

Despite the amazing innovations like paper, printing, gunpowder and compass in Chinese history, ancient China was not innovative. The agricultural centered dynasties were ruled according to Confucian ideology and bureaucracy, dynasty after dynasty until China was shocked awake by gunpowder powered cannons. The underdog role forced Chinese to think about the down side of the Chinese culture for innovation. The locked country and society as a stable unity enforced by strict hierarchy, the education emphasizing reproducing the same five Classics, the discrimination towards merchants all contribute to lack of innovation in ancient China. Pragmatic leaders like Deng Xiaoping found a way for Chinese to become rich quickly. The conditions for innovation in China was greatly improved. Combining with long term strategic thinking, China is outgrowing imitation towards strategic innovations. One needs to know the basic Chinese philosophy to understand where China came from and is heading to. Confucianism and the Chinese strategies should be looked at from both sides of their paradoxes. This can help China to overcome its shortcomings. It can also help the West to ride with the Chinese innovation wave.

2.1 History of Innovation in China

Why is there no Steve Jobs in China? Proud Chinese, those pro-China Westerners, and even the China-threat predators are all impressed by the Chinese inventions in history. From cast iron to chain suspension bridge, from wheel barrow to silk textile, from gunpowder to porcelain, from paper to printing, and from compass to sailboat, many Chinese inventions are still part of our daily life. But China does not have a history showing innovative mind-set. On the contrary, during long periods in Chinese history, Chinese have been ruled, trained, and forced not to be different than what the layers of rulers, the teachers, and the parents wanted.

Intellectually, the Chinese are smart enough to be innovative. When they have the space to be creative, they can be very surprising in turning knowledge into value. The strategic insides and programmatic way of looking for solutions have

generated Chinese entrepreneurs all over the world. Even today, this heritage has its influence on innovation and the way Chinese people deal with innovation.

Therefore, it is necessary to get some insight into some main cultural foundations and their relation to strategic and innovative behavior.

2.1.1 The Center of the World Turning Around Itself

A simple description of Chinese ancient history is that China was almost the same a hundred years ago as two thousand years ago. Dynasties came and went all considering itself as the center of the world. The same form of hierarchy was used dynasties after dynasties. The power of the Chinese culture was so strong that even the foreign rulers like the Mongolians and the Manchus were assimilated using the Chinese state system and language to rule.

China did have impressive inventions which changed the world. For example, in China Eastern Han period Cai Lun invented papermaking technology. Papermaking was spread to the Middle East when China's Tang Dynasty and the Islamic Army fought a war in the year 751. The Chinese lost the war and those captured were transferred to the Middle East and brought the papermaking technology with them. A few hundred years later, it reached Europe. Then came the Renaissance in Europe. Among other innovations, such as compass and paper, these have accelerated the progress of Western civilization.

Chinese also invented printing before 220 AD. Printing with the movable type was developed by Bi Sheng around 1045 in China. The printing press developed by Johannes Gutenberg in the fifteenth century is a more efficient printing process for Western languages. It is often regarded as the most important invention of the second millennium. The same invention "printing" led to different results for the West and China. While printing triggered social leapfrogs in Western countries by stimulating critical and creative reading and writing; printing only generated more Chinese reading only the Five Classics and tried to live up to those ancient social standards. Printing stimulated innovation in the West but restricted the freedom of renewal in China.

The Chinese invented the compass already in the Song Dynasty around 1040. Zheng He started in 1405 his first of seven voyages to different regions in Asia, Arabia and some say America by using star navigation technique. But it is the Westerner who found the new continent America and sailed all over the world to create their golden age using the compass.

Gunpowder was discovered in the ninth century by a Chinese alchemist searching for medicine for immortality. The Chinese did not come further than making amazing-looking fireworks to drive away the evil ghosts. But they were surprised by the killing capacities of fire guns when the Chinese gates were forced open many centuries later. Why did the brilliant inventions not take China to an innovative modern society? Because the Chinese treated innovation as a black box or even did not notion the black box at all. Figure 2.1 shows the difference between white and black box.

For example, in the case of China, the relevance of nontechnical innovation is a white box element for future success instead of the focused view on technology.

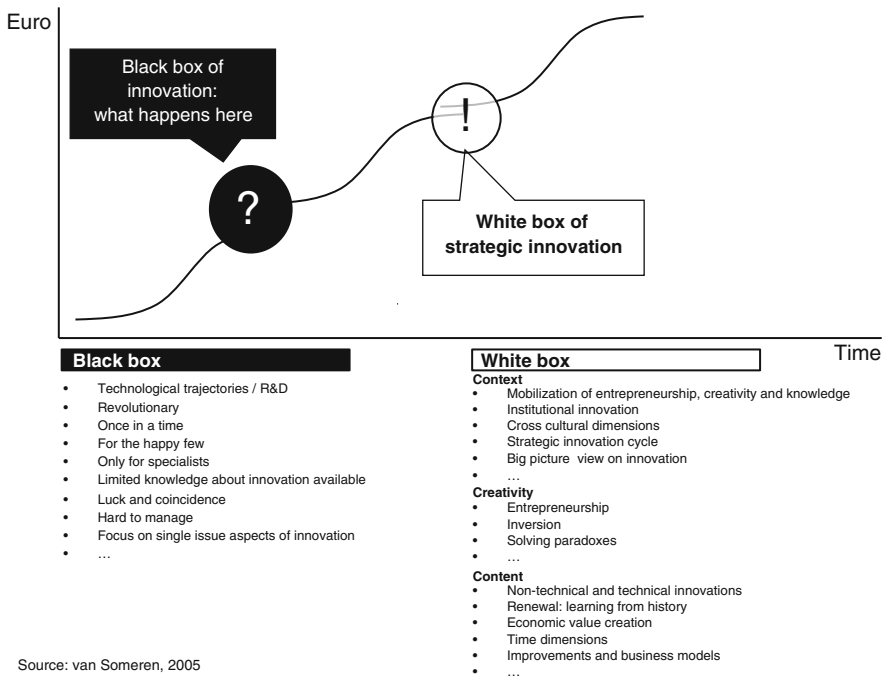


Fig. 2.1 The conditions for innovation

If we look at the theories about innovation, innovation does not only come from a lucky hit in a smart head. There are certain conditions which stimulate the smart heads turning to the right direction. China has its unique philosophic concept like Confucianism, national tradition, social custom, languages, fairy tales, religious belief, literatures, and mode of thinking. That implies that the Chinese conditions for innovation are totally different.

Based on strategic innovation theory showed in Fig. 2.1 and the Chinese historical cultural background, a few examples of the bad conditions for innovation in China can be listed (Table 2.1).

For thousands of years China was a self-centered locked system. It was not always closed because it held open many trade relations with different countries. It was locked in certain ideas about societal progress and prosperity. The Chinese character for China—"Zhongguo"—literately means "the country in the center of the world." The Chinese early civilization gave ancient Chinese a superior feeling that all the others were barbarian. The few interactions with the outside world were mostly one-way traffic. The most flourishing time in the Chinese history were those periods when China was interactive with the outside world. For example, during the period of Tang Dynasty from 618 to 907, China was an international trade center attracting people from all over the world. The Chinese society allowed the dynamic mix of deferent layers of the hierarchy. Many inventions were made in the field of medicine, engineering, and the sciences. Welfare also brought welfare disease like

Table 2.1 Why ancient China was not innovative?

Conditions for innovation	What’s wrong in ancient China?
Receptive system	Rigid and non-accessible country and society
Creativity	Unity
Demand for renewal	Top-down
Competition	Too organized hierarchy
Environment	Self-centered
Entrepreneurship	Anti-merchandise
Human capital	Wrong education and selection criteria
...	...

diabetes. In the Tang period, diagnosing diabetes by testing sugar levels in the urine was developed. Treatment for diabetes using thyroid glands of sheep and pigs were successfully carried out. These thyroid extracts were not used until 1890 in the West. An engineer named Yi-Xing invented the world’s first clockwork known as the famous astronomical clock. The first wine server was invented around that time. It was carved out of iron and placed on a lacquered-wooden tortoise frame. This mechanical device consists of a hydraulic pump that draws wine out of a metal-headed faucet.

The creativity of the Chinese has being repressed since Qin Shi Huang united the various warring kingdoms and created the first Chinese empire in 221 bc. The Legalist practice of absolute power of the emperor, complete subjugation of the peripheral states to the central government, total uniformity of thought, and ruthless enforcement of law is the character of the short regime of Qin Shi Huang. To enforce the mental unity, books from the “Hundred Schools of Thought” were burned and scholars were buried alive. Soon after Qin Shi Huang had been overturned and Han Dynasty had been founded, Confucianism—which emphasizes correctness of the family-centered social relationships and the hieratical rituals—became the dominant code of conduct in China until now. Confucians, applying the family metaphor to the community and the country, illustrated the emperor as the Son of Heaven, the king as ruler–father, and the magistrate as the “father–mother official.” Confucianism was deeply entrenched in the Chinese bureaucracy. The court and the government were separated. But the emperor as the Son of Heaven had the absolute power over his ministers. The capabilities of the emperor directly had influence of the capabilities of his ministers. The possibilities for renewing also largely relied on the insights of the emperor and the space he gave to his subjects to be creative. Unfortunately, there were too many weak emperors and leaders in the Chinese history.

Confucianism was dominant for thousands of years forming unity of mind-set to serve the hierarchy. The family-centered social structure, the agriculture-based economy, and the educational network are the key elements of Chinese culture from Confucius on. Confucian ideas were also firmly rooted in the legal system as ritual became increasingly important in governing behavior, defining social relationships, and adjudicating civil disputes. The other two important ancient Chinese philosophies, Buddhism and Taoism, teach conflict reconciliation. This

is attributed to the Chinese culture of looking for similarity, unity, compatibility, and tolerance.

Confucian philosophy advocates harmony between different value systems. Harmony, cooperation, and convergence of different thinking should be the ultimate goal. In this way, other cultures were always smoothly assimilated into the Chinese mainstream culture. Confucian students integrated Buddhist and Taoism into Neo-Confucianism in the Ming Dynasty, which became a new unified way of thinking until today. On the other hand, new ideas which could endanger the hierarchy were punished severely; even the whole extensive family of the “innovator” could get killed. Bureaucratic unity was developed and enforced by dynasties after Confucius. Comprehensive bureaucratic systems enabled the emperors of China to directly control vast territories. The Chinese history looks like alternating periods of political unity and disunity, with China occasionally being dominated by others. But the bureaucratic unity was so strong that the same bureaucratic system was used over and over again. Only the degree of pressure in the system was different. It was mostly enlightened in the beginning regime of a dynasty or an emperor. Carried by successive waves of immigration and expansion, cultural and political influences from many parts of the world did not change China but were in turn assimilated. Even in modern China, many Western companies and Western people are so overwhelmed in China that they tried to be more Chinese than the Chinese themselves.

Because of the absolute power of the hierarchy, the demand for renewal in China came mostly from top-down. In 747, during Tang Dynasty an emperor complained about the heat in the summer. He had a cool hall built in the imperial palace. This cool hall had a device known as Tang-Yulin, which had water-powered fan wheels that functioned like air conditioning and also had rising jet streams of mountain water. This is the first air conditioner in the world. The gunpowder was invented by an alchemist trying to please the emperor by finding the long-life medicine. When he found out that the exploding flash made the emperor laugh, the amusement use of gunpowder was enriched. Another Chinese alchemist invented porcelain while researching for the long-life medicine. It was a dust-repelling and waterproof cream that works like vanish for clothes, for weapons, for silk materials, and for polishing bronze mirrors. When heated the powder turned into shiny thin coating. It was used widely later on status given houseware called China. The top-down demand can easily create new markets like renewable energy. But it can also waste resources to generate prestige-driven flops. Even today, Chinese central and local governments sometimes still invest in ghost high-tech campus and not-connected-to-grid green energy parks.

Chinese people are competitive. But free competition was not appreciated. For the sake of harmonious hierarchy, competition is mostly organized, under the surface and between groups. From childhood on, Chinese are told that it is normal that the mother should give in to the father and the younger sibling should give in to the older sibling. In return the weak will be taken care of. This mind-set created many passive followers. But this attitude also generated many Chinese women and younger siblings who were forced to be very creative to get what they wanted. To

improve the family capability, explicit and implicit family (hierarchy) rules need to be developed to make sure the best came out of the competition. For example, the fifth Qing Emperor Yongzheng made clear rules how he should be followed. Hoping to avoid repetition of the succession crisis and making sure that his fourth son Hongli, a favorite of the grandfather and himself, get the throne, Yongzheng entrusted a number of important ritual tasks to him and included him in important court discussions of military strategy while Hongli was still a princess. He wrote down the name of Princess Hongli as the successor and placed in a sealed box secured behind the tablet over the throne in the Palace of Heavenly Purity. The name in the box was to be revealed to other members of the imperial family in the presence of all senior ministers only upon the death of the emperor. When Yongzheng died suddenly in 1735, the will was taken out and read out before the entire Qing Court, and Princess Hongli became the famous Qianlong emperor. The Qianlong emperor proved to be a very capable emperor and his early years saw the continuation of an era of prosperity in China.

Chinese had the wrong way of education for innovation. As a result of the dominant position of Confucian who was favored by the rulers, the Confucian Classics was the core curriculum for all levels of education since Wudi of the Han Dynasty until the fall of the last dynasty. In 124 BC a kind of imperial university was set up only studying the approved Five Classics, which had been determined by scholarly conferences and research groups under imperial auspices for several decades. According to Confucians, governmental officials are the “father and mother” governing over common people. They also should enjoy the status, rights, and privileges accordingly. Becoming officials is the ultimate goal of a common Chinese who wants to reach the highest level of the social hierarchy. This is still the case even now. Officials were appointed through the dual mechanism of selection and recommendation. Talents from different backgrounds were selected by Confucian examinations administered by the state. Those came into power often recommended their students and study friends to get a good position. Those with a Confucian education staffed the bureaucracy.

Entrepreneurship was discouraged in most of Chinese history. Businessmen used to struggle at the bottom of the society. Even since the Zhou Dynasty (1045–256 BC), Chinese professional classes were divided into four major groups: Shi, scholars and/or warriors; Nong, farmers; Gong, artisans or craftsmen; and Shang, merchants or businessman. This grouping represented a kind of hierarchical order. This historical sentiment leaves even its traces in modern Chinese society. In the late 1980s, the majors for business like economics and finance were looked down by those who were studying sciences (Fig. 2.2).

Shi is always at the top of the Chinese society. The Chinese character for Shi looks like a weapon. Earlier on in the Chinese history, the Shi were renowned mostly for their battle skills. As philosophical thinking flourished in China, the rulers shifted their requirements for Shi from physical to intellectual qualities. Because of the high status of Shi, study and martial arts were always very important in China. After the state exam system was established, etiquettes for clothing, special to show the level of the exam a scholar has passed, was developed. More

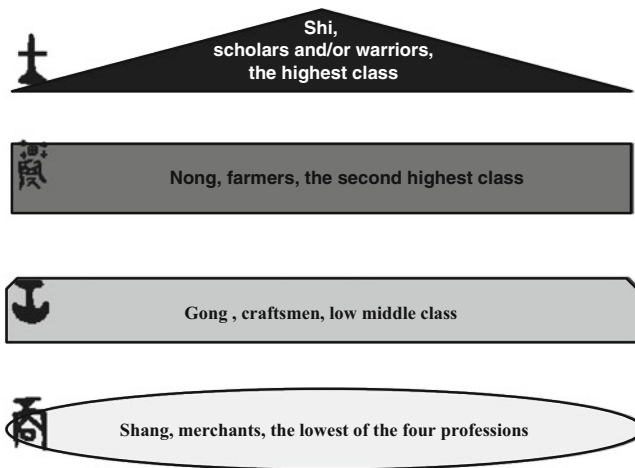


Fig. 2.2 The hierarchy of ancient Chinese professions

and more value was attached to become a Shi. The Chinese farmers were the foundation of Chinese society. The Nong were appreciated by the rulers for their stability, skills in cultivating the land, and its essential in the economy. Many soldiers turned into farmers in peaceful times. The land owners were often family members of Shi (war heroes or famous scholars) and were highly respected.

Because the demand, which usually came from the court or the higher-class officials and farmers, was very traditional and stable, innovation was not always appreciated. The Chinese craftsmen were necessary because of their skills to provide weapons or tools. The skills went from father to son, emphasizing the precision of reproduction than creating something new. This is partly comparable with the medieval guild system in Europe.

Merchants had the lowest status in ancient China. The Chinese character for merchant Shang shows a round and slippery man. In Chinese old literatures and dramas, businessman had the image of being greedy, cunning, and cooked, which was the opposite of what Confucius called a moral man should be. These were typically traders, sellers, bankers, and money changers who engaged in monetary exchanges of goods and services. Members of the Shang class were generally mistrusted by the public. They were also clearly suppressed and discriminated by the rulers. In Qin Dynasty, merchants were not allowed to wear silk clothing no matter how rich they were. In Han Dynasty, when the state exam system was established, businessman, their family, and their offsprings were not allowed to participate in the exams, which was the only way to improve the social status in China. Even in the much enlightened Tang Dynasty, businessmen could not enter civil service, while foreigners could. The low status lasted until the late Song Dynasty. In Yuan Dynasty under the Mongolian rulers, merchants were temporarily promoted to the second layer of the social hierarchy. But the majorities of Han (Chinese) people did not change their mind.

The low status of the businessman was the result of the ruling class trying to rule by household and governmental tax. Unlike farmers, merchants moved around which made it difficult to trace either their household or their property at that time. They could not easily be called in for labor forces and military services. The businessmen were also threats for governmental restrictions on the circulation of materials (such as salt, iron) in ancient China. The rulers were also afraid that the wealth could enable merchants to finance rebels. There was always an unspoken rule for the rich to hide their wealth in China. The science and technology which could bring more wealth was not attractive enough than knowing philosophical classics which could bring higher status.

2.1.2 The Shock of the Sleepy Dragon

Until 1820, there was not a big gap between the income of the Chinese and the others. Considering itself a mighty dragon, China acted like a sleepy frog in a warm bath, while the heat was built up in the West with the fire of Industrial Revolution.

The Industrial Revolution started around 1750 in the UK. Not only the technological innovation, like the [iron-making](#) techniques and the increased use of [refined coal](#), but also the social and economic innovation formed the force for the Industrial Revolution. Great Britain provided the legal and cultural foundations that enabled [entrepreneurs](#) to pioneer. Trade expansion was enabled by the introduction of [canals](#), [improved roads](#), and [railways](#). The transition from an agricultural-based economy to machine-based manufacturing shifted the mayor population from the countryside into the towns and cities.

The Industrial Revolution was seen as a major development in human history. In the long emulation process, at the end huge changes happened in manufacturing, mining, transportation, and technology from that time on. Geological, social, economic, and cultural conditions were fundamentally reshaped. It changed almost every aspect of our daily life. Most important is the growth of welfare. In the two centuries following 1800, the world's average per capita income increased over tenfold, while the world's population increased over sixfold.

Started in the [UK](#), the Industrial Revolution subsequently spread throughout [Western Europe](#), [North America](#), and Japan during the nineteenth century. The rest of the world followed in different tempo.

But China did not wake up on time. The English came and won the first Opium War (1839–1842) forcing the signing of the first unequal treaty the [Treaty of Nanking](#) (29 August 1842) in the Chinese history. China paid the British an indemnity, ceded the territory of [Hong Kong](#), and agreed to establish a “fair and reasonable” tariff. Five ports including Canton and Shanghai were forced open to free trade. After that, China is called the Asian Sick Man losing war after war. During the nineteenth and early twentieth centuries, more unequal treaties were forced upon China by foreign imperialist powers, like Great Britain, France, Germany, the [USA](#), Russia, and Japan. [China](#) was forced to concede many of its

territorial and sovereignty rights. The dragon was cut into pieces. China became the underdog.

2.1.3 The Copycat Who Caught the Mouse?

Since the reform and opening-up policy initiated by Deng Xiaoping in 1978, China has developed itself into a labor-, capital-, and resources-intensive socialistic market economy with severe competition, private property rights, and rich entrepreneurial spirit.

Napoleon Bonaparte said when China was an underdog in 1803: “China is like a sleeping giant. And when she awakes, she shall astonish the world.” China is now becoming one of the largest economies in the world again. From toys to shoes, from handcrafts to arts, from mobile phones to iPads, and from bikes to cars, made in China is a routine rather than exception.

China is also trying to outgrow its image as the factory of the world. Chinese are put into space and sent to the deepest sea bottom. Thousands of kilometer high-speed railways, the most modern airports, and highway networks have been built. The automotive market flourished driving the foreign carmakers to green figures and greener cars. ICT companies such as Huawei, ZTE, Weibo, and Tudou compete head-on with their international likes. Eco-cities are rising one after another. Alternative energy is no longer a propaganda but a booming business. Innovation is occurring in China in both the business-to-consumer (B2C) and business-to-business (B2B) sectors.

Holding on to the critics towards Chinese imitation behavior, breakthroughs are generally unrecognized by the broader global public. At the same time, Chinese companies increasingly outdated their reputation for being imitative not innovative. Product innovations in China are tested in domestic market and so escape the notice of the foreign competitors until it is too late. For example, advances by local companies in domestically oriented consumer electronics and white goods built the foundation for them to compete aggressively abroad. The home market was flooded by Chinese entrepreneurs from all over the world. There is almost no place for outsiders in upcoming new market like instant messaging and online gaming.

How can a country like China follow such divergent development paths in different times? The answer can be found in governmental policies and institutional reforms to create and support the Chinese individual entrepreneurship. Figure 2.3 showed our understanding of the change in Chinese innovation conditions in the last 30 years.

The visionary leadership, the path to develop Chinese business, the attempts to institutionalize innovative organization, and the building up of the governance system all formed a solid condition for fundamental change. The seeds of entrepreneurship inside the Chinese people are their diligence and strategic insights. Once they get to the right soil for business, the results are obvious.

There is a Chinese saying: “If you want to catch the dragon, you have to catch the head.” The most important for China is the right leadership since Deng

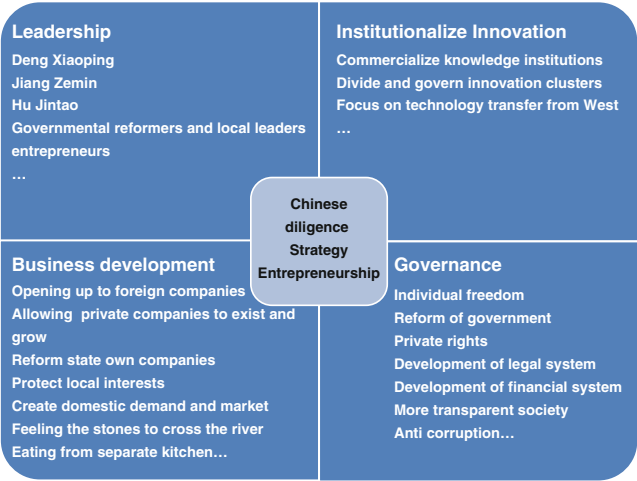


Fig. 2.3 Developed conditions for Chinese economic wonder since 1978

Xiaoping. Deng Xiaoping used his famous pragmatic speech: “white cat or black cat, the cat which can catch the mouse is a good cat” to end the theoretical discussion about socialism.

For him and the successive Chinese leaders, giving the Chinese people welfare is the most important bottom line for Chinese socialism. The Chinese successes in economic reform mostly come from the top-down initiatives. To catch up with the rest of the world, China opened up to the international trade and investment with attractive policies. Deng Xiaoping allowed the establishment of economic special zones where experiments of policies, financial instruments, and tolerance for local and private freedom and properties were tried out. Many foreign companies and overseas Chinese were recruited and stimulated to invest in those economic zones with favorable conditions like 5-years-tax-free and one-stop service.

By allowing the local governments and private persons to keep part of the benefit they generated, bottom-up initiatives were stimulated. To organize the new situations, the Chinese used their famous “feeling the stone to cross the river” method. A series of reforms were carried out to deal with the institutional, legal, and financial challenges. Table 2.2 shows a few examples of the reforms the Chinese carried out in the way of crossing the capitalistic river. The result is the development of a Chinese society with on the one hand dynamic capitalistic economy and on the other hand which is still very Chinese: hierarchical, traditional, and holistic.

At the same time, respect for being rich grows. In 1992, when Deng Xiaoping visited the south of China after the economic setback followed by 1989 Tai An Men incident, he praised the Chinese entrepreneurs in his “South Touring Talk.” “Being rich is glorious” is from then on the new ideal for young Chinese. Wealth is also showed off by driving the most expensive cars, wearing famous brands and calling with expensive phones. When we had dinner in a Chinese restaurant in 1996, it was

Table 2.2 A few examples of Chinese reform since 1978

Time	Reform	Result
1978	The “Four Modernizations” reform program	Light industry grew, legitimating of township and village enterprises(TVEs), de-collectivize agriculture
1978	Opening up to foreign trade and investment	Attract foreign investment, explore international market
1988	Legalizing Entrepreneurs’ status	Private sector coexists and develops, until 100 million private companies now
1993	Establishment of a Socialist Market Economic Structure	Being rich is glorious
1995	Reform of state own enterprises	Large state enterprises more independency; the smaller ones privatized
1998	Reform of knowledge institutions	The Knowledge Innovation Program
1998	Financial reform	More than \$16 billion in state-owned venture capital funds
2001	Joined WTO	Support international business development

amazing how many Chinese businessmen were calling each other with the newest mobile phone while they were seated at different tables in the same room. Chinese entrepreneurs are doing very well all over the world now. The private sector now accounts for around 65 % of GDP and 70 % of tax revenues. They contributed 60 % of China’s total output and export volume and employed 75 % of the workforce. China surpassed Japan in trademark patent filings in 2009.

The changes in education are another important aspect for the Chinese economic wonder. The reopening of the universities after the high education stop during the Cultural Revolution in the 1980s generated a new generation knowledge hungry talents. Those students farmed in poor countryside knew how important science, technology, and welfare are. New curriculum emphasizing science and technology was developed. The State Education Commission (SEC) issued the “Reform Plan of Teaching Contents and Curriculum of Higher Education Facing the 21st Century” in 1994. Two hundred and eleven large projects and nearly a thousand subprojects to improve teaching and curriculum in higher education institutions were carried out.

At the same time, talents went outside China to seek knowledge and opportunities. First they were sent with governmental money, then came the wave of student gold rush going abroad financed with family saving and scholarships. Some stayed abroad and made their fortune. In 1998, Chinese Americans, including Chinese who came to the USA as students, account for less than 1 % of the US population at the time. But they provide 17 % of all Silicon Valley firm owners and 10 % of the professional workforce in the valley. According to the 2010 [US Census](#), Chinese American had one of *“the highest year-round, full-time median earnings having one of the highest median incomes among any ethnic minority in United States.”*

There is also a powerful group of Chinese-born investment bankers carrying out influence on investment strategies by the major American investment banks—Goldman

Sachs, Morgan Stanley, and Citigroup. Some of whom were paid \$10 million a year. Some overseas' Chinese invested in China and hit the jackpot. For example, Andre Yan and Jung Huang of Softbank Asia Infrastructure invested \$40 million in an online gaming company in Shanghai called Shanda in 2003. In January 2005, they sold their stake for \$500 million. Overseas' Chinese are called "sea turtles" now in China because they chose to return to where they were born carrying new values, new knowledge, and sometimes "gold bags" with them. They are more and more valued for their knowledge than for their money as China is getting rich quickly. Some even get governmental financial support if they chose to start business back in China. The golden glow on their head is also disappearing, while Chinese universities are becoming world famous institutions.

As the result of tradition for thousands of years, the best students were also recruited by the Chinese government. Because of the vacancy created by absence of high education in the 1970s, the new scholars populated the civil service and became the drive behind the reform in China. Some of them became part of the new leadership in China. Every few years, there is a new wave of governmental recruitment to attract new and younger scholar talents. For example, in the early 2000, scholars were recruited to enrich the local and central governments. Some of the study mates of the coauthor were suddenly transformed from professors into mayors. There is an exam system for the selection of civil servants at all levels. Nowadays, if one wants to get promotion in Chinese governmental organizations, one needs at least a master's degree from a famous university. The favorable kind is called "wu zhi mei shao nu" in Chinese, referring to "no party," "scholar," "educated in the USA," "ethnic minority," and "woman." That is why there are so many capable Chinese technocratic civil servants who have Dr. titles.

In the last 30 years, Chinese higher education experiences transformations through expansion of enrollment, decentralization, diversification, and merging universities. University enrollment exploded from under three million in 1995 to over 18 million students enrolled in 2007 resulting in devaluation of Chinese high education. Since 1999, the number of undergraduate and graduate students has grown at nearly 30 % per year. Chinese high education now moves to establish world-class universities, privatization, and internationalization.

Turning science and technology into economic power is the new focus of Chinese high education. In 1998, the Ministry of Education initiated Project 985 in order to strengthen existing research and to catalyze new areas for research. Education and knowledge institutes were reformed and transformed into internationally recognized institutes. Young, talented scientists who were educated abroad were attracted to return to China and those in China were kept by financially attractive policies for research and high-tech business supported by central and local governmental funding. Since 1999, funding for universities are more and more linked with academic results. Faculty members are contracted according to their academic and commercial achievements. Some universities even require faculty members to publish three articles in international journals each year or run profitable projects. Under this pressure, a few chose for academic fraud. Some

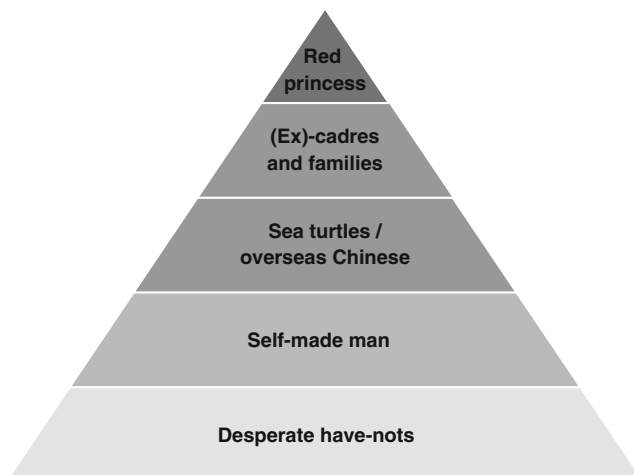


Fig. 2.4 The positions of Chinese entrepreneurs

bright heads are forced to become entrepreneurs. At the same time, many renewals are generated by the high educations.

China is not perfect yet. If one has a good look at the Chinese economy, the gap between the haves and the have-nots is becoming larger and larger. Conditions for business are still not equal for everyone. The people with good background are still having the favorable position to do business better than others. It will not change soon.

An illustration of the positions of the Chinese entrepreneurs can be like Fig. 2.4. The red princess are from the highest Chinese communist elite families. They mostly enjoyed very good education attending elite elementary schools and world famous universities. Some also took their chances and became rich when the economic reform was carried out. Because of their background, doing business was easier for them, resources were easier to get, and even the clients which were not always a state-owned company were eager to pay.

The opposite group of the red princess are those who do not have anything to lose. The first group Have-nots is the farmer. In the 1980s, many farmers grasped the chance of the agriculture reform and started from nothing their small business. Some became collectives and later on grew into big companies. The second group have-nots is the jobless. There were a lot of jobless who could not get jobs mostly because of their background. There were also millions who lost their jobs during the reform of the state-owned companies. A new group of well-educated unemployed are being formed too, while high education enrollment exploding and studying abroad becomes easier. These jobless Chinese cannot fall back to a social security system. They are too ashamed to burden on their family. The only way is to start their own business and try their luck. From selling things at street corners too making apps in their small rooms, some are doing very good. The story of Steve Jobs is an inspiration for millions of Chinese also dreaming to become rich from the “garage.” They are forming the grass roots of Chinese innovations. Because they

usually do not have big financial resources, smart ways of doing business are tried out. Many business innovations were generated in this way.

China is getting rich, but the Chinese are still Chinese. To do business with them, to innovate together with them, or to try to surpass them, one needs to understand their cultural background. Because 1,000-year-old stable family-oriented Confucian culture is still deeply rooted inside the Chinese value, attentions should be paid to its influence on the Chinese organizations and their way of innovation.

2.2 Chinese Culture and Innovation

2.2.1 Confucianism and Chinese (Not)-Innovative Organization

Confucianism is actually the Chinese code of conducts followed by billions of Chinese. It is the most durable ethical and social edifices in Chinese history. It shaped Chinese thought and character. Confucius was concerned with the existential problems of man. He tried to deal with these problems pragmatic by showing rules for the practical matters of daily and personal relationships. The essence of his philosophy is relationships, which formed the fundament to his social order: ruler and subject, father and son, husband and wife, older brother and younger brother, and older friend and younger friend (Confucius, 1998).

The most important is everyone should know his position in the hierarchy and acts according to the rituals (Li). One of the famous Confucius quotes is: *“Let the ruler be a ruler, the subject a subject, the father a father, the son a son (Confucius, 1998).”* The ultimate goal is to order all human relationships resulting in an ideal social structure and harmony. Table 2.3 gives some other examples and their influence on innovation.

This relevance of Confucianism for a Chinese organization was very often underestimated. To understand how a Chinese organization functions (or should function), we need to look at the relationships between rulers and ruled, within the family, and between friends (see Fig. 2.5).

This illustration demonstrates how an ancient Chinese government looked like. In ancient China, the emperor had the nature power as the “Son of Heaven,” but that also requires him to act like one. Confucius said: *“To govern is to correct. If you set an example by being correct, who would dare to remain incorrect?”* He should be an example, have wisdom and knowledge, and rule with humanity. His subjects should in return be loyal to him and to do their best to serve the ruler according to the rituals. Confucius said: *“In serving one’s lord, one should approach one’s duties with reverence (respect) and consider one’s pay as of secondary importance.”*

To our understanding, the relationship between ruler and ruled in ancient China can be applied in modern Chinese organization.

First of all, leadership is the most important thing for a Chinese organization. But the Chinese leadership is not the same as Western leadership. To govern the relationships there should be attitudes like benevolence in rulers and loyalty in

Table 2.3 A few examples of Confucian thoughts and the advantages and disadvantages for innovation

Advantages	Challenges
Knowing what you know and knowing what you don't know	Self reflection without improvement
Discover new from study of old	Imitation without innovation
Hear much, observe more and remember. Study in greater depth to know more. Pick and follow those that are good	Learning without entrepreneurship
In harmony with heaven and earth	Fatalism without renewing
Know at both extremes and exhaust all possibilities	Contradiction without consolidation
From one corner to think about the other three	Multiplan without focus
Rituals (Li): proper system of norms and propriety	Limitation without exception
Loyalty (Zhong): sense of obligations of the ruled to the ruler	Followers without input
Hieratical relationships improve resources efficiency	Top-down without bottom-up

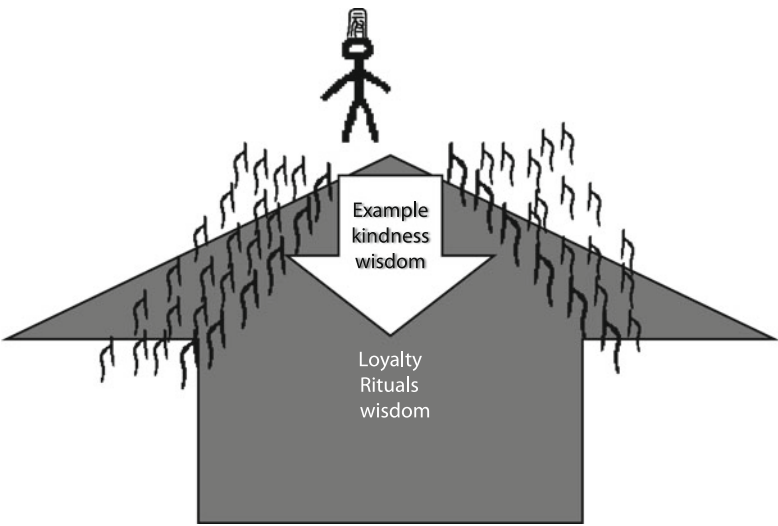


Fig. 2.5 The relationship between ruler and ruled in ancient China

subjects. A leader ruling by fear will not win loyalty. A leader avoiding responsibility will not be respected. A leader showing weakness will not be followed. We always advise Western companies to put someone with natural charisma on the top of their Chinese organization. Unfortunately, many failed to do so (van Someren & Van Someren-Wang, 2012).

Second, the hierarchy of the organization should be clear so that everyone knows his/her place. We once asked a group managers of a very innovative Dutch company to draw their organization charts for both the Dutch headquarter and their Chinese daughter. Because they have a matrix structure, no one could draw the right relationship between the units and project groups. If even the headquarter managers do not know it, how should the Chinese know? That is why their innovative way of developing projects was not carried out in China. The Chinese were pushed and pushed by different units and project groups, but they only could choose to do the thing they know, which is to listen to their own boss in China. A lot of frustration for both sides was generated by this misunderstanding.

To have the complete picture, we also need to know the relationship within a Chinese family. According to Confucius, family is the base of the society. All layers of the society should be governed like a family is being run. The ruler should be like the father in a family and the ruled like a son. Confucius said: “... *Fathers cover up for their sons, and sons cover up for their fathers. Straightness is to be found in such behavior.*” The father should rule with love and the son in return should serve the father with filial piety. For many Chinese organization, the good character, for example, filial piety, of an employee is much important than the other qualities. Remembering what Confucius said: “... *Being good as a son and obedient as a young man is, perhaps, the root of a man's character.*” Questions in a job interview, like “Where do your parents live?,” are not for small talk; they are meant to find out how the candidate treats his/her parents. The Chinese family relationship is illustrated in Fig. 2.6.

The father and mother are not equal. In Fig. 2.6, you can see that the Chinese character for man is the one who stands up and works hard in the field for his family. The Chinese character for woman is much gentle and half kneeling to the man and trying to hold a foundation for the whole family at the background. So righteous behavior is expected from the husband and loyalty and support are expected from the wife. The siblings are not equal either. There should be gentility in the oldest brother and humility and respect in the younger and humane consideration in elders and deference in juniors. If we translate this family relationship to a Chinese organization, one can say that in a good functioning Chinese organization, there is always a strong “father” (leader), a kind “mother” (the good cop, not necessarily a woman), “elder brothers” (seniors in age and/or competence), and “younger brothers” (mostly from the same group background as the elder brothers). If one wants to make the “younger brothers” to do their best to innovate, the “parents” should point out the directions and the “elder brothers” should support them.

The friend–friend relationship is the only equal relationship in China as shown in Fig. 2.7.

It is very important to have friends in the Chinese business. The Chinese character for friendship looks like two people with equal power supporting each other. They stand on a basis of a very big mouth which represents good communication. We used the overlapping of groups of friends to show the Chinese network. A shortcut to enter the network is being the friend of a friend. Confucius emphasizes the importance of trust between friends: “*Make it your guiding*

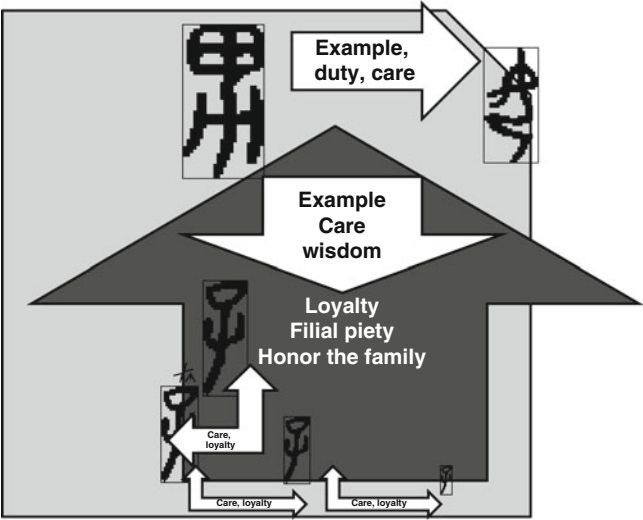


Fig. 2.6 Chinese family relationship

Fig. 2.7 Chinese friendship



principle to do your best for others and to be trustworthy in what you say. Do not accept as friend anyone who is not as good as you. When you make a mistake do not be afraid of mending your ways.” The Chinese business used to base on the trust, loyalty, and support between friends. But friendship was sometimes misused. Like Confucius warned: “He stands to benefit who makes friends with three kinds of people. Equally he stands to lose who makes friends with three other kinds of people. To make friends with the straight, the trustworthy in word and the well informed is to benefit. To make friends with the ingratiating (flattering in order to gain favor) in action, the pleasant in appearance and the plausible (possible) in speech is to lose.” One needs to be very careful to say that Guanxi (relationship in Chinese) can be built by inviting people to dinners or giving presents. These gestures are meant to show one’s good will to build a relationship. Real friendship one can call Guanxi needs years to build. “A gentleman makes friends through being cultivated, but looks to friends for support in benevolence (goodwill).” One first

needs to develop and prove to be a moral man, than becomes a friend. Bribery is also not the way to do business in China.

2.2.1.1 Chinese Mentality

For many Chinese culture fans, Chinese civilization is brilliant because it had “another way” of doing science. It is true that Chinese innovators are pragmatic. They do not always try to find the roots of the truth while believing in coexistence of multiple truths. But one also needs to see the downside of this cultural background. What we are trying to do is not to give a complete definition of Chinese innovation mentality but to show how to look at both sides of the mentality attitudes. For the Chinese who want to outgrow their culture restrictions and for those who want to understand Chinese to cooperate with them, knowing that there is always another side of the story is a beginning towards an innovative future of China.

In Table 2.4 a few common Chinese proverbs are linked to Chinese innovation behavior.

Some examples of Chinese behavior can be seen in daily practice. For example, the gambling behavior of some entrepreneurs is no exception. Contrary to Japanese quality management, sometimes pragmatic half solutions are preferred above finding the ground cause of failures. Similar is the easy pragmatic solution of becoming rich by reverse engineering instead of transforming basic research into cash cows.

2.3 Chinese Strategy and the Art of Innovation

2.3.1 From Sun Tzu's The Art of War to the Chinese Art of Innovation

Sun Tzu is the godfather of Chinese strategy. Every Chinese businessman knows some of his famous quotes from his famous The Art of War. His way of thinking was widely carried out by successful Asian companies. If we want to understand the way Chinese deal with the future and innovate, we should pay attention to their strategic way of thinking. The strategic thinking of Sun Tzu can be summarized like in Fig. 2.8 (Sun Tzu, 2002).

According to our understanding, there are five foundations for a good Chinese strategy.

Typical for Chinese, the most important is visionary and strong leadership. The leaders should have the whole picture of their own organization and their surroundings and counterparts. Sun Tzu said: *“It is said that if you know your enemies and know yourself, you will not be imperiled in a hundred battles”*; if we apply this to innovation, it is about turning the “black box” into the “white box” (van Someren, 2005).

The leader also needs to judge for the right timing and the right position to take. Sun Tzu found time and timing very important: *“He who knows when he can fight and when he cannot will be victorious.”*; *“When torrential water tosses boulders, it*

Table 2.4 From a few examples of Chinese proverbs to see the Chinese innovation mentality

Chinese proverbs	Chinese innovation mentality
A fast foot is first to climb	Fast vs. over speeding
The ship will reach the end of the bridge in due course	Pragmatism vs. half solutions
If you don't enter the tiger's den, how will you get the tiger's cub?	Risk taking vs. gambling
It's better to rely on yourself than on the help of others	Self reliance vs. self centered
There is no person that has 1,000 good days in a row and no flower that stays red for 100 days	Failure acceptance vs. lack of failure reflection
When entering a village, follow its customs	Adaptation vs. imitation of competitors
Three unskilled cobblers are superior to one Zhuge liang	Group effort vs. individual ingenuity
Thirty years on the east side of the river, thirty years on the west side of the river	Innovation cycles vs. negative spiral
A mountain cannot turn, but a road can	Reverse engineering vs. circumventing basic innovation
Three feet of ice is not the result of one cold day	Long term vs. flexibility
The starving can't choose their meals	Asset based innovation vs. lack of ambition
One cannot get fish and bear's paw at the same time	Focus vs. missing chances
...	...

Fig. 2.8 Chinese innovation strategy based on The Art of War



is because of its momentum. When the strike of a hawk breaks the body of its prey, it is because of timing.”; “The quality of decision is like the well-timed swoop of a falcon which enables it to strike and destroy its victim.”; “Speed is the essence of war.”

A good leader should make sure that his command is clear and implemented to all layers of the organization correctly. A good clear hierarchy is a necessity. *“Management of many is the same as management of few. It is a matter of organization.”* Sun Tzu emphasized: *“If words of command are not clear and*

distinct, if orders are not thoroughly understood, the general is to blame. But if his orders are clear, and the soldiers nevertheless disobey, then it is the fault of their officers."

The harmony within the Chinese organization is crucial. Almost the same as what Confucius may say, Sun Tzu mentioned father and son like relationship between ruler and rules: *"Treat your men as you would your own beloved sons. And they will follow you into the deepest valley."* His way of motivation is not only the reward but also the other soft skills: *"A leader leads by example not by force."*; *"Bestow rewards without respect to customary practice; publish orders without respect to precedent. Thus you may employ the entire army as you would one man."*; *"The art of giving orders is not to try to rectify the minor blunders and not to be swayed by petty doubts."*; *"A skilled commander seeks victory from the situation and does not demand it of his subordinates."*; *"Engage people with what they expect; it is what they are able to discern and confirms their projections. It settles them into predictable patterns of response, occupying their minds while you wait for the extraordinary moment — that which they cannot anticipate."*; *"If our soldiers are not overburdened with money, it is not because they have a distaste for riches; if their lives are not unduly long, it is not because they are disinclined to longevity."* He even warned the danger of using rewards unwisely: *"Too frequent rewards indicate that the general is at the end of his resources; too frequent punishments that he is in acute distress."*

To have all the aspects right for a victory, one needs to know that there is always the other side of the coin in China. Sun Tzu gave a few examples of the paradoxes one should consider for a winning strategy. These paradoxes are part of Chinese philosophy and are still being applied to carry out Chinese innovation (Fig. 2.9).

For example, a company can still win a competition even when it is relatively weak. Sun Tzu showed how: *"It is the rule in war, if ten times the enemy's strength, surround them; if five times, attack them; if double, be able to divide them; if equal, engage them; if fewer, be able to evade them; if weaker, be able to avoid them."* Many Chinese companies avoid the confrontation abroad and only focus their product innovation for Chinese, knowing that they have more chance at home comparing to their strong foreign counterparts. Some did go abroad but focusing on niche when they are weak. When Haier first tried the American market with their small size refrigerators only for hotels, they were very smart to avoid the main competitor in household white goods. But the contrary also happens. Because of cutthroat competition in Chinese market, export and overseas market development has a higher rate of return than same activity in home market.

From Western perspective, a very interesting one is the damage—profit paradox. In Chinese eyes, not all profits are beneficial for the future prosperity of an enterprise. Gaining short-term profits can harm future long-term profitability when relations have been disturbed acquiring a quick buck. It is better to create value on a long term and invest in durable relations instead of focusing on short-term results. This "playing" with the factor time is extremely important in China. A dynamic interpretation of the profit criterion characterizes Chinese enterprises. It fits into the dynamic value conversion principle as will be explained in Chap. 4.

Yin	Yang
Counterpart	Self
Visitor	Local
Few	Many
Weak	Strong
Offense	Defense
Charge	Retreat
Victory	Failure
Strange	Mainstream
Fake	True
Brave	Afraid
Labor	Leisure
Calm	Move
Curvature	Straight
Damage	Profit
Death	Life

Fig. 2.9 A few examples of Sun Tzu's paradoxes of innovation according to *The Art of War*

Sun Tzu gave many examples of how to use paradoxes: *"The ultimate in disposing one's troops is to be without ascertainable shape; Be extremely subtle, even to the point of formlessness. Be extremely mysterious, even to the point of soundlessness."*; *"when we are able to attack, we must seem unable; when using our forces, we must appear inactive; when we are near, we must make the enemy believe we are far away; when far away, we must make him believe we are near."*

Sun Tzu even allowed entrepreneurship: *"If fighting is sure to result in victory, then you must fight, even though the ruler forbid it; if fighting will not result in victory, then you must not fight even at the ruler's bidding."*

All the strategy should serve one goal: to win the war. This should also be kept in mind by the leaders calling for innovation: *"What is essential in war is victory, not prolonged operations."* This attitude and market behavior should frighten Western business managers not the copy–paste behavior.

2.3.2 A Few Stories of the Chinese Innovation Tactics

2.3.2.1 Borrowing of Arrows with Straw Boats

Zhuge Liang, who lived in the third century, is a famous strategist in Chinese history. His stories were told in *Romance of the Three Kingdoms* (Luo, 1976 [c. 1330]), one of the four best sellers in the Chinese history which has been turned into dramas, films, and TV series again and again. Almost every Chinese knows his stories of winning from his enemy using wisdom in place of forces. Since Chinese

are brought up with the idea that one needs to learn from great men's wisdom, Zhuge Liang's wisdom was widely told and used in the daily life.

Zhuge Liang was once assigned the task of making 100,000 arrows in 10 days, or he would face execution for failure in duties under military law. Zhuge Liang prepared 20 large boats, each manned by a few soldiers and filled with human-like figures made of straw and hay. At dawn, when there was a great fog, Zhuge Liang deployed the boats, and they sailed towards Cao Cao's camp across the river. He ordered the troops to beat war drums loudly and shout orders to imitate the noise of an attack. Upon hearing the noise, Cao Cao's troops rushed out to engage the enemy, but they were unsure of the enemy's strength, because their vision was obscured by the fog. They fired volleys of arrows towards the sound of the drums and the arrows became stuck in the straw figures. The boats with more than 100,000 arrows returned to camp when the fog cleared.

The development of many of Chinese strategic sectors knows phases that the arrows were borrowed. Unfortunately, Chinese also know how to turn borrowed arrows into icebreaker. They studied the "old" (borrowed arrows) and improve it to generate their "new" like Confucius told them to do. From green energy to aircraft industry, traces of borrowed arrows were everywhere in their infant time. Once they mature, the borrowed arrows turned into flying rackets which may destroy those who do not want to ride along.

The development of the Chinese high-speed train gives a good illustration of how it happens. Policies to develop high-speed train system were developed in the 1990s by the Chinese central government. A grand future with network of thousands of kilometers of high-speed railway was pictured and planned. China initiated high-speed trains by first importing and building under [technology transfer](#) agreements. The market signal was quickly picked up by advanced train-makers. Foreign train-makers including [Siemens](#), [Bombardier](#), and [Kawasaki Heavy Industries](#), limited by the slow development at home, were blinded by the possibilities in China.

They all underestimated the Chinese technology improvement capability and aimed at the Chinese straw boat by signing the technology transfer agreements. Chinese localized first the easy part, the low-tech components. Meanwhile, most of the [China Railway High-speed \(CRH\)](#) train components are manufactured by local Chinese suppliers. Comparing, combining, and eliminating the faults of the different technologies, the Chinese engineers successfully redesigned internal train components and built [indigenous trains](#) that can reach operational speeds of up to 380 km/h (240 mph). Foreign train-makers are left to sell only certain high-tech components in place of train sets and signal systems they aimed at the huge China's high-speed train market. Reports differ over the extent to which Chinese engineers absorbed or expropriated foreign technology in building indigenous train sets and signal systems. The fact is that China currently holds close to 1,000 local and international patents for high-speed rail technology which have partly been acquired from their former cooperation partners like Siemens (www.news.sina.com.cn, [2012](#)).

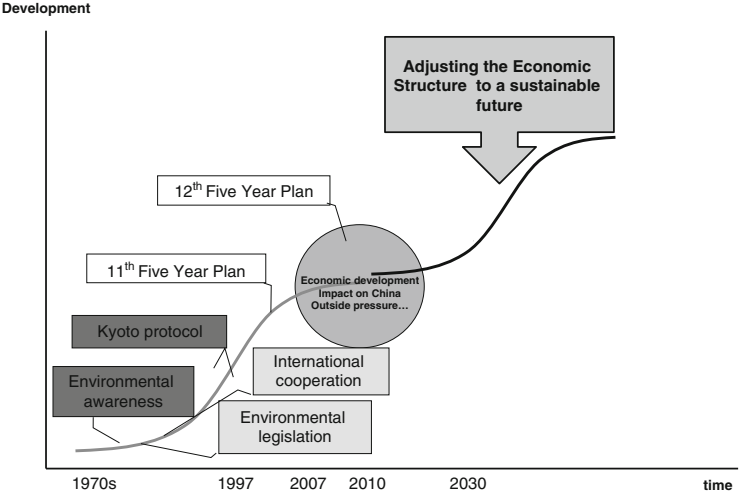


Fig. 2.10 China’s policies and actions on climate change

2.3.2.2 Praying for the Eastern Wind

Another story of Zhuge Liang is about his wisdom of timing. Before the major winning against Cao Cao, preparations for the fire attack on Cao Cao’s fleet had been made; the general in charge Zhou Yu suddenly realized that the eastern wind, which was required to enhance the fire attack, was not blowing to their advantage. Zhuge Liang studied the weather and anticipated that the east wind will come in a few days. He pretended to pray for the eastern wind. Days later, the eastern wind started blowing making the fire attack one of the most famous winning of a weaker army over a strong one in the Chinese history (Luo, 1976 [c. 1330]).

The same tactic is also seen in the development of Chinese climate change policies and actions as illustrated in Fig. 2.10.

In the development of the Chinese policies and actions against climate change, Chinese environmentalists have worked their way up towards a sustainable economy patiently. Early as 1972, before the opening-up policy and economic growth, Chinese representatives were sent on the path of environment diplomacy to attend the First [United Nations Conference on the Human Environment](#) held in [Sweden](#). They brought back the message that environmental issues were becoming social and economic issues which attract attention of the international community. To have a voice in the international community, China had to pay attention to the environmental issues. In the next year the Environmental Protection Leadership Group was established.

In the following 10 years, Chinese scholars and policy makers absorbed the knowledge of foreign colleagues and struggled the ignorance to environmental concerns in China. Young talents were educated in universities like Beijing Normal University which has one of the earliest environmental institutes in China. When they graduated, under the pressure of pointing-fingers of the international

community, the need for these talents was urgent. The talents, mostly students of the same mentor like Professor Wang Huadong (also professor of the coauthor) who is one of the founding fathers of Chinese environmental sciences, soon populated high-level governmental organizations and knowledge institutions. They become the drive behind the Chinese environmental policy. Because they came from the same nest, they sometimes back up each other’s policies from different governmental organizations. In 1983, the Chinese government announced that environmental protection would become a state policy.

The Chinese knew that they knew little about environmental protection. The international community wanted to get China on board. International cooperation was stimulated from both sides. Studying, combining, and localizing different environmental legislation from the EU and several member states, the USA, and Japan, comprehensive environmental legislation was built up. Although it is not always enforced because economic interest was higher ranked in the agenda. In 1998, China went through a disastrous year of serious flooding. The consequences of neglecting the environment were pointed out by the environmentalist educated in the 1980s and getting into decision-making position in the 1990s. Then the Chinese government upgraded the leading group to a ministry-level agency, which later became the State Environmental Protection Administration after a series of environmental disasters.

It is again promoted to Ministry of Environment in 2010 when China decided to turn into a green economy. Some smart leaders in Chinese environmental protection sector also used the media strategically. For example, the Vice-Minister of Ministry of Environment, Pan Yue, has been one of the most vocal high-level officials in the Chinese government critical of the old development model. He warned that “the Chinese miracle will end soon” if sustainable issues were not addressed urgently again and again in Chinese and even foreign medias.

China was ready for a new growth model. Gradually, sustainable development was integrated into Chinese economic plans like the 11th and the 12th Five-Year Plans. Supporting sector policies and financial instruments were built around it. Demand for environmental technologies and solutions was created by tightening up the law enforcement. The only thing missing is the “east wind.”

The 2009 Copenhagen Climate Change Conference was the “east wind” for the Chinese. Let us have a look at

“China’s Position on the Copenhagen Climate Change Conference”

IMPLEMENTATION OF THE BALI ROADMAP
<i>China’s Position on the Copenhagen Climate Change Conference</i>
<i>May 20, 2009</i>
I. PRINCIPLES
<i>1. The UNFCCC and its Kyoto Protocol as the Basis and the Mandate of the Bali Roadmap as the Focus. . . .</i>
<i>2. The Principle of Common but Differentiated Responsibilities. Developed countries shall take responsibility for their historical cumulative emissions and current high per capita emissions to change their unsustainable way of life and to substantially reduce their emissions and, at the same</i>

(continued)

time, to provide financial support and transfer technology to developing countries. Developing countries will, in pursuing economic development and poverty eradication, take proactive measures to adapt to and mitigate climate change.

3. The Principle of Sustainable Development. *Sustainable development is both the means and the end of effectively addressing climate change. Within the overall framework of sustainable development, economic development, poverty eradication and climate protection should be considered in a holistic and integrated manner so as to reach a win-win solution and to ensure developing countries to secure their right to development.*

4. Mitigation, Adaption, Technology Transfer and Financial Support on the Same Footing and as Equal Priorities. *Mitigation and adaption are integral components of combating climate change and should be given equal treatment. Compared with mitigation that is an arduous task over a longer time horizon, the need for adaption is more real and urgent to developing countries. Financing and technology are indispensable means to achieve mitigation and adaptation. The fulfillment of commitments by developed countries to provide financing, technology transfer and capacity building support to developing countries is a condition sine qua non for developing countries to effectively mitigate and adapt to climate change.*

Source: National Development and Reform Commission (NDRC)

Until then, China was always the underdog trying to organize the developing countries to avoid the pointing-fingers. For the first time China made concrete commitment to reduce CO₂. A set of plans with detailed actions towards quantified targets was published. China has turned the pointing-fingers from the international community into their “east wind” to develop a sustainable economy (Van Someren & Van Someren-Wang, 2009 december).

2.3.2.3 Empty Fort Strategy

This is one of the risky tactics Zhuge Liang used. During the first [Northern Expedition](#), Zhuge Liang found his army in peril of being attacked by the enemy. His main force was deployed elsewhere; only a small group of soldiers were left in the city. Zhuge Liang had to do something to save his city from being crashed. Zhuge Liang ordered all the city gates to be opened and instructed soldiers disguised as civilians. A few old men were ordered to sweep the roads while he sat on the viewing platform above the gates with two boys flanking him. He put on a calm and composed image by playing relaxing music on his Guqin. When the enemy arrived, the general was surprised by the scene before him and ordered a retreat after suspecting that there was an ambush inside the city (Luo, 1976 [c. 1330]).

Under the influence of 2008 financial crisis and the ongoing Euro crisis, some Chinese companies are suffering problems like dried-up orders, lack of cash flow, and heavy loans. But many of them are invisible for the outside world except the few caught the media attention with panicking owners who tried to escape or kill themselves. Empty Fort Strategy is used mostly by those who are desperate. Instead of showing panic, they choose to deceive the outside world to win time to recover.

One of our clients used it with great success. The factory is a young company set up in 2008. They make high-tech components for windmills. Almost all the employees enjoyed high education with specified knowledge which were hard to recruit when the business was booming. The company managed to get the best people by offering options for share if the company goes public in the Chinese stock market. The company made millions in the first 2 years supplying unique products

no competitors could. Soon came the imitators in the market. The managing board decided that new products and market have to be developed to surpass the others. Thanks to their high-quality employees, they started testing a series of innovative products. At the same time, millions were invested in developing other business like investment in building wind energy plants. When the overheating happened in the wind energy business in the summer of 2010, the company faced severe cash flow problem because the clients were not paying them on time. With several new products in the pipeline and a wind energy plant waiting to be connected to the grid, the managing board expected that the company could survive if they could hold on long enough. A kind of Empty Fort theater was carried out. All the board members were sent out to get new investors riding BMW 7 Series or Audi A8 which they borrowed from their friends. Potential investors were taken to diners in an exclusive restaurant which the company made a deal of open account paid once a month. They could not pay the salaries. So they send the less needed employees to collective trainings which they do not need to pay in advance. With a few million RMB, new investment came and they hold on. Half year later, many of their Chinese competitors were wiped out of the market.

The world is now facing serious problem with the US economy recovering too slowly and the EU threatened by struggling monetary union. China faces serious problems too. Some analysts say that China is manipulating its growth figures and bad loan burdens. We do not know if China is carrying out an Empty Fort Strategy. What we can see is instead of panicking, the Chinese are rolling out policy packages to secure the economic growth. For example, China's banks are expected to issue trillions of RMB of new loans each quarter in 2012. China's banks used to operate within tight limits. The central bank used to impose a ceiling on the interest rates they may pay to depositors and a floor under the rates they may charge borrowers. The loan policy of the state-owned banks was directly generated from the economic agenda's with favorable conditions for certain sectors. At the same time, more freedom is given to the Chinese banks. It said that banks could offer depositors an interest rate 10 % above the benchmark and borrowers a rate 20 % below it. The cut in lending rates could allow banks to revive credit. The rise in the deposit ceiling could attract depositors. The Chinese government is carrying out a reform of the financial system. Empty Fort or not, China is trying to pass the storm with peace. It may work out better than the panicking news from Europe we hear every day now.

2.3.2.4 Create Something from Nothing

This is the story of Shi Yuzhu. Shi Yuzhu is one of first Chinese high-tech entrepreneurs with a legendary story of ups and downs typical for many pioneering Chinese self-made entrepreneurs. Entrepreneurship accompanied with sometimes overheated head with gambling behaviors makes them grow or fall. Some managed to be born from ashes again and again. With China growing into a market economy, new generation of Chinese entrepreneurs are learning from Shi Yuzhu-like lessons. They may overcome the same fault. If not they can learn that there is always hope for a true entrepreneur. Not only the favorable policies but also these entrepreneurs

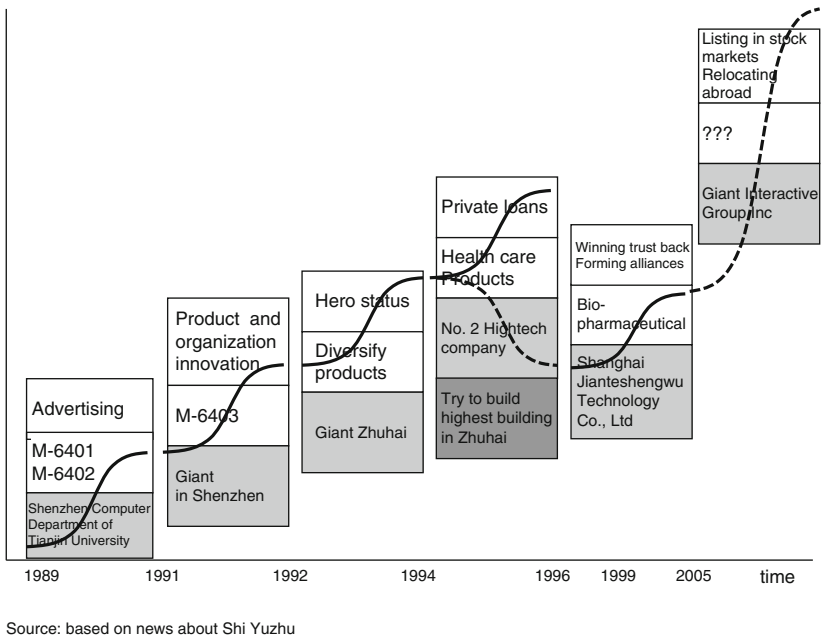


Fig. 2.11 The history of Shi Yuzhu's giant

will bring China to an innovative market economy. Figure 2.11 shows the development in time (www.news.sina.com.cn, 2012).

Shi Yuzhu is from the first-generation well-educated Chinese after the culture revolution. He graduated from the Department of Mathematics of Zhejiang University at the age of 22 in 1984. As an excellent talent who was hardly needed after years of pause of the high education during the Cultural Revolution, he was assigned to the Anhui Province Bureau of Statistics and became a civil servant, which is a dream job for millions of Chinese students, even today. He gave up the dream job to study further in the Graduate School of Shenzhen University. Shenzhen is the lab for Chinese reform. Entrepreneurship was booming under the less strict governmental control. The border of Hong Kong and Macao attracted thousands of Hong Kongese and other overseas Chinese to start business. Under this business optimism, in 1989, Shi Yuzhu jumped into the business sea as the Chinese may say. Using his software knowledge, he developed a Chinese desktop word processing systems named M-6401. With only 4,000 RMB, he leased the business license of the Shenzhen Computer Department of Tianjin University, which only had a business license without even a computer. At that time, import of computer was restricted. The price of a computer in Shenzhen was at least 8,500 RMB. Shi negotiated with a computer supplier offering 1,000 RMB more for one computer if he could pay 2 weeks later. He arranged at that time a very bold advertisement with collateral payments in the Chinese magazine “Computer World” with a total budget of 17,550 RMB (at that time less than \$1,800) which

he did not have. Thirteen days after the advertisement appeared, the sales exceeded \$100,000. Shi paid off outstanding loans and used all the money left to invest in advertising. Four months later, the M-6401 sales exceeded one million. This was the story of the first growth curve of Shi Yuzhu's business, which did not only come from technical innovation as M-6401 but mostly is driven by the innovative way of sales and marketing. In 1991, Shi founded his own company named Giant (JuRen) in Shenzhen.

In 1992, the headquarters of Giant was moved from Shenzhen to neighboring Zhuhai. M-6403 achieved a profit of 35 million RMB. In 1993, Giant launched the M-6405, a Chinese laptop computer enabling Chinese handwriting. The annual sales of only handwriting Chinese computer and software reached 360 million RMB. Giant became the second largest private high-tech enterprise in China. Shi Yuzhu also got hero status. Shi Yuzhu was honored the Rewards of Intellectuals in Zhuhai and was elected one of the top 10 reformers in China. National leaders like Deng Xiaoping and Jiang Zemin praised his effort in public.

At the same time market for Chinese computers was changing. The restriction of import of computers was loosened. Shi Yuzhu anticipated the change and started to broaden the scope of Giant. Real estate and healthcare products should bring new impulse to the company. The dream of a nice headquarters was heavily encouraged by the local government. The design of the headquarters grew from a 16-floor building into a 70-floor building which would become China's tallest building at that time. The required funds exceed one billion RMB which Giant did not have yet. Private loans were easily raised by Shi Yuzhu because of his big name. The business of healthcare products was also growing. In 1995, Giant launched 12 kinds of healthcare products using a billion RMB in advertising. Shi Yuzhu was ranked by Forbes as the Mainland China's No. 8 richest man. In 1996, the Giant headquarter building faced a major setback because of the unexpected high cost of the foundation. Cash flow became a problem. Shi Yuzhu decided to tape the healthy healthcare diversion to save the financial emergency of the building of Giant's headquarters. The healthcare division suffered from financial bleeding and excessive mismanagement, coupled with the rapid boom-bust. In early 1997, the Giant building is not completed on schedule. Media reported that Giant faced financial crisis and was at the edge of bankruptcy. Shi Yuzhu settled with the loans owners with his Giant building as guarantee and promised to pay back every penny he borrowed. Giant was not forced to file for bankruptcy.

Starting from nothing again, Shi Yuzhu registered a biopharmaceutical company Shanghai Jianteshengwu Technology Co., Ltd. in 1999 to produce healthcare products. He teamed up with the original friends of entrepreneurs in Shanghai, Jiangsu, and Zhejiang to do the business of "melatonin." Shi said: "the people's money, I have to repay." and set a timetable repay the debts at the end of 2000. In 2001, after he cleared his credit, Shi Yuzhu applied for registration of a new Giant company seeking listing in Shanghai Stock Exchange. It was realized on 15 November 2005. On 26 July 2006, Shi Yuzhu and the other 18 company executives officially registered "Giant Network Technology Limited" in the Cayman Islands. On 11 June 2007, "Giant Network Technology Limited" changed its name to Giant

Interactive Group Inc. On 1 November 2007, Shi Yuzhu Giant Interactive Group Inc.'s successfully launched its stock at the New York Stock Exchange, generating more than \$4.2 billion market value. It is the largest private enterprises listed in the foreign stock market. In China, Shi Yuzhu is estimated worth more than 50 billion RMB. He is still the marketing genius with news about him bidding excessive amount of money for commercials time on CCTV. His imperium reached out from healthcare products, biological technology, health wine to investment banking, online games, education, and consulting. The story of Shi Yuzhu has not ended yet. We do not know if he has to be a phoenix again.

2.3.2.5 Make the Host and the Guest Exchange Roles

China is realizing the dream of being a great nation on aerospace technology. China has always played the modest guest admitting that its aerospace technology was far less advanced than that of the USA and the EU. Afraid of being copied, the advanced countries have always refused to see the possibilities for cooperation. At the same time China is developing itself into the owner of advanced aerospace technology which is also widely transplanted to civil usage generating impulses for economic transition.

The push on aerospace technology development has put enormous pressure on study fields like physics, chemistry, mechanics, earth science, and materials, hence generating advances in these fields quickly in recent years in China. The way from lab to market is very short because most of the involved research institutes and companies have direct link to "military" industry or even have their own subcompanies. According to Xinhua News, 80 % of the developed space technology is used in other sectors like ICT, new material, renewable energy, medicine, and agriculture; nearly 2,000 space technology achievements have been ported to various departments of the national economy. For example, China Aerospace Information Co., Ltd. developed and launched the "Golden Tax Project," the "Golden Shield Project," and the "Golden Card Project." The "Golden Tax Project" used advanced cryptographic techniques for the country to solve the major issues to curb tax evasion and fraud crimes. The "Golden Shield Project" is the national ICT system for law and order. The "Golden Card Project" generated the earliest IC card products for the Chinese market. It is playing an important role in the field of intelligent transportation; 70 % of the nation's highway network is using the intelligent transport system. More than 1,000 kinds of new materials are developed by the Chinese aerospace industry. The Chinese photovoltaic industry is turning to use key technologies from the development of Chinese space solar cell technology being more and more independent of the foreign development. New medicines are developed and tested in the space since Shenzhou I is launched in 1991. Seeds were mutated in the space and developed quickly for the market. The giant 90 kg pumpkins you see in the normal Chinese farms came from the 10 g pumpkinseeds that traveled the space in 2001. In the future, we will see more and more of Chinese aerospace technology in the normal life (www.news.sina.com.cn, 2012).

With the weakening financial position of the USA and the EU, less and less will be available to be invested into aerospace technology. China is turning from the

guest into the host at the aerospace feast table. Those who did not believe in Chinese innovation strength have to be careful with their conclusion that China only can copy. It may be the case in the beginning of the development. But China has the tradition of long-term pragmatic thinking; once the Chinese find the right direction to go and commit to it, the power of the Chinese collectively can be astonishing.

China came from a 1,000-year-old culture which emphasizes reproducing the master thinking and following orders according to the hierarchy. The freedom to innovate and the turning focus of education have worked out well for the Chinese who used their long-term pragmatic strategic thinking. China, especially in the eyes of Westerners, is full of paradoxes and will continue to be so in the future. It is important for the Chinese to find the right balance to continue their road of innovation. The West will be growing with Chinese innovations too if there is more attention to the Chinese culture and the right way to deal with the Chinese paradoxes.

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