Interview with Academician Xu Kuangdi: History, Current Status, and Future Prospects of Chinese Think Tanks (Postprint)

Authors: Xu Kuangdi

Date: 2016-11-02T00:00:00+00:00

Abstract

Interview with Academician Xu Kuangdi: The History, Current Status, and Future Prospects of Chinese Think Tanks

Full Text

Preamble

Topic: Modern Think Tank Construction and Communication
Interview with Academician Xu Kuangdi
The History, Current Status, and Future Prospects of Chinese Think Tanks

The Bulletin: In recent years, General Secretary Xi Jinping has repeatedly issued important instructions on think tank construction, emphasizing that think tanks constitute a crucial component of national soft power and that we must attach great importance to and actively explore organizational forms and management approaches for new types of think tanks with Chinese characteristics. You have developed many thoughtful perspectives on China's think tank construction, and we at *The Bulletin of the Chinese Academy of Sciences*, as the "core media of the national science think tank," are deeply honored to interview you on this subject. Having served as faculty in Beijing and Shanghai from the 1960s to early 1990s, and subsequently as Vice Mayor and Mayor of Shanghai, President of the Chinese Academy of Engineering (CAE), and Vice Chairman of the National Committee of the Chinese People's Political Consultative Conference (CPPCC), you have extensive experience across the "revolving door" between academia and government that is considered so vital abroad. What insights can we draw from these different roles and transitions for think tank construction, and how can high-end think tanks establish effective channels to decision-making levels?

Xu Kuangdi: After working in universities for over 20 years, the organization hoped I would take up a government position, first as Director of Shanghai's Higher Education Bureau, and later as Executive Vice Mayor and Mayor. Although I had taken a macroeconomics course while abroad as a visiting scholar, I lacked practical experience. As Mayor of Shanghai, managing what was then the nation's largest economy and the livelihoods and infrastructure of its most productive city, I felt unfamiliar with many aspects and sought advice from Comrade Wang Daohan, the former Shanghai Mayor. Wang, a scholar-official of great erudition, pointed out, "You come from the intellectual community and maintain good connections with it. You should make greater use of these 'external brains'." "External brains" was the term used at the time for what we now call "think tanks" or "thought reservoirs."

Utilizing "external brains" meant consulting them in a targeted manner about problems the government needed to solve, soliciting their opinions and suggestions. Mr. Wang even recommended specific individuals, including Professor Wang Huning, then Assistant President of Fudan University and an expert in international politics.

Subsequently, the municipal government established a regular mechanism for inviting scholars to symposiums. The government would prepare topics in advance for scholars to study. Every Friday afternoon, the Mayor, relevant Vice Mayors in charge of the issues, the Director and Deputy Directors of the Policy Research Office, and six to seven invited scholars would gather for discussion and deliberation. Typically, one scholar would lead the presentation, followed by open discussion, truly adopting the foreign think tank model. These symposiums neither "supported" nor "fixed" participants. Without the dedicated funding for think tank construction that exists today, Shanghai's "benefit" to scholars was simply a working meal in the government canteen. The invited scholars' expertise was always closely related to the consultation topic—for instance, regarding WTO issues, the municipal government invited Professor Zhou Hanmin, then President of Shanghai Institute of Foreign Trade and a recently returned international trade expert.

Modified manuscript received: May 2016

Ancient China had the famous "Four Gentlemen of the Warring States," each supporting three thousand retainers who provided policy advice to monarchs and the state. In modern times, the mechanism of government-scholar dialogues and consultation formed in Shanghai in the early 1990s represents, I believe, the embryonic form of the "modern think tank."

In modern society, knowledge has exploded and social complexity has increased dramatically. The concept of "think tank" first emerged abroad and gradually developed into a specialized, commercialized model that proposes targeted solutions to specific problems. One individual's thinking is inevitably limited, so we must pool collective wisdom. Since the 18th Party Congress, the Party Central Committee has particularly emphasized the need for forward-looking thinking

and scientific decision-making, which itself rests upon scientific consultation—this is the modern approach to governance. In my view, the "wise individuals" in think tanks should comprise two types of talent: (1) those with rich knowledge—scholars with specialized expertise in the consultation area, such as university professors who have published monographs and collected extensive materials; and (2) those with rich practical experience—personnel who have worked on the consultation issues. For example, many former U.S. ambassadors and congressmen join think tanks after retirement because they possess relevant experience. Combining these two groups makes it easier to produce decision-making recommendations that align with actual conditions. Therefore, think tank work does not necessarily improve with more academic knowledge; rather, it requires integrating theory with practice.

Regarding the "revolving door," I believe the greatest benefit of these job transitions was exposure to different fields and different people, which greatly expanded my knowledge and enabled me to perform subsequent work effectively. My experience as a visiting scholar abroad and as a CEO managing technology for a foreign company also accumulated valuable experience for my later management roles.

In current high-end think tank construction, a widely concerned issue is how to open channels between policy consultation and policy formulation. I suggest paying special attention to two problems: (1) Think tank researchers must balance practical experience with theoretical foundation. Only through this combination can they propose grounded suggestions that target urgently needed solutions, making them more acceptable to decision-makers. (2) Decision-makers must possess forward-looking thinking. As General Secretary Xi has stated, thinking should be moderately ahead of its time, with scientific consultation leading to scientific decision-making. Leaders must not only be tolerant, modest, and receptive to suggestions from all sides but also have moderately forward-looking considerations, raising questions proactively for think tanks to research. Of course, remedial measures are also needed—for instance, after the Tianjin Port hazardous materials explosion, we could study what management problems emerged and how to prevent similar incidents in the future.

Only when think tanks possess both theory and practice can they propose relatively pertinent opinions and suggestions; and only when leaders or administrative heads can raise questions with moderate foresight, requesting think tanks to conduct research linking theory with practice, can researchers and decision-makers, think tanks and government, be closely integrated.

The Bulletin: You mentioned the integration of think tank researchers and government decision-makers. This integration is crucial even for central high-end think tanks like the Chinese Academy of Sciences (CAS) and CAE. You served as CAE President for eight years. As the highest honorary and consultative academic institution in Chinese engineering technology, CAE conducts strategic research on important engineering science and technology issues and provides decision-making consultation. Like CAE, CAS has also been designated as one

of the first batch of national high-end think tank pilot units. Compared with other high-end think tanks, CAS and CAE possess distinctive advantages in science and engineering, with positioning that is also closer. Under the existing two-academies consultation system and against the backdrop of national high-end think tank construction, how can we further reform systems and mechanisms to maximize the role of the "two academies" as modern think tanks?

Xu Kuangdi: Both CAE and CAS are national high-end think tank pilot units, representing the nation's highest academic institutions in engineering and science respectively, with distinctive advantages and features. Relying on the two-academies consultation system, they will play even more important roles in building high-end think tanks. Based on CAE's experience, several lessons emerge.

(1) Must Target Urgently Needed National Problems

When I became CAE President in 2002, China was in a period of rapid urbanization advancement, also a time of acute contradictions. Migrant workers improved their lives by moving to cities but lacked urban resident status and could not access urban social security (medical care, unemployment insurance, etc.). They also faced problems of separated families, left-behind children, and significant social tensions. Additionally, urbanization had misconceptions, having copied the Pearl River Delta model from the late 1980s and early 1990s—government land sales, foreign-funded factories, and migrant workers as laborers. These labor-intensive factories normally have high labor costs abroad, but at that time Chinese migrant workers only demanded $100-150 per month, equivalent to two or three days' wages overseas. Migrant workers lived in simple collective dormitories, ate in canteens, and returned home once a year—this migratory pattern was called "semi-urbanization." Although their production methods changed from agricultural to industrial labor and they began adopting urban lifestyles (watching movies, dining out), they lacked urban resident treatment. This also created social problems: without household registration, local governments could not effectively manage migrant workers. Factories managed production during the day, but after work, no corresponding departments took over management, leading to proliferation of "pornography, gambling, and drugs" in migrant worker settlements. For instance, Dongguan had relatively high crime rates at the time.

There were also misconceptions about city size. Many places proposed building international metropolises, which was unreasonable. Cities should have appropriate scales given contemporary local technological conditions, as exceeding certain objective conditions would degrade quality of life, such as the traffic congestion and long commutes many large cities face today.

In response, CAE deployed a consultation project on "urbanization issues," precisely targeting urgently needed national problems for academician consultation projects.

The project began with investigation and research, examining the Pearl River

Delta and Yangtze River Delta in the east, Wuhan and Yangtze River basin urban agglomerations in the central region, and Xi'an and Lanzhou in the west. Research results indicated that China's overall urban layout was influenced by natural geography, marked by the "Aihui-Tengchong Line" from Aihui in Heilongjiang to Tengchong in Yunnan. The southeast of this line has natural conditions more suitable for human habitation. However, for overall national interests, balanced development in ethnic regions was needed, requiring certain cities in western border areas to safeguard national security. Therefore, the project proposed the approach of "several clusters, several centers"—developing large, medium, and small cities in combination, controlling megacities, and building urban agglomerations. These proposals gained recognition from national leaders at the time.

These successes were achieved by targeting urgently needed national problems and concentrating top national experts for research.

(2) Think Tank Researchers Must Possess Excellent Professional Capability, Social Responsibility, and Scientific Responsibility

Consultation reports and think tanks support leadership decision-making, but success should not be measured solely by immediate acceptance by leaders. Temporarily unaccepted consultations are not necessarily unsuccessful, as they may result from immature conditions or lack of broader recognition.

For example, in 1956, Mr. Ma Yinchu studied the "New Population Theory." After conducting national surveys, he was shocked. At the beginning of liberation, the population was 470 million; the first census (1953) showed over 549 million, and by 1956, it was nearly 600 million. Mr. Ma, an economist, believed that natural ecological carrying capacity was like grasslands—overgrazing is unsustainable. Overgrazing causes livestock to eat grass roots, preventing grass regeneration, so more cattle and sheep are not always better.

Mr. Ma believed that China's population carrying capacity should be 800 million by European and American standards; exceeding 800 million would cause food and freshwater shortages. While we later solved the food problem, a large population base remains China's fundamental national condition. However, under contemporary understanding, decision-makers and society not only rejected Mr. Ma's theory but also criticized him.

By the mid-Cultural Revolution period, around 1970-1971, the population had exceeded 900 million. Premier Zhou and Chairman Mao both believed population control was necessary, so family planning was proposed: "One is not too few, two are just right, three are too many." By the 1980s, the population was approaching 1.2 billion, and the state began strictly controlling second children. Then Central Organization Department Head Hu Yaobang visited Ma Yinchu to apologize, acknowledging the earlier criticism was wrong. Ma Yinchu responded that using the nation's additional 500 million people to prove his original judgment was basically correct was a tragedy!

This history of population policy illustrates the ideals and scientific and social responsibility of older-generation scientists. Mr. Zhu Kezhen said, "Science only distinguishes right from wrong, not personal gain." Scientists pursue truth, not personal benefits, and certainly do not conduct work, consultation, or research for awards or titles. Scientists are not utilitarian; they disregard personal gain. Historically, many scientists at home and abroad have sacrificed themselves for truth—Copernicus was executed by the church for proposing the heliocentric theory.

In contemporary times, there will be no more "executions," and leaders can listen to different opinions, but not every consultation can be accepted by leaders, nor does every consultation have only one answer. Even within think tanks, there may be fierce debates, with most having middle-ground solutions. In fact, during the 1962 Cuban Missile Crisis, the RAND Corporation presented 19 options to President Kennedy, ranging from complete inaction to turning a blind eye to war with the Soviet Union. Kennedy ultimately adopted the "ninth option"—the Air Force issued strong statements while fighter jets flew low over Soviet ships transporting missiles, which eventually turned back, resolving the crisis.

Therefore, I believe that to further develop modern think tanks, researchers must be prepared to offer multiple solution sets—this is crucial professional capability. For example, after network development, what problems will it bring to society? Think tank research on this is scarce and focuses only on benefits. What about negative effects? Beyond the previously mentioned "anti-pornography and anti-illegal publications" and "online pornography," doesn't the internet also amplify ambiguous information infinitely, affecting social stability?

Thus, we should conduct scientific consultation, particularly through the two academies' academicians, who must be objective, fair, and realistic. They should not merely interpret leaders' speeches or provide "proof" of correctness and wisdom but also propose potential negative effects, problems that may arise, how to address them, how to further exert positive effects, and how to avoid risks and losses. These are precisely the consultation issues decision-makers care about most.

China's traditional culture is a culture of etiquette, respecting superiors and leaders. Especially after the Cultural Revolution, some people fear leaders and dare not propose different opinions. However, since we are building think tanks, we must take responsibility for the objectivity and scientific nature of think tank reports. As Zhu Kezhen said, "Science only distinguishes right from wrong, not personal gain." Older-generation scientists were like this, concerned only with right and wrong, not personal gain or loss.

The Bulletin: Beyond the academician community, how can we mobilize China's entire scientific and technological community to actively contribute suggestions for the nation while conducting their own research and practical work? What channels exist, and how should future institutional design proceed?

Xu Kuangdi: This is an excellent question. While the academician community as a think tank is extremely important to the nation, the entire scientific and technological community must also play a think tank role for the country.

In consultation work, the academician community's advantage is often standing at the commanding heights of disciplines, seeing issues from a long-term perspective with a global view. However, due to their special status, academicians often lack understanding of domestic "grassroots" situations. The two academies should pay attention to grassroots "grassroots opinions" during consultation processes. Therefore, in consultation project groups I led, I always required at least one-third young people. Young people have just graduated from school, and some may have families at the grassroots level, giving them direct understanding of situations.

Thus, in consultation teams and think tanks, besides two-academies scholars and their principal assistants, young researchers should also participate. Young people are more sensitive to society and reality, with more opportunities to access networks and global perspectives. Meanwhile, young scientists should actively participate in formulating national policies and supporting think tank decision-making. Besides major national consultation projects, various consultation units also have self-selected topics, which are often important aspects of our national think tank. Young people should participate more.

The Bulletin: Innovation-driven development is a crucial national strategy. The Fifth Plenary Session of the 18th Central Committee made scientific and technological innovation the core and leading element of innovation. In 2015, the national science and technology plan system was reformed, establishing the Special Consultation Committee for Strategic Consultation and Comprehensive Review of National Science and Technology Plan Management (referred to as the "Special Consultation Committee"). As the Committee Director, could you introduce the Committee's functions and tasks, progress over the past year, and how future science and technology plan reforms can implement innovation-driven development and mobilize enterprise enthusiasm to participate in society-wide scientific and technological innovation?

Xu Kuangdi: To implement innovation-driven development well and advance scientific and technological innovation, particularly scientific research, the state proposed "third-party evaluation"—meaning beyond project evaluation and scoring, there should also be policy and institutional evaluation. The State Council organizes inter-ministerial joint meetings and has now established the Special Consultation Committee to provide special consultation on allocation of research funds among ministries and commissions. Special Consultation Committee members must declare "three no's."

First, they do not conduct research projects, apply for funding, supervise graduate students, or plan to do so—they are the "third party." Second, they have no interest relationship with project applicants or applying institutions. Third, they are not administrative department heads, because administrative staff may

not apply themselves but their institutions have large teams that do apply.

The Committee's recommendations are reported directly to Vice Premier Liu Yundong, who is in charge of science and education, and she has strongly supported them. At inter-ministerial joint meetings involving various ministries and commissions, research funding could become fragmented—for instance, the same content projects might have portions at CAS, portions at universities, a large portion controlled by the Ministry of Science and Technology for local research institutions, and another portion taken by the Ministry of Education.

At inter-ministerial joint meetings, ministers considered the Committee's work fair and objective, representing expert insights across various fields, and listened modestly. A simple example is garbage classification. With economic development, "garbage besieging cities" has become a major urban problem, and the state has invested substantial funding to address it. Originally mainly through landfills, recently incineration was added. However, after Committee discussion, we proposed this is a management problem, not a scientific research problem. In major cities like Beijing, Shanghai, and Guangzhou, garbage classification is managed by residents' committees, but subsequent garbage transportation is usually outsourced to migrant workers who drive large garbage trucks and dump all the previously sorted garbage from communities in one load, rendering the original classification meaningless. For garbage incineration, to prevent dioxins, the best method is classification—classified incineration with different materials using different combustion conditions and methods. However, garbage transporters don't care about the next steps.

During the Olympics, CAE also conducted a consultation project on "how to maintain the environmental protection and scientific nature of plastic bottle recycling." We applied a recycling line developed by a Chinese PhD returned from Germany, placing recycling devices in various Olympic venues, with volunteers collecting daily—about 60,000 bottles per day at the time. These plastic bottles were crushed, washed, processed, and turned back into water bottles, creating a cycle where the investment could be recovered in 20 days with profits. However, once the Olympics ended and volunteers disappeared, the plastic bottle source immediately became scarce—after that, it was no longer a scientific problem.

Regarding how to mobilize enterprise enthusiasm and society-wide scientific and technological innovation, I believe the biggest obstacle to current scientific and technological innovation is not that Chinese people lack innovation or that enterprises don't want innovation, but that intellectual property rights are unclear. Scientists use national salaries, national equipment, and national funding for research. After results are produced, they are reported as collective achievements for evaluation and awards, and that's the end. Why? We know that enterprise promotion requires great effort and involves risk—not every project can succeed. Scientists themselves face tremendous pressure, and many eventually choose to "just keep my stable job."

Regarding enterprise participation in innovation, I believe enterprises must at-

tempt disruptive innovation. Why has electric vehicle promotion failed for 20 years? Elon Musk believes it's because automotive factory staff are all mechanical engineers, so cars must have internal combustion engines, transmissions, and traditional gear systems—which account for 60% of vehicle weight. Musk believes all this can be eliminated, using only batteries and motors in each wheel, controlling speed through excitation current—very simple. A vehicle that could run 180 kilometers under the traditional system can run 400-500 kilometers with true electric drive, solving the problem. This is innovation that must be disruptive. IBM knew about personal computers early on but refused to develop them, insisting on mainframes with terminals. Bill Gates's Microsoft created personal computers that swept the globe, while IBM could only follow. Even more striking, world-famous Kodak film, which produced film and developing services, actually had digital electronic imaging technology early on but didn't want to disrupt its existing value chain. Eventually Kodak went bankrupt, and now the whole world uses digital cameras. Young people cannot imagine that color film only allowed 36 photos before requiring a change, and you had to take it to a Kodak chain store for developing before you could see the pictures. Thus, innovation is often disruptive.

For enterprises to "transform," they must have the determination for disruptive innovation and the courage for self-revolution. Finland's Nokia mobile phones once dominated the global market—thin, light, small, durable, with complete functions. When Apple and Samsung proposed 3G and 4G smartphones, Nokia considered this fantasy, believing no one would watch TV while driving, no one would need internet on trains or subways—just go home to access the internet, no need for 3G or 4G. Now Nokia has collapsed, been merged by a Japanese company, and its brand has disappeared. Enterprises actively adopt traditional improvement technologies, shortened production processes, cost reductions, and profit increases, but they don't easily accept disruptive technologies. Yet major innovations that can drive development usually originate from disruptive self-revolutions. Therefore, enterprises must not only engage in technological innovation but also attempt transformative, reborn disruptive innovation.

The Bulletin: You previously served as an advisor to the China Center for International Economic Exchanges and co-initiated the "China City 100 Forum." Both think tanks fall within the category of private think tanks. What do you see as the bottlenecks and main obstacles to China's private think tank development? Can true national high-end think tanks emerge from private think tanks in the future? Can China eventually form an "idea market"?

Xu Kuangdi: I believe whether a think tank is high-end or low-end does not depend on being official or private. What is the difference? The 25 high-end think tanks initially proposed by the state focus on solving many practical problems in China's current development because organized research is needed—for instance, at CAS, some study automation and intelligent production, others study microgravity.

The "China City 100 Forum" represents free exploration, not discussing current

cities but looking slightly further ahead. For example, Chinese cities now look identical— all CBD central business districts are large glass buildings. Is this Chinese culture? Foreigners coming to China cannot tell they are in Chinese cities because major world cities all "look like this." In fact, China has a very long tradition, with different styles in the north, south, minority areas, and nomadic areas.

How to protect and develop China's cultural heritage, historical memory, even raising it to how to remember nostalgia, how to maintain our cultural confidence and national confidence—we advocate against wholesale Westernization. Of course, we should learn advanced things, but how to maintain ourselves better? For instance, the "City 100 Forum" recently cooperated with the U.S. Lincoln Research Center to conduct research on urban finance at Peking University. This research is sensitive, so it can only be a private study for interested participants. Urban finance has Chinese characteristics and foreign features. Like the U.S., China has a "separate kitchen" system where each province has its own finance. The U.S. has different states with different laws and fiscal policies. Many people work in Manhattan but live in New Jersey because New Jersey's tax rate is lower than New York's—this is also a guidance to prevent excessive concentration in city centers. China doesn't have this problem, but China's land is state-owned. After approval, usage rights can be transferred to enterprises or foreign companies. Real estate enterprises or production enterprises build factories and buildings and pay taxes to the government, generating fiscal revenue. So some say China's finance is land finance, but many problems exist. For example, current land lease terms are maximum 70 years, and many have already expired. Foreign-built hotels like Shangri-La are approaching 50 years—what happens after expiration? Such issues require research and solutions.

Residential property tax is a major urban revenue source abroad—why can't China collect it? Chinese residents have property ownership certificates, but the first batch came from welfare housing allocation at less than 1,000 yuan per square meter, while current prices are 50,000-60,000 yuan per square meter, especially inside Beijing's Second Ring Road. Which price should be used for taxation? Using the latter, residents say they don't have that much property. The government says once you transfer or sell, it's 50,000-60,000 yuan per square meter. Some suggest collecting value-added tax during transfer or sale, while others question how this can be considered "income" for VAT collection. Many such problems exist. Even for newly built housing where residents have purchased property rights, they already consider what to do after 70 years. Private think tanks can explore these issues, conduct research, provide different opinions, and offer different cases for decision-making departments' reference—problems that official national high-end think tanks generally find difficult to study.

The China Center for International Economic Exchanges is also a semi-private think tank, composed mainly of experts and officials retired from the National Development and Reform Commission, Ministry of Commerce, and other depart-

ments. They organize specialized research and do excellent work, publishing the *Globalization* magazine, which is very good and has invited me to write three or four articles. Their research can sensitively and keenly reflect capital outflow issues. Chinese citizens buying houses in the U.S. and Chinese enterprises acquiring foreign companies initially drew public cheers, believing national status had improved. In the past, only foreign enterprises invested in China, with few Chinese enterprises acquiring foreign companies. However, the China Center for International Economic Exchanges relatively early raised the issue of capital outflow and its series of problems, including not only legal and property ownership issues but also how capital outflow to a certain extent affects the RMB exchange rate. The precedent: Japan's major yen devaluation, besides its economic slowdown to near zero in the 1990s, resulted most significantly from massive Japanese corporate and citizen overseas property purchases—some even said half of Hawaii was bought by Japanese.

These aspects represent private think tank advantages—they can raise these issues, which indeed provide good consultation suggestions for decision-makers. Through the China Center for International Economic Exchanges' efforts, the state is now taking measures on capital outflow, such as regulations on converting RMB to U.S. dollars before traveling abroad, limiting how much one can exchange for tourism, and capping amounts for buying houses abroad. This small example illustrates private think tanks' excellent advantages.

However, some issues can only be studied by official think tanks. For example, CAS and CAE cooperated on the "Made in China 2030" project led by CAE, researching what China's manufacturing industry should look like by 2030. China is now a manufacturing giant but not a manufacturing powerhouse, with neither leading quality nor brands, and has not yet generated important world influence. Additionally, we face overcapacity, insufficient production, and declining profits—how should we adjust the structure? Private entities basically cannot address these issues because they require investigating and collecting national data and mobilizing manufacturing industries across sectors—shipbuilding, train manufacturing, automobile manufacturing, aircraft manufacturing, involving both military and civilian uses—requiring data and participation from various national departments and institutions. Only high-end think tanks can do this, and only through CAS-CAE cooperation.

Therefore, we say high-end think tanks, or official think tanks within the system, mainly study major national policies and the main problems and contradictions facing governance. Private think tanks serve as an excellent complementary role, filling gaps or studying issues that are currently small but will become major problems as the nation develops. I believe these two complement each other, each supplying what the other lacks, and bring out the best in each other.

The Bulletin: Do you believe China can form an idea market in the future?

Xu Kuangdi: China currently has an idea market, but it is small and limited. Kai-Fu Lee's Innovation Works in China is an example of an idea market, guid-

ing how to start businesses. Having engaged in venture investment abroad for a long time, he can judge whether a startup idea is feasible. A domestic enterprise example: in Shanghai, an energy-saving market has emerged where some companies have no hardware foundation and only minimal testing equipment but possess strong technical personnel, including young and middle-aged backbone staff and retired university professors and engineers. These companies measure annual electricity consumption distribution in commercial buildings and develop energy-saving solutions accordingly. The proposals include how many kilowatt-hours can be saved annually for commercial buildings, what methods to use, without affecting work, productivity, or comfort—completely saving energy by reducing waste. Commercial buildings pay energy-saving solution companies 2.5% of their annual energy savings. This 2.5% is small for commercial buildings but large for small energy-saving solution companies, thus creating a market.

Many such companies exist abroad, like the famous McKinsey & Company, which profit from providing consultation. Companies engage in "enterprise diagnosis"—diagnosing operational problems, financial problems, and market development problems, finally forming a report for a fee, such as $50,000. Many large Chinese companies now also seek "diagnosis," and "diagnosis" companies have emerged, but the current situation remains "foreign monks chant better scriptures."

Whether China can form an idea market in the future depends on the timeframe—five or ten years? I believe that by 2030, there should be many such consulting companies, and profitable think tank companies like those in today's U.S. market will emerge.

Interviewee Profile

Xu Kuangdi, Academician of the Chinese Academy of Engineering (CAE), Honorary President of CAE, Professor, and Doctoral Supervisor, was born in 1937 in Chongde, Zhejiang Province. A senior specialist in ferrous metallurgy, he graduated from the University of Science & Technology Beijing in 1959 and has long been engaged in research on electric steelmaking, injection metallurgy, secondary refining of molten steel, and smelting reduction. He has received numerous state and ministry-level awards and is among the first batch of scientists enjoying special subsidies for extraordinary contributions to the country. He has published over 120 academic papers and 7 monographs. He formerly served as Vice Chairman of the 10th CPPCC National Committee, Alternate Member of the 14th Central Committee, and Member of the 15th and 16th Central Committees. He was elected CAE Academician in 1995 and has also been chosen as International Fellow of the Royal Academy of Engineering, Foreign Member of the Royal Swedish Academy of Engineering Sciences, Foreign Associate of the U.S. National Academy of Engineering, and International Fellow of the Australian Academy of Technology and Engineering.
E-mail: xu@cae.cn