scorecard

1) Balanced Scorecard is best characterized as a “strategic management system” that claims to incorporate all quantitative and abstract measurements of true importance to the enterprise based on the overall strategy of the enterprise. It can translate the vision into operating goals in four perspectives, which provides managers with the instrumentation they need to navigate to future competitive success.

2) Balanced Scorecard is an advanced performance management tool. It divides the strategy into four perspectives, and then design performance measurement indicators according to these four perspectives. The indicators can bring quantifiability,

measurability and evaluability to the enterprise for systematic monitoring the strategic implementation of operating goals.

3) BSC is an important tool to communicate with managers. It is necessary to communicate the strategy and planning to everybody in the firm and get effective feedbacks.

Balances in the BSC

1) Balance between financial indicators and non-financial ones. Enterprises tend to measure more on financial indicators, less on non-financial indicators (customer, internal business process, learning and growth). Even on non-financial indicators, there are just qualitative descriptions, lacking in quantitative measurements. Balanced Scorecard is different in this aspect. It measures the enterprise from four perspectives, financial, customer, internal business process and learning and innovation, which balance financial and non-financial indicators, (customer, internal business process and learning and growth).

2) Balance between long-term goals and short-term ones. BSC is a strategic implementation management system. From the viewpoint of system, strategy is input while financial is output. That is to say, BSC transits from the strategy, the

long-term goals, to short-terms ones gradually. BSC attaches importance not only to long-term development but also to implementation of short-term goals. It balances between the strategy planning and the annual plan, improving the ability of strategic implementation.

3) Balance between outcomes and initiatives. The BSC takes an initiative of effective strategy implementation and takes measurable indicators as a result of objective management, balancing between outcomes and initiatives.

4) Balance between internal groups and external groups. In the BSC, shareholders and customers are external groups while staff and internal business process are internal groups. BSC has realized the importance in balances between external interest and internal interest during the implementation.

5) Balance between leading indicators and lagging indicators. Four perspectives contain leading and lagging indicators. The financial measures is adequate to tell the story of last year, but inadequate to guide the enterprise how to improve performance and sustainable development. Importance to leading indicators (customer, internal business process, learning and growth) attached by the BSC raise the enterprise’s attention on the process, not the results, which balance leading and lagging indicators.

In conclusion, the balances in the BSC show that the BSC exemplifies interaction and relations between human resources, material resources and financial resources in the operation of the enterprise as an independent economic entity. It reveals the objective law of how to allocate cash flow, logistics and human resources flow properly under certain circumstances.

Four perspectives in the BSC

The choice of BSC should not only depend on the reality of different industries and enterprises, but also on vision and strategy of the enterprises. The approach looks at performance from four interrelated dimensions:

"*The financial perspective, Possible performance measures include operating profits, return on capital employed, and unit costs."*

"The customer perspective, Possible performance measures include customer profitability, customer satisfaction, and market share."

"The internal business-process perspective, Possible measures include time to develop new products, defect rates, and product returns."

"The learning and growth perspective. Possible measures include employee satisfaction and employee productivity." (From the oxford reference online)

"*The financial performance measures indicate a company's strategy, implementation, and execution are contributing to bottom-line improvement*."(Kaplan, Robert S.;

Norton, David P. 1996)

Table 3.1 Financial Indicators

1	Second Level	Third Level
Financial Indicators	Profitability	ROE
		Return on Total Assets
		Capital Appreciation Rate
		ROS
		Ratio of Profit to Cost
	Assets	Total asset turnover
		Inventory turnover ratio
		Accounts receivable turnover
		Non-performing assets ratio
	Solvency	Asset-liability ratio
		Liquidity ratio
		Quick ratio
		Cash flow debt ratio
	Growth	Sales growth
		Capital accumulation
		Growth rate of total assets
		Three-year average growth rate of profits
		Three-year average growth rate of capital

		Renewal rate of fixed assets

The indicators from finance aspect

"*The customer perspective typically includes several core or generic measures of the successful outcomes from a well-formulated and –implemented strategy. the core outcome measures include customer satisfaction, customer retention, new customer acquisition, customer profitability, and market and account share in targeted segments.*"(Kaplan, Robert S.; Norton, David P. 1996)

Table 3.2 Customer Indicator

2	Second Level	Third Level
Customer Indicators	Cost	Customer acquisition cost
		Customer cost of sales
		Customer cost of installation
		Customer service cost
	Quality	Quality Control System
		Reject rate
		Return rate
	Timeliness	Delivery rate
		Production cycle
	Customer Intimacy	Repeated customers
		The loss of customers

		Cost of retaining customers
	Ability to attract new customers	New customers
		Ratio of new customers
		Cost of attracting customers
	Market share	Percentage of total sales
		Percentage of sales in the product

"*In the internal-business-process perspective, executives identify the critical internal processes in which the organization must excel*"(Kaplan, Robert S.; Norton, David P. 1996)

Table 3 .3 Internal Process Indicators

	Second Level	Third Level
Internal Process Indicators	Innovation	Proportion of R&D in the total sales
		Return on R&D investment
		Percentage of new products sales
		R&D design cycle

	Operation	Unit cost level
		Management organization cost level
		Cost of production line
		Customer Service error rate
		Business flow
	After-sales service	Service cost/times
		Technology updating cost
		Customer complaint response time
		Order delivery time
		Onsite service speed

"*The organizational learning and growth perspective come from three principal sources: People, systems, and organizational perspective. Identifies the organization must build to create long-term growth and improvement.*" (Kaplan, Robert S.; Norton, David P. 1996)

Table 3.4 Learning and Growth indicators

4	Second Level	Third Level
Learning and Growth	Staff quality	Staff's knowledge structure
		Per capita cost of full-time training
		Per capita on-the-job training cost
		Hours in training per year
		Average age of staff
	Staff productivity	Per capita output
		Per capita patents
		Recognition from customers
	Staff Intimacy	Employee turnover
		Senior management and technical staff turnover
	Staff satisfaction	Staff satisfaction
		Promotion ratio
		Manager promotion ratio
	Organizational structure	Cost for setting up mechanism for communication and evaluation
		Cost to coordinate the department operations
		Effective communication assessment
		Team work effectiveness assessment
		Average time for conveying information or receive feedback
	Information system	Input cost of hardware and software systems
		Ratio of PC owners
		Hardware and software systems updating cycle

3.3Purposes and Principles for Setting up Benchmarking Indicator System of International Top Construction Enterprises

3.3.1 Purposes for Setting up Benchmarking Indicator System of International Top Construction Enterprises

I purpose for setting up benchmarking indicator systems are to measure the gaps, diagnose the problems and measure performance. First, we need to measure the gaps between our enterprise and the benchmarking enterprises by a series of specific indicators to identify where the gaps are and how big the gaps are. Second, we need to launch benchmark study by seeking the problems in the operation of the enterprise and tackle them. Last, after the benchmark study, it is necessary to evaluate the outcomes with a series of specific indicators.

3.3.2 Principles for Setting up Benchmarking Indicator System of International Top Construction Enterprises

Since the benchmarking indicator system plays a significant role in the implementation of benchmark study, the establishment of a scientifically applicable indicator system becomes the key factor in the benchmark study. The following six principles can ensure the applicability of the benchmarking indicator system.

1) Forward-looking: balance between short-term interest and long-term value. The

choice of indicators should not only reflect profitability of short-term interest, but also reflect long-term development.

2) Comprehensiveness: The indicator system should evaluate the operation of the enterprise comprehensively, including its hard power, such as performance, and its soft power, such as investment in R&D and human resources development.

3) Independence: The indicators should be independent. There is no big relevance with all indicators, which means that each indicator can reflect the situation independently.

4) Familiarity: The indicators should be familiar with the public. The understandable indicators can ease the conduction of comparison.

5) Representative: Try to apply the least number of indicators. The representative indicators can not only reduce the number of indicators but also improve the efficiency of evaluation.

6) Process: The establishment of the indicator system is a process more than a result. The choice and establishment of indicators need repeated adjustment and modification, and opinions from professionals and experts. The final decision depends on selection and adjustment against the specific situation of the enterprise.

3.4 How to Set up Benchmarking Indicator System of International Top Construction Enterprises

In order to make the internationalization strategic objectives more understandable, I try to draw a “strategy map” step-by-step by applying the BSC and strategy map principle:

3.4.1 Cycle of Market Development

1) Existing market income growth strategy

The traditional sources of income of Chinese construction companies are project contracting income and infrastructure investment income. On one hand, the company promotes development in the current market to get more contracts and control operating risk of the current projects, increasing the profit rate of the project. On the other hand, the company should increase business innovation, add the number of excellent infrastructure investment projects, focusing on research and expansion in the projects of city infrastructure and energy to get more investment opportunities.

2) Strategy for promoting international market profit:

Compared with HOCHTIEF, VINCI, SKANSKA and BOUGYUES, the company’s international market share is relatively small. In order to improve operating profit of the enterprise and to improve the value of share, the further expansion in international market share is very important. With fierce competition in the

international construction market, requirements for comprehensive power are higher. Therefore, the improvement of profit in international market lies in expanding not only market network but also new businesses.

3.4.2 Attention on Important Stakeholders

The construction industry is characterized by being highly affected by Government policies, and having a high degree of linkage with the related industries and a high degree of environmental impact, and heavy social responsibility, vertically all countries and regions, the relevant administrative departments; horizontally owners, designers, sub-contractors, building materials suppliers, banks, and the project users. Employees and shareholders will have a significant impact on the operation of the enterprise. They are all stakeholders of the construction enterprise.

Stakeholder theory argues that the best way to obtain long-term survival and prosperity is take all stakeholders into consideration and meet their needs. Therefore, when the enterprises set their own strategic objectives, consideration should be given to the needs of different stakeholders groups. However, the four perspectives of the Balanced Scorecard only consider three stakeholders, the shareholders, customers and employees, regardless of the government, suppliers, and the final users.

3.4.3 Adjust internal business structure to increase the value of shareholders, customers and other important stakeholders

The construction of projects is featured by being easily affected by the external environment, the long development cycle, large capital input, many external interfaces, difficulty to control, high risks, high cost of error correction and difficult realization. So it requirements for project sponsors' abilities to plan, control, organize and coordinate are very high, so they need acommercial partners to provide a full range of consultative advice and solutions. The flow chart means the project planning, project financing, project construction, operation of the project operation Service flow.

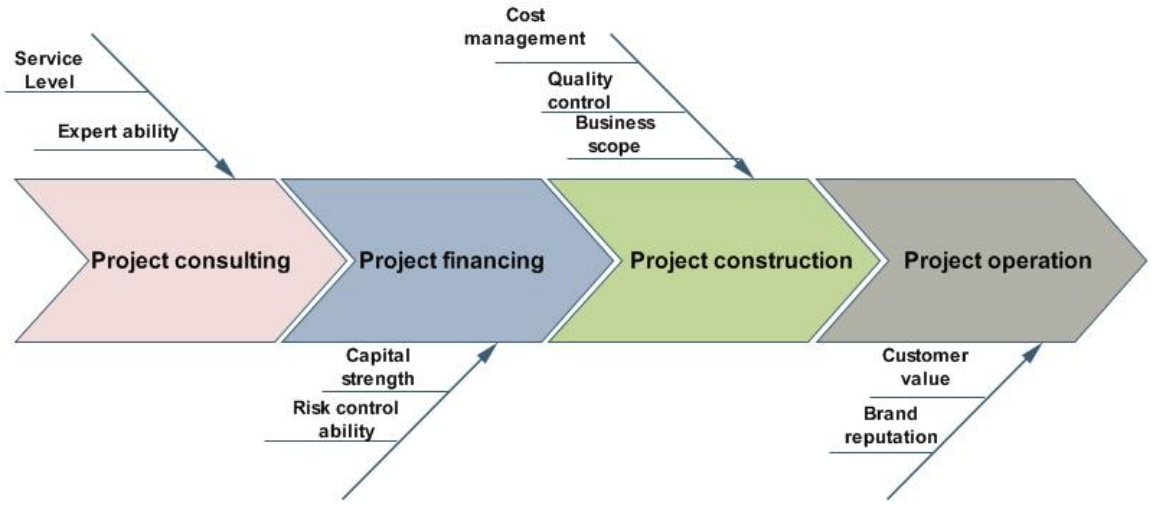


Figure3.1 Map for Project Operation Flow

In order to increase participation in the front-end of the value chain, expand profit

space and achieve the strategy of income growth, the company should implement the strategy of expanding businesses of project consulting and investment development in internal operations. There are three ways to increase front-end value creation: First, depending on the current advantage in resources, the company should increase businesses of investing in various types of infrastructure; second, the company should further explore and exert the current advantage, strengthening cooperation with potential customers; third, the company should take part in competition to get projects through the advantages of comprehensive businesses and project management; fourth, the company should develop project operation management to realized different value proposals of customers, achieving the strategy of maintaining brand advantage and improving operating efficiency. In these ways, the company can extend its own value chain, meet customers' needs, and explore new sources of profit.

3.4.4 Draw strategy map for the company

Based on the analysis above, I draw a strategy map that can more clearly to describe how to build a benchmarking system. Align financial, customers, important stakeholder, internal business and learning and growth and then connect strategy and measures by cause and effect relationship. The strategy map of Chinese construction enterprises is completed.

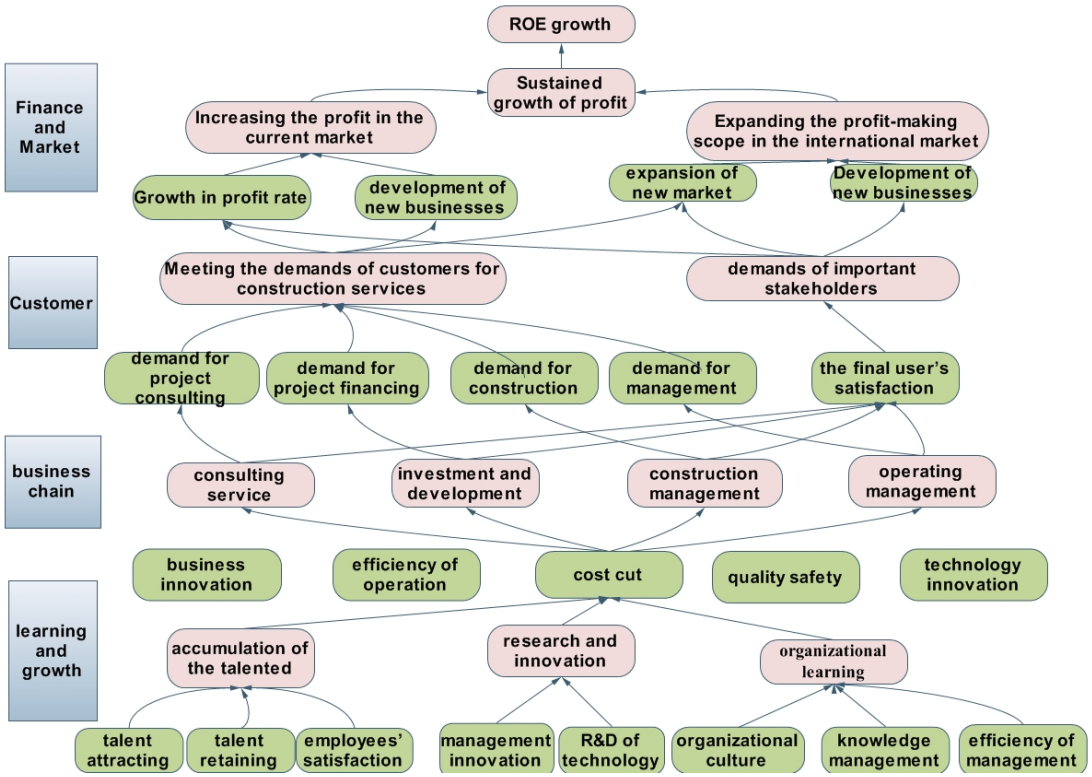


Figure3.2The process of forming benchmarking system

3.5 The benchmarking system used in this study

Based on the above long discussion, I decide the final benchmarking indicator system, which is measured from the following six perspectives, financial, customers, management flow, learning and growth, stakeholders and market. The first four are directly referred to the BSC. But I want to emphasize here, enterprises can choose key indicators according to their own actual situation. So I add 2 indicators in to satisfy the enterprise's actual need. The figure3.7 subdivides and selects specific indicators and then gets a completed benchmarking indicator system. In the process of subdividing, we can follow the principles for setting up benchmarking indicator

system. The concrete benchmarking indicator system .

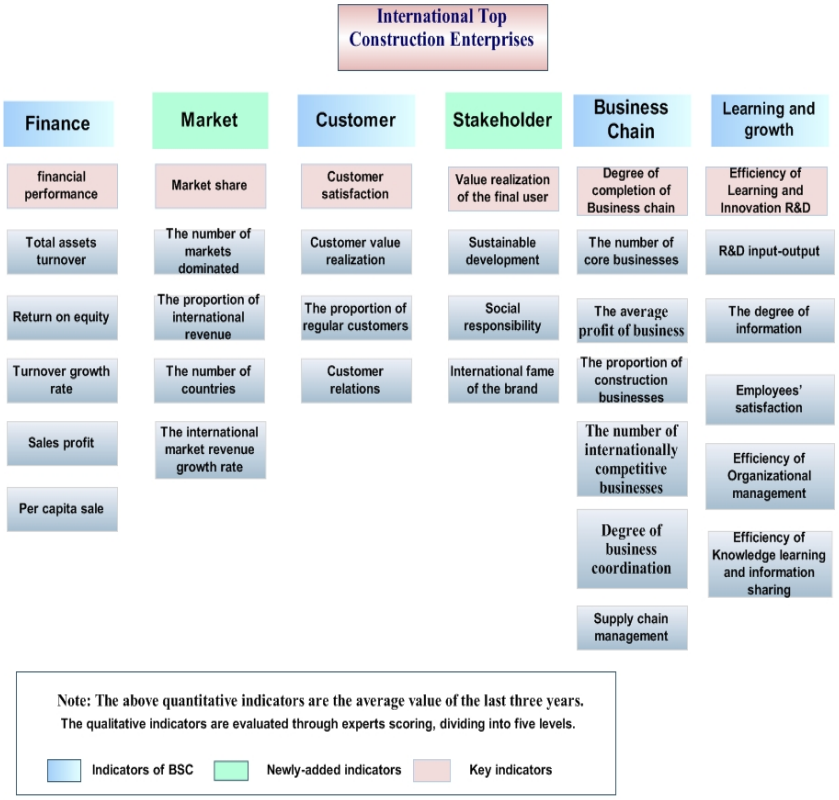


Figure3.3 The completed benchmarking indicator system

The explanation and standards are shown as follows:

As what is mentioned above, the paper needs to assess six categories of indictors of the enterprises under study, including both qualitative and quantitative indicators. The quantitative indicators are financial, market, business lines while the qualitative indicators are customer, stakeholder, learning and growing. The Weight is decided by how much emphasis the subject (CSCEC) has placed on the very indicator. The quantitative indicators can only be compared after being

nondimensionalized and the Weight needs to be concerned about during the data-collecting process. No Weight is specified for qualitative indicators as the qualitative indicators are obtained through expert scoring, where experts evaluate enterprises in five grades: excellent, fair good, good, mediocre and poor. The qualitative indicators can be used for comparison directly.

Table 3.5 The explanation and standards of the 6 indicator

Strategy	First indicators	Secondary Indicators (Weighting)	Explanation and Standard
Finance	Performance	Total Asset Turnover（0.1）	Asset turnover = Total Revenue/ Total Asset
		Return on Equity(0.3)	Rate of Return on Common Stockholders' Equity ROE Return on Equity＝（After-tax Profit－Preferred stock dividend）÷（Shareholders’ equity）×100％
		Turnover growth rate(0.3)	Rate of turnover growth of this year on last year
		Sales profit(0.2)	Sales profit =Gross profit + other profit-period funds
		Per capita sales(0.1)	Ratio of Turnover on the number of employees
Market	Market share	The number of markets dominated (0.2)	The number of markets in which the enterprise becomes one of the major contractors, at least the top ten.
		The proportion of international revenue(0.3)	The proportion of revenue from the overseas markets in the total revenue
		The number of countries(0.2)	The number of countries and regions where the enterprise have begun its businesses.
		The international market revenue growth rate(0.3)	The revenue growth rate of the enterprise in the international market
Customer	Customer satisfaction	Customer value realization	Satisfaction with the services provided by the enterprise. Measurements should be taken on project function, quality, schedule and cost control.
		The proportion of regular customers	The proportion of businesses from regular customers in the total businesses. (Regular customers are those who have more than one business with the enterprise)
		Customer	Degree of intimacy and dependence with customers in

		relations	the project. Major strategic partners or assistant or indirect services.
Stakeholder	Value realization of the final user	Sustainable development	Implementation of sustainable development concept in the project. Improvement of efficiency and cost savings brought to the final user by the project.
		Social responsibility	Social responsibility in the implementation of the project, such as environmental protection, energy-saving, reduction of negative effects.
		International fame of the brand	International fame of the enterprise, reputation in the customers, brand value and the number of positive reports
Business chain	Degree of completion of Business chain	The number of core businesses(0.1)	The number of core businesses of the enterprise, among which construction businesses are counted by 9 categories.
		The average profit of business(0.2)	The average profit of core businesses of the enterprise
		The proportion of construction businesses(0.1)	The profits of construction businesses in the whole business chain, use multiplicative inverse of this indicator in the assessment to reflect the comprehensiveness of the business
		The number of internationally competitive businesses(0.2)	The number of single business which ranks in the Top 10 of ENR 225
		Degree of business coordination (0.2)	The degree of coordination among businesses of the enterprise, to realize mutual promotion and improvement of competitive strength.
		Supply chain management(0.2)	The degree of completion and the coordinative efficiency of the supply chains matching with businesses.
Learning and Growth	Efficiency of Learning and Innovation	R&D input-output	The effects of input and output of R&D
		The degree of information	Advance and the degree of integration of the enterprise in developing information-oriented, such as, ERP, OA, CRM, HRM, SCM, information of construction technology and information-oriented of project management
		Employee satisfaction	The aspects of employees' satisfaction with the enterprise, including responsibility, limitation, fair opportunity, training, career life planning, salary and

			welfare.
		Efficiency of Organizational management	Efficiency of stimulation and lead of leaders towards the team and diversity and cohesion.
		Efficiency of Knowledge learning and information sharing	Efficiency of Knowledge learning and information sharing in the enterprise

Note：1. In order to give the real situation of enterprises and reduce negative impacts by changes of data, the above quantitative indicators are the average value of the last three years.

2. The qualitative indicators are evaluated through experts scoring, dividing into five levels.

3. In order to increase comparability between different indicators, the evaluation is changed to 5 after normalization.

4. In order to show the importance of different indicators, different weightings are given to the indicators and those no weighted indicators can be referred to the average value.

CHAPTER 4 GAP ANALYSIS BETWEEN CHINESE CONSTRUCTION ENTERPRISES AND INTERNATIONAL TOP CONSTRUCTION ENTERPRISES

4.1 Introduction

Based on the last chapter, taking the example of China State Construction Enterprises Company (CSCEC), we draw a map of its overall performance and that of the benchmarking enterprises and distribution of indicators. The chapter will find the gaps and analyze the reasons.

4.2 Radar Map of Six Categories of Indicators of CSCEC and The benchmarking enterprises

By normalizing and weighting the secondary level indicators in six perspectives, it comes to their final scores. In order to clarify comparisons with the benchmarking enterprises, we distribute the scores of the benchmarking enterprises, their maximums, averages and the scores of CSCEC on the radar map. All the Data collected need first be

nondimensionalized by using the following equation:

$$\left| \frac{Xi - Xmax}{Xmax - Xmin} \right|$$

Data collected as qualitative indicators are obtained through expert scoring and caculated by the following equation:

$$\text{Qualitative indicators} = \frac{\sum(S_1, S_2 \ldots S_n)}{n}$$

（S1…Sn: Experts scoring）

The final quantitative indicators are the weighted value of the nondimensionalized data collected over three consecutive years of the very enterprise, for example:

$$\text{Quantitative indicators} = \frac{\sum(\text{weights} * Vi)}{\sum \text{weights}}$$

（Vi: nondimensionalized measured value）

The map is shown as follows:

Figure 4.1 the radar chart of the CSCEC and benchmark company in 6 categories

It can be seen from the map, CSCEC gets low scores in all six perspectives, reflecting different degrees of gaps between them and the benchmarking enterprises in six perspectives. The specific gaps are shown as follows:

Market is not "big"

By market expansion, the benchmarking enterprises have entered the leading construction markets, such as Europe, the US, Latin America, Asia, Mid-east and Africa, and become market leaders with their own market network. CSCEC have expanded businesses mainly in Hong Kong and Macau, so it has competitive edge in these two regions. However, its expansion to other regions has just started in recent

years, resulting in limited market shares in the international market without a stable network. Therefore, big gaps still remain between CSCEC and the benchmarking enterprises in the market in this aspect

Financial performance is not "impressive".

From the total score of finance, the score of CSCEC is equal to the average of the benchmarking enterprises. The reason is that we adopt relative ratio indicators in evaluating financial performance, such as assets inflation-proof rate, revenue growth rate. That is, the growth speed and assets return of CSCEC are equal to the average of the benchmarking enterprises, but with the best practice VINCI, there is still a big gap. However, in absolute value, such as assets scale and sales profit, an enormous gap remains between CSCEC and the benchmarking enterprises. From other side, the domestic construction enterprises can't contract the high-profit and capital-intensive projects due to the disadvantages of own capital and financing ability. Therefore, they lose the chances to compete with the international large-scale contractors. *"In a word, capital has been becoming the bottleneck of the projects contracting, especially the projects of BOT, BOOT, PPP and TOT."(*Shengyue Hao and Dongsheng Wang, 2005)Therefore, financial performance of CSCEC is not impressive.

Demand satisfaction with customers is not enough.

In this point, we evaluate demand satisfaction in various aspects. The total score of CSCEC is on the lowest level and keeps a big gap from the benchmarking enterprises.

The reason is that CSCEC mainly focuses on satisfying a single need in the process of construction. However, although CSCEC's performance in quality, cost and lead time can meet customers' needs, degrees of customer intimacy and dependence are still low in that project contracting business depends on price competition. The lower price can attract more customers. However, the benchmarking enterprises are better in dealing with the relationship with customers. They provide integrative construction solution with customers, which is exactly the customers' pressing and mainstream need. As a result, they can participate in the whole cycle from consulting, services to operating management services. In this way, they can not only get huge profits but also increase customer intimacy. Therefore, CSCEC should make more efforts in increasing its profits and customer satisfaction.

International reputation is not high.

Construction project is often affected by funds and degree of social influence, so project sponsors—proprietors are not the final users. We should take the final users, who are also stakeholders, into consideration in the evaluation. From the scores of the overall indicators in stakeholders, there is still a gap between CSCEC and the benchmarking enterprises. Since CSCEC makes many efforts in satisfying stakeholders, such as energy-saving and environment protection, social responsibility, the gap in these aspects are relatively small. The gap lies in the technological level and management pattern. As for international reputation, there is an enormous gap. CSCEC should improve its strategic planning and brand promotion.

Coverage of business chain is not comprehensive.

Operating chain indicators are used to evaluate the degree of perfection and complementarily in the entire business value chain. After researches on the benchmarking enterprises, we find their common characteristic is to develop construction-related businesses in the horizontal integration at the same time along the industrial chain of vertical integration, realizing the overall coverage. *"vertical integration –combining ownership with asset and property management – allows greater control"* (Benjamin et al., 2006) and *"either a very high or a very low level of integration yields an above average rate of return whereas an intermediate level of integration was least profitable."* said by (Buzzell and Gale, 1987).

The benchmarking enterprises extends in nine markets, such as housing construction, manufacturing industry, energy facilities, water conservancy facilities, industrial chemical facilities, transport facilities, waste treatment, sewage treatment and communication facilities. On average, about five businesses are on the top ten. However, for CSCEC, only its housing construction enters the top ten. In addition, the benchmarking enterprises also have outstanding performance in horizontal expansion along the building industry chain. For example, they are in the leading role in building consulting services, real estate development, infrastructure investment and business property and facilities management. Therefore, the coordination in these operations makes the benchmarking enterprises become a provider of integrated construction services. CSCEC, as a follower in the market, should make more efforts in the

horizontal expansion of businesses and the vertical one. Only by strengthening business chain can CSCEC improve profitability and anti-market risks ability.

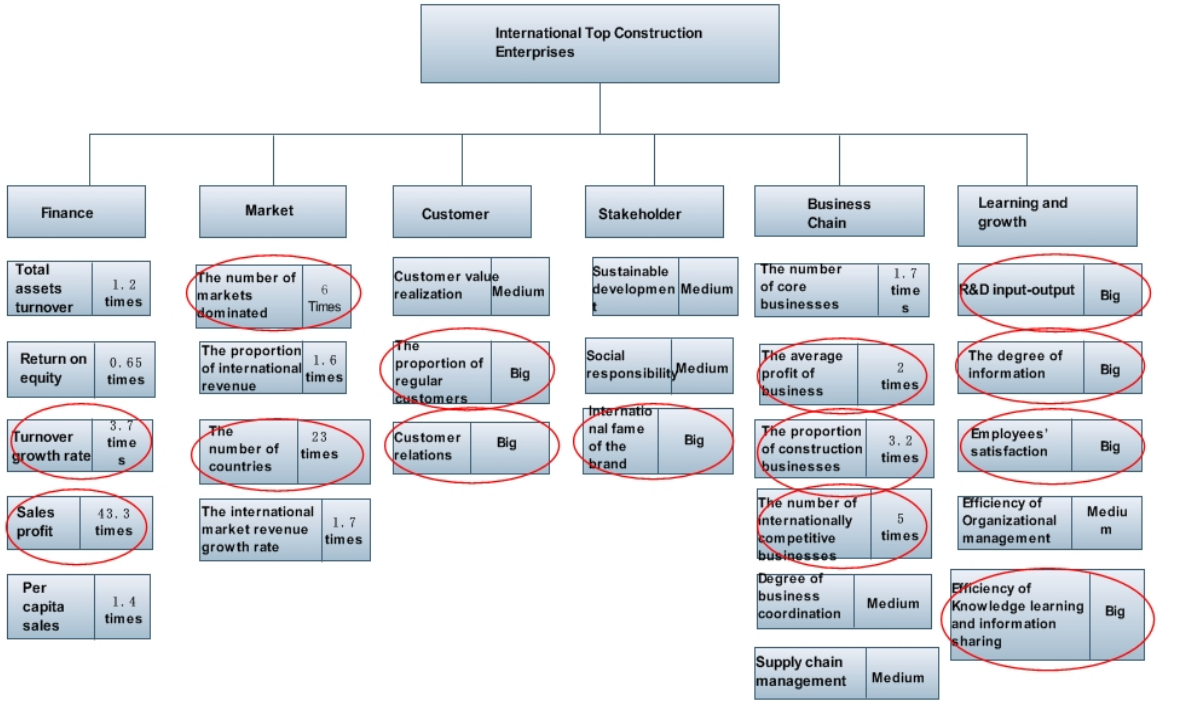
Investment in R&D is not enough.

CSCEC makes worse performance than the benchmarking enterprises in terms of learning and innovation, such as investment in R&D man power, But not CSCEC like this, (Low Sui Pheng and Jiang Hongbin,2003) "*Construction R&D works received relatively low emphasis in China compared with those in Japan, the UK, and the United States. In 2000, R&D expenditure in the construction industry was only RMB 530 million nation-wide, accounting for only 0.6% of the whole country 's R&D expenditure"*. The benchmarking enterprises set up a good R&D management team with a group of high-quality professionals. Because they care The surveys conducted by the US Department of Commerce and the Office of Technology Assessment confirm that the leading edge R&D in the core technologies of corporations is still performed in home countries while research towards customization and foreign production support is gradually conducted locally as affiliates become more deeply integrated into local markets The surveys conducted by the US Department of Commerce and the Office of Technology Assessment confirm that the leading edge R&D in the core technologies of corporations is still performed in home countries while research towards customization and foreign production support is gradually conducted locally as affiliates become more deeply integrated into local markets". (Dalton, D.H, and Serapio Jr., G.M., 1995.)

Meanwhile, they invest a great deal in R&D, including cooperation with universities and scientific research institutions, resulting in a large number of achievements annually. Through effective promotion, utilization rate of those achievements is high, which plays a key role in improving business ability and competitive edge. In addition, the benchmarking enterprises have an overall development strategy and planning, so they have great advantages in information applications. In regard to employees' satisfaction, CSCEC scores lower than the benchmarking enterprises, mainly because CSCEC does worse in staff training and career planning than the benchmarking enterprises do. Finally, in terms of organizational learning and corporate culture management, the efficiency of the benchmarking enterprises is much higher than those of CSCEC, mainly because the benchmarking enterprises have a good mechanism in organizational knowledge acquisition, dissemination, sharing and information-oriented support. The awareness to accept change is strong in the minds of the staff. What's more, enterprises have distinctive cultures.

4.3From the specific indicators, big gaps exist between CSCEC's fourteen indicators and the benchmarking enterprises.

In order to find the specific gaps, we analyze the secondary indicators, comparing each indicator of CSCEC with the best practice in the benchmarking enterprises.



Note: The gaps of the quantitative indicators in the chart is the ratio between the indicator of the top enterprise in each one and that of CSCEC, that is the indicator value of the benchmarking enterprise/the indicator value of CSCEC.

The gaps of the qualitative indicators are got from the research on each enterprise and careful comparison among them, dividing into four levels, super-big, big, medium and small.

The reciprocal of the proportion of construction businesses can reflect the comprehensive degree of business level in the enterprise.

Figure4.2 the results of the gap between CSCEC and benchmark system

The comparison of quantitative indicators is conducted by CSCEC's value dividing the largest value of the benchmarking enterprises. The comparison of qualitative indicators is conducted by comparing the situation of every enterprise and that of CSCEC, dividing into four grades, super-big, big, medium and small.

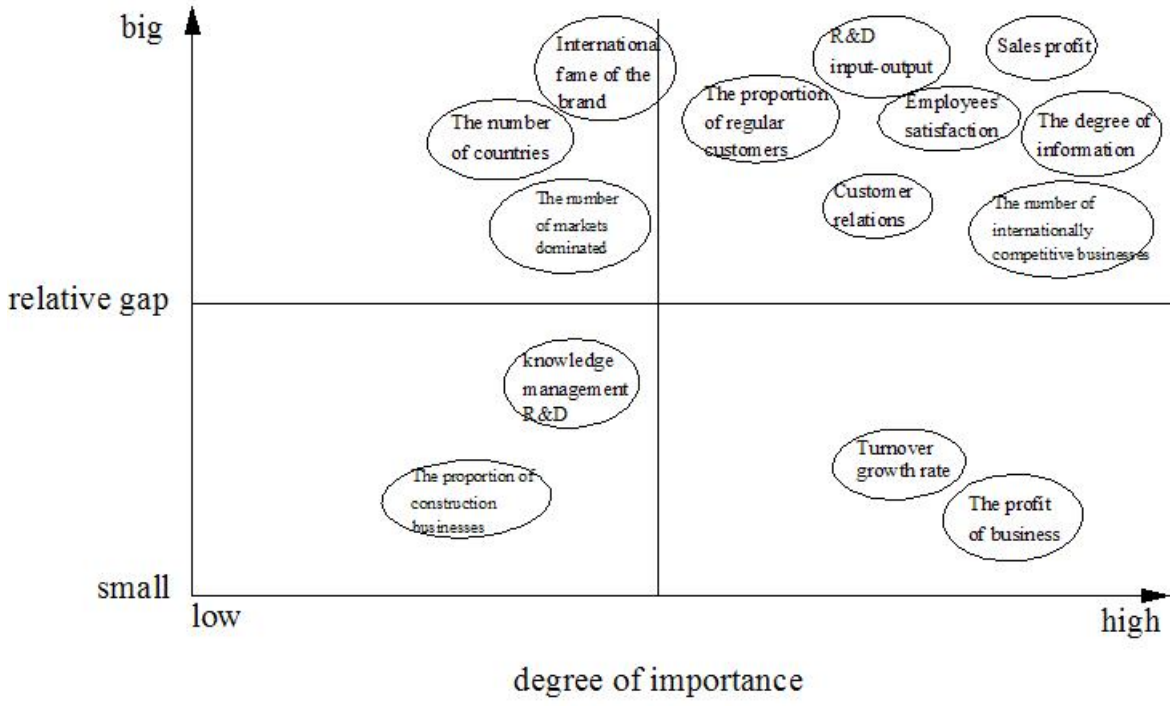


Figure4.3 Reorder the14 indicators in two dimensions with degree of importance and relative gap

The figure in order to further divide the gaps between CSCEC and the benchmarking enterprises and find the factors causing these big gaps, I reorder the fourteen indicators in two dimensions with degree of importance and relative gap to gain a better improvement measure.

In the chart, we can see that seven indicators have relatively big gaps and high degree of importance, including sales profit, information-oriented, the number of competitive businesses, R&D input, employees' satisfaction, the proportion of regular customers

and customer relations. Their degrees of importance are shown as follows:

Profit is an essential condition for the enterprise to survive and develop, and also an important indicator to evaluate the operating situation of the enterprise. The constant growth of profits is the basis for the enterprise to survive and become stronger.

Growth of sales profit is driven by new businesses. R&D capability can ensure the expansion of new businesses and profit gain. Therefore, it is necessary to increase investment in R&D.

The degree of information-oriented in the operating management is a basis to improve operating efficiency and support internationalization expansion.

The competitive business of CSCEC is single, which is unfavorable for preventing from market risks and international market expansion. Therefore, it requires developing more internationally competitive businesses on the basis of raising comprehensive businesses for increasing businesses and profits.

Under the circumstances of changeable market and fierce competition, it is essential to get constantly innovative talents for gaining competitive edge. Therefore, it is urgent for the enterprise to set up a system encouraging innovation and to strengthen the training of talents.

To a great extent, Customer satisfaction decides business growth rate. Therefore, it is also an important factor deciding profitability of the company. Customer satisfaction is increasingly important under the circumstances of direct competition with giants in the international market.

Through the gap analysis of the fourteen indicators, it can be seen that the fundamental reason for the gaps is –management.

4.4 Summary

Based on the gap analysis of quantitative indicators, we can see where the gaps are and how big they are.

4.4.1 Quatitative indicators

Lowest input in R&D: Most Chinese construction enterprises are lacking specialized and patented technology protected by Intellectual Property Rights, which have greatly strained their competitiveness. CSCEC invests insufficiently both in terms of financial resources and human resources in its R& D sector. It has become increasingly urgent for enterprises like CSCEC to rely more on investments in R&D to upgrade their operational structure, transform growth model, implement an IPR-based development strategy and increase their overall strength as a global company.

Low average profitability: Another commonly-found symptom with Chinese construction enterprises is a widening gap in profits among different sectors inside the company due to varied composition of the capital and different turnover rates. This discrepancy of profits keeps the average profitability of the company at a low level.

Highest Contribution Rate of the contracted profit: contribution rate is an important indicator to assess profits, which is the ratio between the quantity of the effective or applicable products and the amount of resources used or occupied during the process, namely the ratio between output and input. A high contribution rate indicates that the Chinese construction enterprises do well in controlling and reducing costs.

Lowest operating margin: Operating margin is a measurement of what proportion a company's revenue is left over after paying for variable costs of production. A low operating margin directly indicates the low profitability of the company.

Lowest revenue growth: An increase of a company's sales when compared to a previous year’s revenue performance. A low revenue growth reveals that the overseas business of CSCEC did not increase much over time.

Few operations featuring innovative technologies: the fact reflects that CSCEC has not yet developed and owned irreplaceable construction technologies, making it less competitive player in the construction industry.

Lowest number of foreign countries and overseas markets where it has business operations: the fact directly indicates a rather small market share occupied by CSCEC in foreign countries and further reveals that CSCEC has not yet established a sustained overseas market.

4.4.2 Qualitative indicators

By carefully studying those qualitative indicators, we can find out the root reasons accountable for those discrepancies.

CSCEC runs a main business line of contracting construction projects and is less innovative in developing new business lines: most Chinese construction enterprises are now mainly engaged in projects contracting and need to veer to more integrated business lines including both project design and construction. There are two reasons for this incomplete range of business: in terms of the management, the obligation and work of different departments within the enterprise is not well defined; in terms of the technology, the construction department is also not distinctively classified according to different types of technologies to be used in the construction. However, competition among international construction enterprises nowadays is fundamentally dominated by specialized technologies and advanced management.

Backward IT Facilities: “Three Insufficient”: The IT department does not function

well, which delays information exchange within the enterprise and further hampers the efficiency of the whole system. Enterprises like CSCEC need to introduce and establish a CIO department to better coordinate different departments' operations and improve the overall efficiency.

Clients' requirements are not completely met: the fact testifies to insufficient attention CECEC has given to its clients. Enterprises like CECEC need to change their business management mindset and be truly market-oriented and keenly aware of clients' needs through conducting tracking surveys, providing one-stop services, customizing products and services, and forging a long-term strategic partnership with their customers.

Low employee satisfaction: the fact means CSCEC needs to improve its human resource management and complete a well-devised HR system incorporating employee recruitment, training programs, career guidance and incentive schemes.

Relatively backward organizational structure design and adjustment, the organizational structure and design of the enterprise is rather conservative, not entirely based on clients' requirements or market demands. The current structure and design does not fit in an essentially market-oriented international arena, and will further hinder the enterprise from functioning well and meeting its long-term strategic goals.

CHAPTER 5 PROPOSITIONS FOR CHINESE CONSTRUCTION ENTERPRISES

Based on the above analysis, it is possible to put forward some propositions to abridge the gap between Chinese construction enterprises and international benchmarking enterprises. The propositions are also helpful for the enterprises' internationalization.

First, management function should be clarified. A good management team should be a guide for the enterprise, and be capable of coordinating and controlling a series of operations, such as how to start a business, how to make a strategy, how to allocate resources and how to arrange the staff.

5.1 Strategic management function

5.1.1 Risk Control

The organization risk management idea element by Risk management and construction.The organization risk management idea element by (Young, Peter et al.) as:

"*1. Mission identification,*

2. Risk and uncertainty identification

3. Risk control

4. Risk financing

5. Program administration"

Financial Risk Control: Financial risk is an unexpected financial loss and deficit caused by uncontrollable objective factors, such as market downturn, inadequate cash flow and profit distribution. Therefore, it is important to monitor finance, which can also ensure the profit and long-term development. The enterprise should build a strict financial management and processing system, including financial budget, monitoring system and relations between the head office and its branches.

Business Risk Control: The process of management comprises planning, organizing, implementing and controlling. The main risks come from two processes, input-output and value realization. The former one is a process transforming from input to output, which can produce or appreciate in value. It is an activity requiring the enterprise to consider how to plan, organize and control. The later one is a result of gaining return from production and services. (John Walewski et al.,2003) In the first phrase, risk comes from construction quality, schedule and cost, including management system and implementing system of the enterprise. In the second phrase, risk comes from market and evaluation from customers. They are all business risks.

Policy risk management: Policy is one of factors which have impacts on market and investors, which cannot be controlled by the enterprise. The industry will be greatly

affected by policies, especially government policies, such as economic policy, industry policy, interest rate policy and tax policy. The only way to control and reduce policy risk is actively coordinate with the policy and be familiar with policies in every target market.

In conclusion, the other important function and purpose is to tackle the problems in sustainable development of the enterprise.

5.1.2 Operating Coordination

Business coordination is another important function. Organizational structures in large construction enterprises are complex. How to coordinate is an important factor to reduce internal contradictions and improve efficiency. According to the research on the organizational structures of some large construction enterprises, it can be concluded that the following factors are the key to coordination.

Capital coordination: Capital to enterprise is just like blood to man. For a large construction enterprise, its capital distribution and operating capability are important indicators. Therefore, the enterprise should have a reasonable prediction and risk control system for its capital flow, including debts coming from investment, turnover and return. What's more, it should distribute current assets and fixed assets properly for the purpose of maximum utilization.

Technology coordination: It coordinates professional skills with comprehensive skills. The former one means the skill on one aspect or on one project, while the later one means comprehensive adoption of every professional skill in one project. That is to say, technology should become an organic body either separating or merging together. It will helpful for meeting diversified market needs, improving comprehensive and core competitive strength of the enterprise.

Brand coordination: Brand is the simplest symbol for the enterprise with intangible value. The creation of a brand is a systematic and long project. Brand coordination means the establishment of brand should base on the development of the enterprise, and keep original intention in mind afterwards, and maintain good image and brand. The brand of the branches should be the same with that of the head office.

Market coordination: The enterprise adapts to market demands actively and constantly, and acquaints itself with the latest market demand. In this way, the enterprise can reduce cost to improve profit and open a market for its services and products. It means the market choosing will coordinate with the company's strategy "The structure that the firm adopts to deal with a product-market-strategy influences future product-market strategies." (Miles, R.E., Snow, C.C. 1978)

Relation coordination: External relation coordination is to maintain partnership with

regular customers and actively develop new partners, central on customers and coordinating internal relation with the external. Internal relation coordination is to guide the improvement of products and services in the enterprise in accordance with external relation. The enterprise can develop to its best situation through coordination between internal and external relations.

The above coordination functions are important. The main purposes are to tackle internal and external problems to realize internal coordination and maximize the overall value of the enterprise.

5.1.3 Manpower Support

Human resources: Human resources management is a series of human resources policies and proper management activities, mainly including regulation of human resources strategy, staff recruitment, training and development, staff performance management, salary management, position management and management of staff relations. The management adopts the ways of planning, organizing, guiding and managing and coordinating the staffing.

According to the definition, there are five basic functions of human resources management:

5.1.4 Financial Management

Financial management is to manage assets investment, capital financing and cash flow

in the operation and profit distribution under the overall target by planning, organizing, monitoring and adjusting the capital movement and its economic relations. It enables the capital movement to flow according to the plan and to provide financial support for the enterprise.

The targets of financial management include: maximum of profit, maximum of the authority's profit and maximum of the enterprise' assets.

5.1.5 Executive Management

It is a complete system in which the General Manager is the head and the executive vice manager divides responsibilities, and the executive department organizes and operates, spreading to every corner of the enterprise.

Executive management system is in charge of management in the enterprise. It promotes and ensures smooth processes and cooperation of technology (design), production (construction), capital (finance), operation (sales) and development.

The above functions play important roles in supporting the development of the enterprise. Their purpose is to settle capital working problems in the operation and then improve the efficiency of management.

For the compound management pattern, there will be differences in the goal and the focal point according to various conditions. We can divide these differences into four groups: indicator management, assistance, development and benefit monitoring. (See

Figure5.1)

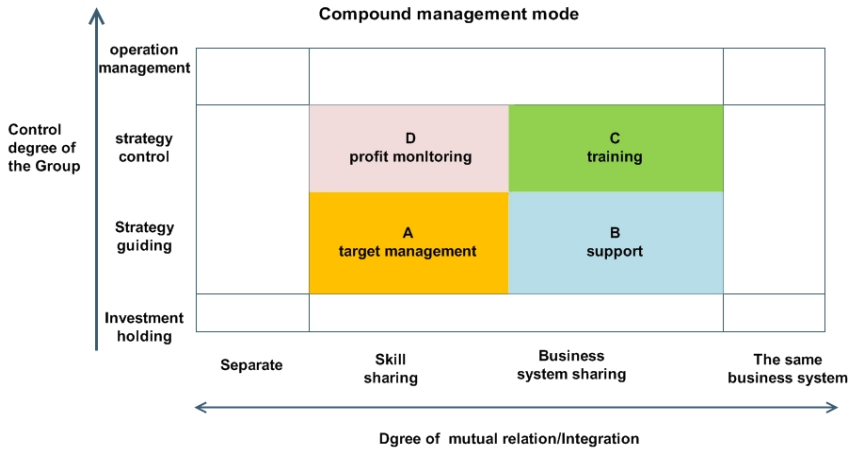


Figure5. 1 The goals and focal points of these management patterns

We can divide these differences into four groups: indicator management, assistance, development and benefit monitoring. The goals and focal points of these management patterns are shown in the table 5.1 .

Table 5.1 Introduction to different management patterns

Mode	*Goal*	*Focal Point*
Indicator Management	To enable the subordinated enterprises with consistent profitability and scale expansion	• Formulate a strategy and performance target and monitor • Provide the subordinated enterprises with necessary skills and resource supports when necessary, mainly capital and integration of external resources
Assistance	Help the subordinated enterprises develop the core competitive strength	• Participate in strategy-marking of the subordinated enterprises and also evaluation and primary execution of important investment project • Assist them with integration of external resources and build up management and operating systems • Provide necessary technical support, such as project development, capital, and government relations, and help them develop their core ability
Development	Develop the pillar industry of the Group	• Decide the development direction, target and business combination of the subordinated enterprises • Assist them with business expansion and market development • Participate in assessment and decision-making of important investment projects, controlling and preventing risks • Give supports in capital and skills.
Monitoring	Avoid loss and increase the value of assets	• Monitor the profitability and cash flow • To increase the value by restructuring assets when necessary • Try to not waste the resources of the Group

According to the business characteristics of Chinese construction enterprises, a parent

company with subsidiaries, it is possible to draw a chart of specific management goals, contents and strengths in this Figure5.2

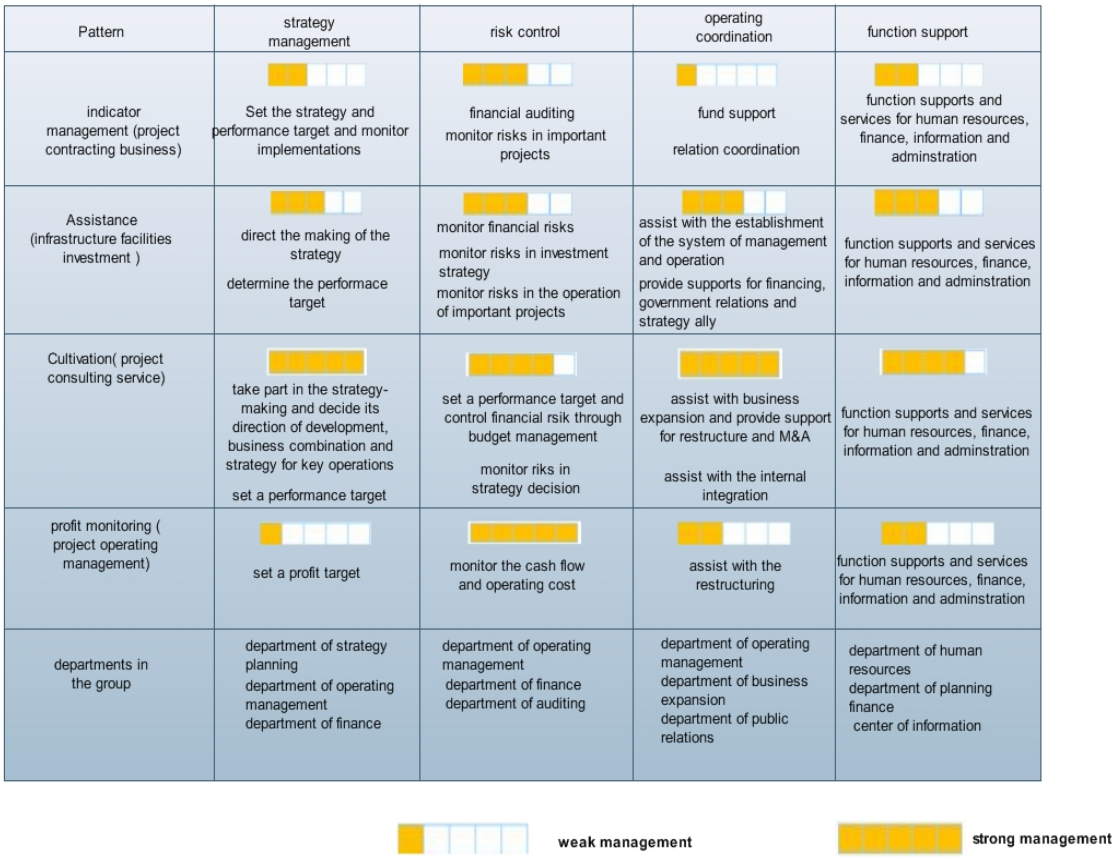


Figure5.2 The specific management goals, contents and strengths of CSCEC

5.2 Adjust organizational structure

The purpose of organization is to realize organizational strategy. Strategy is the most decisive factor in affecting the organizational design of the enterprise. When there is a change in the strategy, the organizational structure should be readjusted. The figure 5.3 exhibit the principles for adjustment.

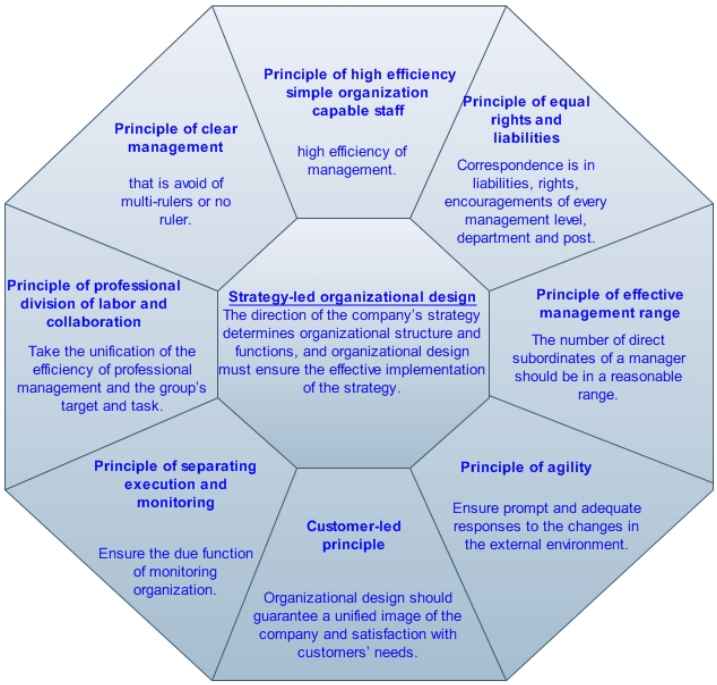


Figure5.3 A series of principles of strategy-led

The group should have the power for making decisions which are related with long-term development, success of the industry and can bring high risks for the enterprise when we take the above principles into consideration. Specifically speaking, the management structure can be divided into three levels.

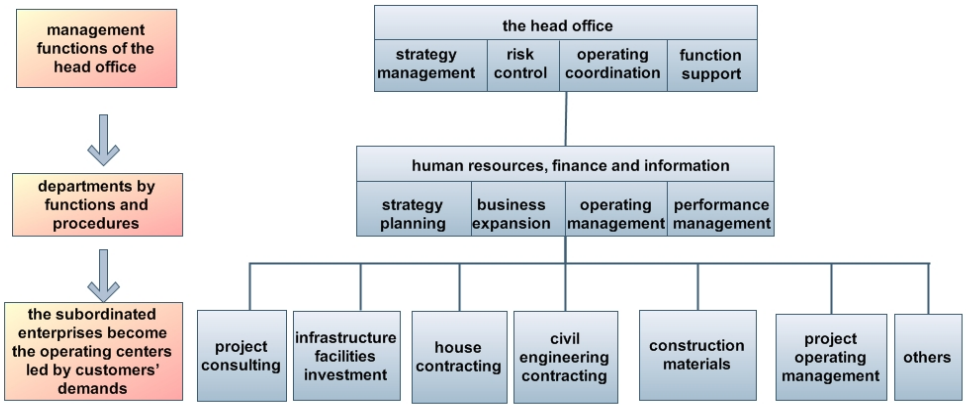


Figure5.4 Chart of structure division of management in the group

The first one is the senior management level, which is the core level for ensuring the overall development strategy of the company. The head office should make best use of its functions, including strategy management, risk control, operating coordination and function support. The second level means every department in the head office. So, we suggest that the establishment of departments should be in accordance with division of functions and divisions of process. For example, we can first set up correspondent departments according to human resources management, financial management and information management, and then those departments in charge of operating processes, such as strategy planning, business expansion, operating management and performance management. The method can fully meet the needs for

operating management and control of the Group. The third level means the subsidiaries of the Group. We suggest here that the subsidiaries should be established on the basis of the demand-led division operating center model. Specifically speaking, it is possible to set up operating centers on the need of customers, such as for project consulting, infrastructure investment, housing contracting, civil engineering and project operation. Every operating center takes charge of its own business, strengthening its core ability. The operating centers can have their own branches in the regions responsible for regional market development. The operating center can manage these branches and provide necessary supports.

5.3 Develop new businesses and complete business chain

Based on researches on the multinational operations and case studies on the benchmarking construction enterprises, I find that the benchmarking enterprises adopt a strategy of multinational pluralism. And the business chain in these company all integrated and effective. And the supply chain been defined that "*It is seen as a set of practices aimed at managing and coordinating the whole supply chain from raw material suppliers to end customers*" (Vollman et al., 1997) ,In contractor's view,the definition of the supply chain management can conclude as"*Its aim is to promote collaboration through leadership, facilitation, training and incentives, and replace short-term contractually driven project-by-project adversarial relationships with*

long-term, multiple-project relationships based on trust and co-operation. It includes the restructuring and integration of project processes and supply networks with fewer strategic supplier partners."(Mohammed Saad, Martyn Jones and Peter James ,2002)

The characteristic of this strategy is diversity in business operation and national markets. Investment in diversified business operation and multinational strategic cooperation can offer a consistent competitive edge which can not be gained from operation in one country or single business. The successful experience of the benchmarking enterprises can well prove that a company can have a stronger competitive edge by utilizing advantages from pluralism. Generally speaking, a diversified multinational company is more competitive than the company with single business under the circumstances of strategic match in the global market. When the specialized skill in a core technology of a multinational company is applied in different industries (at least one is global), and the development of these industries will bring brand advantage, the related pluralism is proved to be the best way to produce competitive edge. There are some ways to gain competitive edge in the global market with related diversified strategy, which are impracticable for pure national competitors or those with single business.

5.3.1 Try to expand the width and range of business chain

Develop the diversity in construction contracting business and more professional

business abilities, such as besides the current housing construction business, try to develop related construction businesses of traffic facilities, port engineering, and sewage treatment, increase types of businesses and market share, and avoid single market risk.

Extend businesses vertically and horizontally along the business chain, develop other businesses, like primary consulting and maintenance management, meet the demands of customers for construction services to increase customers' intimacy and gain more profits at the same time.

5.3.2 Create more core businesses and form a group of core businesses.

Focus on several core businesses, strive to complement between core businesses and diversified businesses and then to set up a division or a operating center for core businesses.

The company should make best use of department of R&D to improve the abilities in key technologies of related construction businesses and provide technical support for the establishment of core businesses.

5.4 Expand International Market

In the expansion of international market, internationalization of Chinese construction

enterprise starts late. The number of current international markets is small. The proportion of international revenue in the total amount is low. The international market network has not been formed yet. There are still big gaps between Chinese construction enterprises and the benchmarking enterprises in these aspects. The benchmarking enterprises have businesses in major construction markets in the globe and are market leaders in many major ones. Moreover, their global market network is relatively complete with an integrative procurement network system and marketing network. Therefore, the Group should adopt “catch-up” strategy in the expansion of international markets, transforming to international well-renowned constructor as soon as possible and completing the layout of international markets.

5.4.1 Based on what we have

“Foreign subsidiaries having more complicated objectives such as market-seeking and/or

resource-seeking. In the pursuit of their own mandates, these are potential conflicts and risks of cannibalization exist when firms both export to and establish local market oriented foreign direct investment in the same host country.” (Jane W. Lu Paul W. Beamish. 2008) they told us some time it is not Inappropriate to expanding the target market. Because many potential risk in it.

So the company should explore the local market and strengthen it to lay the foundation for internationalization expansion of Chinese construction enterprises. First, the company should do a detailed research on the current market. It can be

classified in accordance with factors of construction products and factors of owners. (Table 5.2)

Table5.2 the market classified by construction products and owner's factor

Factor		Detail
Factors of Construction Products	Category	Houses, traffic facilities, water conservancy facilities, energy facilities
	Pricing	Lump Sum Contract, Unit Price Contract, Cost and commission contract
	Contracting	General contracting market, design and construction contracting market, project contracting market, BOT, PFI and ABS
	Life cycle	Primary research, project design, project construction, project acceptance and evaluation, project operation management
	Products or services	Physical engineering market, technical services and management consulting
	Scale of construction products	Big, Medium, Small
Factors of Customers	Sources of funding	Investments from overseas financial institutions, from the nation or the government, from the financial group
	Performance preferences	Preferences of schedule, quality or price
	Transaction frequency	Potential customers, first customers, regular customers
	Choice preferences	One general contractor, several sub-contractors, no special requirements

Based on analyzing potentials, competitions and resources conditions of the group, some markets will be taken as the target markets of the group. Afterwards, the group will adopt different market orientations for these target markets, such as finding a new path, tit-for-tat, vacancy filling, treating in order to advance. The features of these orientations are shown in the table.(Table 5.3)

Table 5.3 Market orientation model

Market orientation model	Conditions	Modes of execution
Open a new path (evade stronger competitors)	The strength of competitor is too strong for the enterprise to compete with.	Make best use of its own advantages, and meet the potential demands in the market.
Tit-for-tat (head-on)	Equal strength	Locate the enterprise's image or products' on the similar position to compete for the same target market.
Vacancy filled (innovative)	Fierce market competitions, trying to find its own "red sea"	The company adopts "blue sea" strategy, which is helpful to explore potential markets
Retreat in order to advance (Reorientation)	No competitive edge in the market	The enterprise should retreat from the market and find a more efficient market orientation.

In clarifying the market orientation of those markets, the company can apply a more efficient strategy for market expansion. There are some features appearing in the current construction market expansion.

1) Market oriented

The company should begin with the demand of investors. Its production operation should take meeting the demands of investors as guiding principles. With the progress of the age, development in science and technology, emergence of new construction mode, the company extends its services for construction products, enabling better satisfaction in the investors.

2) Entire process

The market expansion starts from opportunity research on a construction product, and completion of the construction product, to comprehensive after-sales services on the stage of project service, which demonstrates the entire process of forming of a value chain. Therefore, the enterprise should make out a long-term and comprehensive market expansion strategy. The company should avoid shortsightedness and a desire for quick returns.

3) Individual

The non-returnable of engineering projects requires the company to launch varied market expansion aiming at different investors and different projects, meeting personalized demands to the maximum and providing personalized products and services. Therefore, the enterprise can apply different strategy combinations to plan a unique market expansion.

4) Interactive

Planning, design and producing of a construction product is completed with participation by owners, designers, supervisors, builders and other stakeholders. The company should make full use of every opportunity to interact with every investor and to know their requirements and feelings, which can be called “relation expansion” and “emotion expansion”. Building an “informal relation” with investors is an inevitable choice for developing partnership and client base and stabilizing the market, which is

also the highest state of market expansion.

According to the 4P theory, an enterprise needs to design and implement a marketing strategy based on its own features and the clients' requirements, which interacts soundly and dynamically with the very market.

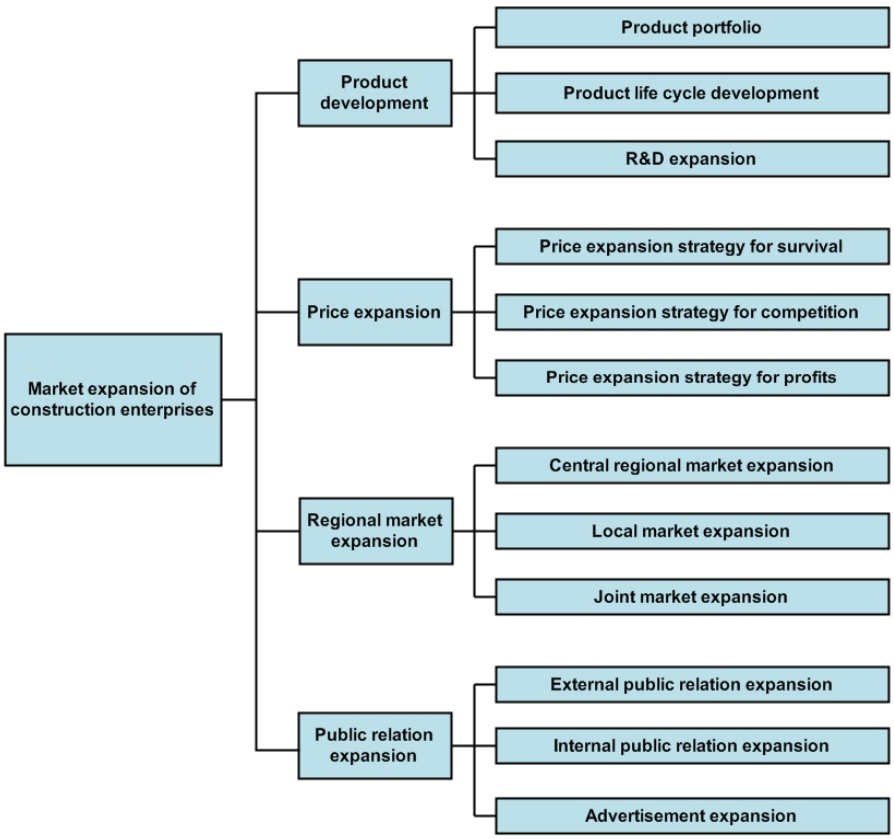


Figure5.5 Methods of market expansion for construction enterprises

The market development system is possible to construct a "4P"s market developing system. That is, product development strategy, price expansion strategy, place expansion strategy and public relation promotion strategy. They form an organic body to guide the operation of the enterprise and the market expansion.

5.4.2 from near to far

The enterprise carries out regional expansion in the same geographical region with the current market. After gaining absolute advantage and stability in the market, it will expand to the markets in the surrounding countries or areas and gradually push forward until it seizes the whole market. This is called “from near to far” strategy. There are three advantages of this strategy:

1) Favorable for reducing marketing risk

The original expansion strategy can provide rich experience and good example for the marketing practices in the surrounding areas. During the process of building “base”, more researches will be done on the marketing laws of the products, including successful experience and lessons. The accumulation of marketing experience on “market in the center of the circle” is the richest wealth for future expansion. The mistakes of marketing will be further reduced. With constant expansion of the market, “market in the center of the circle” will be expanded. The richer experience and lesson are, the less risks are.

2) Favorable for prompt supply of resources

The start of market expansion is based on the success of the “market in the center of the circle”. The huge profit from the local market can supply adequate capital for the

newly expanded market. The local market can be a base for training managers for the enterprise, so the supply of the talented for the newly expanded market can be consistent.

3) Favorable for consolidation of the market

The “from near to far” strategy is a moderate concept to expand new market after the absolute control of the current market.

At the same time, the experience can offer reference to the enterprise for further international expansion.

5.4.3 adopt the “multi-center” and “limited area” strategy and select several important markets for development

The enterprise selects several target countries as its strategic development priorities. Its experience is far beyond national boundaries, so it can allocate the operating resources in multi-nations and multi-centers. This is called “multi-center” strategy. In every “center”, the enterprise focuses its operations in a specific area to seek long-term development in this area. This is “limited area” strategy.

First, referred to the market expansion experience in the domestic market in the first step, the company should expand every “center” market and make it stronger and

bigger. Second, referred to the market expansion experience in the surrounding markets in the second step, the company should expand activities to these markets. Third, from point to the surface, the company can realize the “limited area” strategy. So, the group can apply the above development steps, following the order of “from near to far and do something easy first and something difficult later”. The company can do it step by step: domestic market—markets in the surrounding countries—limited area markets—global market. With experience accumulation and development, the target of internationalization will be realized at last.

5.4.4 Adopt global strategy to realize integrative development in the globe

Global strategy is the advanced form in the multinational operating strategy. The enterprise adopting this strategy does not focus on the profits in a single market, but systematically construct its own marketing network in the globe and allocate its operating resources and plan the activities of its subsidiaries around the world, seeking for maximum of the overall interest by internal trades and international procurement to reduce cost and improve efficiency. There are four features of internationalization enterprises adopting global strategy.

1) Internationalization of business concept

The so-called internationalization of business concept is that the purpose of production and operation in the international enterprise is to meet the demands of international customers

2) Internationalization of business resources

Internationalization of business resources is one of substantive symbols in internationalization operation of the enterprise. In the international enterprise, its man, finance, material, information and entrepreneur are internationalized to some extent. (Drucker, Peter Ferdinand.1998), famous American Management master, once proposed a new theory about international commerce and trade—cooperative production. He held that “in the contemporary world, highly developing in international division of labor, all productive resources in the process of production are no longer supplied only by enterprises in a nation, including capital, managers, labor, raw materials and semi-manufactured goods, but by international cooperation.

3) Internationalization of business process

Internationalization of business process is an inevitable result of the above two points, and also the real connotation of internationalization operation. Owing to their internationalization business direction and internationalization resources, Internationalization enterprises must make decisions and arrangements of their operations in the global market, including organizational form of the enterprise, regulation of production and marketing policies, coordination and control in the operation. This is how internationalization is realized.

4) Internationalization of business outcome

Products, industrial property and management systems as business outcomes will flow

in the globe for exchange or incorporate into international business as a business resource, such as, international marketing of products, international trade of industrial property and international output and transformation of management system.

5.5 Implementation of strategic human resources management

Strategic human resources management centers on the strategic target of the enterprise. Human resources management enters the executive level. The planning of human resources management matches with business strategy, not only giving full play to the advantage of human resources management, but also injecting new power into the overall management of the enterprise.

There are six features of strategic human resources management.

1) In the management concept, human resources are believed to be the most precious resources, for the developed human resources can appreciate and bring huge profit for the enterprise.
2) In the management content, the priority is to explore people's potential, stimulate vitality, enabling the staff to work actively and creatively.
3) In the management form, the stress is on overall development. Based on the target and individual conditions, the company should make a good planning of career life, train and re-position its employees to exert their talent.

4) In the management pattern, humanized management is adopted. Emotion, self-esteem and value are taken into consideration.

5) In the way of management, the results in the human resources information system are automatically produced by the computer and can be taken as the basis for decision-making.

6) In the management level, Department of human resources is on the executive level, directly taking part in the planning and decision-making.

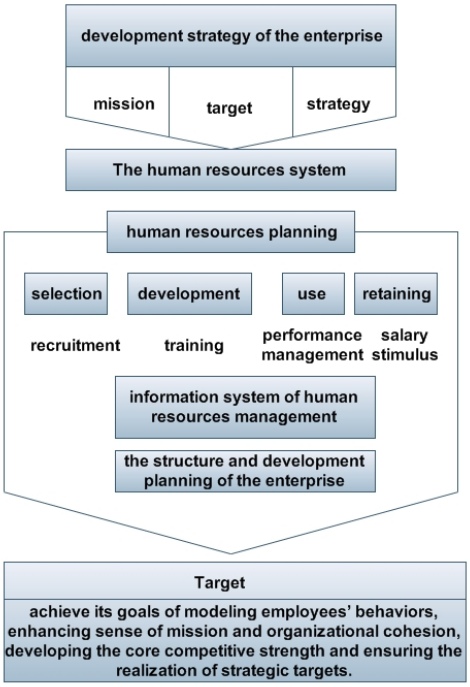


Figure5.6 System of strategic human resources management

The figure5.8 Start from development strategy of the enterprise and center on human resources planning, and realize strategic functions, including selection, development,

and use and retaining, to improve the efficiency of human resources management. Finally, this management will achieve its goals of modeling employees' behaviors, enhancing sense of mission and organizational cohesion, developing the core competitive strength and ensuring the realization of strategic targets.

Meanwhile, strategic human resources management not only raises higher requirements for the specialization of function realization, but also requires managers on different levels to take the responsibility of human resources management. It takes fostering of subordinates as one of measurement indicators of managers and requires active participation in Personnel training and development plan by the staff.

Strategic human resources management requires more specialization in the Department of human resources.

1) Department of human resources should participate in the formulation of strategies, and be forward-looking in management. The Department of human resources should have strong research ability, analysis ability and prediction ability in the field of human resources. Performance management, training management, and recruitment management are all professional and need many skills, which require constant study and professional training of the staff in the Department of human resources.

2) Second, the strategic human resources management requires the participation of the staff. It requires that managers in each level should take the responsibility of human resources management and the staff should take part in the training program. Moreover, the cultivation of the subordinated is one of the indictors to assess the managers. For the staff, the effect of participation in the training program is also an important indicator.

5.6 Optimize the overall planning of IT

The contemporary enterprises are facing challenges from four aspects: operational cost, development scale, and traditional business mode and customer satisfaction. Intensifying the construction of information system is an essential way to deal with the challenges. The construction of information system is also called IT planning or information system planning. (Betts, Martin.1999) "*Strategic management in the construction sector applies at the level of the national economy, the professional institution, the company, the project and major building or products"* And he figure that: "strategies of construction companies embrace integrated approaches, differentiation, diversification and core competencies.

In a broad sense, "IT planning" includes "IS planning" and the narrow sense of "IT planning". Specifically, "IS planning" means Information System Strategic Planning. Its plan is to form the perspective of information system, its organizational structure

and logical relationship in information system on the basis of understanding of development perspective and business planning to support the target of Business Strategic Planning (BSP). The issues involved with implementing an IT strategy embrace planning, selecting software and solutions, rolling out systems and supporting them once they are in place. (Betts, Martin.1999) supporting technology after implementation of IS strategy. The “IT planning” here is in its broad sense.

A good IT planning can lead the enterprise to the track of IT construction, improving its overall coordination capacity and overall competitive strength. In addition, the planning can change disorderly and non-strategic IT construction mode, integrating people’s wisdom and experience of using information technology into operating strategy of the enterprise to assist the enterprise to make the best strategy. In the overall level, it can assist the enterprise with IT planning, IT structure planning, IT scheme planning, execution planning to improve coordination capacity and competitive strength.

Therefore, there are some propositions for Chinese construction enterprises on analyzing IT structure and development mode of the benchmarking enterprises.

1) IT planning should be closely in accordance with the development strategy planning of the group and integrate them, realizing step-by-step implementation of IT planning.

2) Step-by-step implementation should be optimized in the business process and then be matched with it.

3) HOCHTIEF mode or BOUYGUES mode of IT management can be the models, setting up an IT Center directly under the head office. The details can be referred to the part of organizational structure in the second proposition. IT Center can take charge of the establishment and development of IT structure and then develop the specific IT application technologies in the information lab with other institutions.

4) CIO (Chief Information Officer), who can directly report the resources allocation, must take charge of the operation of IT Center and provide resources to strengthen the implementation of IT development strategy.

5.7 Intensify R&D innovation

5.7.1 R&D System

R&D management is a complicated system developing from strategy system, including the following nine parts:

1. ***R&D strategy***

The primary mission for R&D management is to map out the strategy for the company or the department, which must match with the overall development strategy.

Therefore, the direct should know the market position, the target market and customers desired by the enterprise. If the company wants to be the leader in the market technology, the technology conditions and technology predictions are what must be considered when mapping out the R&D strategy.

2. ***Innovation Management***

Innovation is the synonym for R&D, that is to say, the major work for R&D is to innovate. How to create a system, atmosphere, and organization stimulating innovation is what department of R&D emphasizes. The activities related with innovation management include knowledge management, technology transfer, organizational design and intellectual property management.

3. ***New Technology Development Management***

If originality comes out, the next step is to specify it. So Figure is 5.9 draw a R&D strategy map for the enterprise.

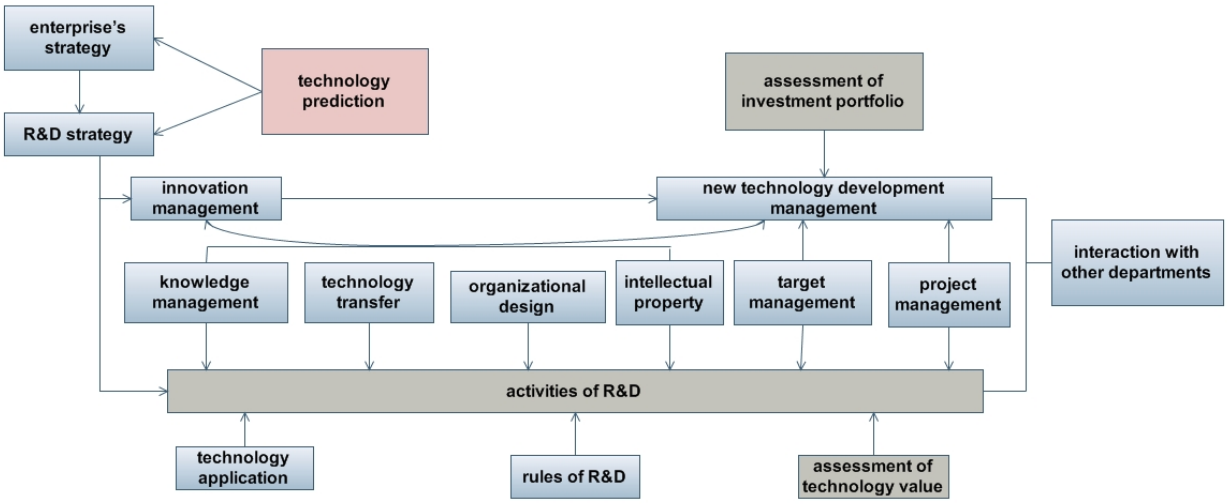


Figure5.7 R&D system of the enterprise

It is important to evaluate feasibility and profitability of this originality in the process. In the stage of execution, effectiveness of the function, time, cost of manpower and money should be taken into consideration, which is in the category of project management. In selection of originality, we should pay attention to influence on the strategy and performance of the enterprise by the execution of this originality, which is assessment and management of portfolio. The above items should not be ignored, such as knowledge management, technology transfer, organizational design and intellectual property management, or else the plan may fail.

4. Intellectual property management

In the age of knowledge economy, recognition, check, intensification and maintenance of intellectual property is an active way to improve competitive strength and value the enterprise. A company interested in R&D should attach much importance to intellectual property management.

5. Target management

Since R&D includes uncertainty in technical breakthroughs or diversity in technical achievement, it is difficult to manage the schedule or effectiveness of R&D. Therefore, under a planned target, the director and its engineers can set a reasonable time, resources and funds together and then select a way to reach the goal and distribute the time.

6. ***Interaction with other departments***

At the beginning of R&D or in the process of execution, R&D must keep in close touch with the department of promotion and department of production. The interaction between them can directly affect the efficiency of R&D outcomes.

7. Application of Science and Technology

Progress in science and technology is greatly helpful to the improvement of R&D effectiveness, such as, CAD/CAM, Product Data Management (PDM), and the former database. Therefore, the choice of R&D tools can also improve R&D efficiency.

5.7.2Division of R&D Levels

Generally speaking, levels of R&D can be divided into four:

Technology application level

The emphasis of this level is on the effective application of technology, equipment upgrading, and use of R&D tools and improvement of R&D skills.

Project Management Level

Project management is that a R&D team takes charge of researching and developing a specific R&D project. The emphasis of this level is on the management of a specific R&D project.

Level of R&D department management

The third level in the R&D management is the function of the department of R&D. It includes strategy planning, annual plan, promotion of R&D, training and assessment of the staff, proposals of Personnel management and R&D projects, evaluation of profits and coordination. This level also can be divided into two parts, internal and external. Besides the above works, the internal management also includes coordination and distribution of every project resource (manpower, time and funds) in the department. The external management includes interaction and coordination among departments of marketing, production and finance.

Strategy Level

It is the highest level in the R&D management. Its priority is to create the operation environment for the enterprise by improving its competitive strength with application of R&D capability. Therefore, in order to give full play to core competitive strength of its technology, the level maps out the specialized direction of development and develop faster, better and more valuable products or services for customers. There are four levels: Figure5.10, Based on the above division and management structure and business types of the group, I constructs the R&D management levels for the company

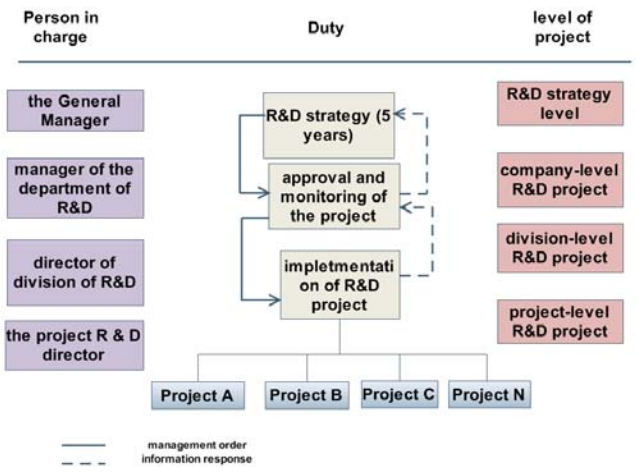


Figure5.8 R&D Management level of the group

5.7.3 R& D investment strategy

Before making the investment, first a number of key indicators need to be carefully

assessed, including financial indicators, market indicators and value creation indicators; second, the following factors need to be given serous considerations:

1. Making long-term, sustained and target-market-oriented R&D investment;
2. Conducting comprehensive and objective evaluation of R&D achievements with a combination of both economic and non-economic indicators.
3. R&D investment should be calibrated according to the lifecycle of various products. R&D investments for short-term products mainly focus on solving imminent problems, while R&D investments for long-term products are aimed to overcome major technical and technological barriers.
4. R&D investments should be put in key areas where the enterprise has already obtained certain knowledge or technology, or be put in the weakest chain which generates high costs to the enterprise.

Conclusion

Amid the prevailing economic integration, Chinese construction enterprises, as an important component and contributor to China's national economy, need to sustain and survive this trend. Go global is the necessary strategy for the Chinese construction enterprises to expand their markets and build up strength. On the other hand, Chinese construction enterprises, having long been protected by the planned economy, are not well prepared for the risks and competition in the international market. In order to successfully transform themselves into global player, Chinese construction enterprises

need to give up their business mindset cultivated in the monopolized domestic market in the past, readjust management and upgrade technologies to international standards, and consolidate and optimize their organizational structures through competition. However, in their initial efforts to internationalization, most Chinese enterprises are blind to their own deficiencies, let alone ways to ride out their predicament.

The study in this paper provides such enterprises with a set of feasible and applicable strategies. Based on the benchmarking method, the paper illustrates in details how to screen and choose well-performing benchmarking companies, how to use the Balanced Scorecard to collect data which best represent the management and performance of a company, and how to quantify the collected data to form the benchmarking system with the most ideal indicators. Then the paper prescribes ways for the construction enterprises to compare their own indicators with the target ones, find out and analyze discrepancies, and finally summarize coping strategies to narrow the gap and eventually optimize their management and increase their international competitiveness. All the efforts put into the study will be completely paid off if the paper can provide a source of inspiration to any Chinese construction enterprises committed to competing and succeeding in the global market.

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