
Chinese Security And Economic Interests, American Technologies, And Critical Information

Abstract: *The fracturing of the former Soviet Union, the conversion of much of its defense industry to consumer products, and the poor performance of its armaments against Western forces in the Iraq War, all combine to present interesting opportunities for the People's Republic of China to achieve long held national and international economic goals. As a major international arms manufacturing and exporting nation, China has an excellent opportunity to increase market share in those regions where the former Soviet Union had previously held sway. Yet, any exporter's ability to develop, field and sell systems which are effective and survivable against other suppliers' systems remains key to any penetration strategy. Such survivability and effectiveness are contingent upon a clear understanding of the opposing systems' design and performance characteristics. Since the systems fielded - and exported - by the United States serve as the standard against which competing states will be measured, the underlying critical information and technologies which allow those levels of performance represent priority collection targets for China and any other competing states. Economic, political, military and technological motives for such collection become clear. Examination of these intertwining and dependent motives is of value to those responsible for identifying and assessing potential threat actors and the resulting framework of this analysis may have considerable utility for OPSEC professionals in developing government and industrial programs.*

"China has 700 million people. It is not a great power today. But in twenty years, it will be a great power and in fifty years it will be an enormous power."

- General Charles de Gaulle - 1967⁽¹⁾

"I would be very surprised if another Iraq occurred.....Think hard about it, I'm running out of demons.....I'm down to Castro and Kim Il Sung."

- General Colin Powell - April 1991⁽²⁾

General Powell was clearly speaking to the issue of rogue states undertaking military ventures against neighbors. General deGaulle was speaking in much broader terms - terms which consider *power*.

Professionals engaged in threat analysis commonly consider adversarial intelligence collection operations and capabilities, with an emphasis on approaching vulnerabilities from the adversary's perspective. However, is there often very little focus on the underlying, and driving issues behind the adversary's collection operations. Even less often is there much attention given to actually understanding the motives which underlie the adversary's actions: an understanding that is critical to assuming the adversary's perspective.

In a decade where threat is almost universally perceived as non-existent - whether it is or not - those charged with program, information, technology or system protection responsibilities cannot expect to simply present a list of potential threat actors and have it be accepted at face value. This paper develops a framework - based on elements of national power - which can be employed to present that understanding of the adversary's capabilities, requirements, motives and priorities. The People's Republic of China has been chosen to represent the adversary since it is widely considered to be the one about whom the least is known; efforts which evaluate other present or future adversaries - about whom more is known - may be considered less problematic.

The nature of a nation's power vis-à-vis other nations is one of the most elusive aspects of international relations. A shorthand definition might suggest that national power is simply the sum total of its capabilities. However, this definition fails to fully define the concept of power, since it not only excludes specific and measurable elements, but it also omits the more subtle psychological and relational aspects. In the 1990's, while the latter category becomes even more complex, the specific and quantifiable are also under revision.

The classical, Westernized view of the elements of power included geography, natural resources, population, government, national character and national morale. Employed as the analytical framework by the "American school" of international relations, it is gradually being replaced by a multi-dimensional model of 'comprehensive national strength' which adds economic power, science and technology, military affairs, culture and education as well. From the Chinese perspective, this emerging model is completely congruent with a definition of power that is broad, dynamic and shifting, which reflects historical traditions and expressions, and which accepts revision.

From the Chinese perspective, *qiuji* - or global citizenship - depends on global power; global power depends on national power; and national power emphasizes the role of two of those new items on the list: science and technology, and economics. Science and technology have become the centerpieces for China in its intense drive toward the achievement of its Four Modernizations.⁽³⁾ In a circular way, economic development depends on - and in turn fuels - scientific and technological progress. For the Chinese, there are no class identification issues here: science and technology are considered as global collective goods. As a global citizen, China is clearly entitled to a share of those goods in much the same way as she developed in the nineteenth century under the concept (and dilemma) of *ti-yong* - how to use foreign technology in developing and strengthening the essence of China itself.

Since the 1970's the PRC has been dedicating increasing amounts of its resources to research and development in such areas as energy technologies, materials, computer systems, lasers, aerospace systems, high-energy physics and genetic engineering. China's defense industries, as discussed later, are becoming more and more technology-drive and in turn, stimulate advanced technology spin-offs for dual uses within the civilian economy. The Chinese recognize that creating new high technology organizations in such areas as microelectronics, software, advanced materials and biotechnology in turn strengthen their defense industrial base. Fundamental to creating such a base is the transfer of advanced technologies from other nations, research institutes, universities and national and/or private enterprises.

Against the backdrop of the collapse of the former Soviet Union, many opportunities present themselves for China to establish herself according to deGaulle's prediction. Among these are opportunities for China to:

- gain a considerable share of the international arms export market in which the Soviet Union had been previously been pre-eminent;

- use these exports to further fuel her overall economic development;
- use this economic development to solidify the gains made in moving toward a market economy, and thereby negate the opposition hard-liners;
- use this economic development as a means of decreasing the potential for internal disruption which the present leadership sees as the cause for the downfall of the former Soviet Union; and,
- regain her traditional, regional hegemonistic role dating back to the days when Korea, Japan and the rest of East Asia were her tributary states.

In order to achieve those ends, Chinese intelligence operations, to include technology transfer and its highly economical cousin "reverse engineering," will represent a major factor. A review of various issues will permit a greater understanding of the motive forces behind such activity against scientific, technological and economic targets.

Chinese Internal Linkages: A great number of internal relationships within China itself are worthy of attention in the process of determining the extent to which, in what form, and why, that country would represent an adversary collector against American scientific and technological targets. This sample treatment will briefly review the influence of the People's Liberation Army (PLA), the technology infrastructure, the intelligence services, and interpersonal relationships among the hierarchy.

People's Liberation Army: The PLA plays an exceptionally important role in the development of the nation, and heavily influences the direction taken in political, economic and scientific-technical areas. This is not altogether that dissimilar from that which characterized the interlocking structure of the former Soviet Union, supported by Five Year Plans in the classic socialist model.

While Western defense forces are scaling back in order to mirror the reductions brought about by the demise of the Warsaw Pact, a few countries are bucking the trend toward disarmament, including Iran, Syria, India and China. In 1991, China's defense budget rose 12.4% to \$6.4 billion. This followed a 15% rise in 1990 and presages anticipated defense budget increases of at least 10% in each of the next five years. Beijing acknowledges the seeming anomaly in building up its forces while most of the other major powers are reducing their arsenals. Their explanation encompasses several points:

- First, military muscle will help safeguard the nation's economic development by guaranteeing domestic stability and safe borders.
- Second, the Chinese are only now beginning to recognize that they failed to take the proper lessons away from the American experience in Viet Nam - one that they had to wait until the Gulf War to learn properly. They now acknowledge the importance of high technology weapons, something which they had misunderstood when the United States, even with its technological superiority, did not prevail in Viet Nam. In the words of Deng Xiaoping, "We must admit that our Army's capability to fight modern wars is inadequate."⁽⁴⁾
- Third, power projection - especially southward toward Viet Nam and elsewhere - is becoming more important as China continues her development even though there has been somewhat of a *rapprochement* with Viet Nam in the wake of the latter's loss of her sponsor in the former Soviet Union.
- Fourth, the Chinese maintain a consistent concern over the issue of uni-polarity in which the United States, after having ascended to a position of sole power, would seek to alter the course of a politically incorrect China. In this regard, they have consistently rejected the premise

advanced by former Secretary of State James Baker in suggesting that the break-up of the Soviet Union provided the United States "a once-in-a-century opportunity to advance American interests and values throughout the world."⁽⁵⁾

All of this is the logical progression associated with the movement away from Mao's concept of the People's War to one in which China employs a smaller, more professional and technologically advanced military force instead of relying upon the sheer size of the military.

Chinese Technology Infrastructure: Over the course of the past forty years, the Chinese scientific and technological infrastructure has developed five basic components: the Chinese Academy of Sciences, research departments within the university structure, research departments within various industrial departments, local institutes for scientific research, and national defense research departments. For those familiar with the similar linkages with the structure of the former Soviet Union, the influence of the command model of state planning is very clear. Furthermore, the collection of scientific and technological information about, and incorporation of, innovative Western technologies through integrated intelligence collection methodologies is also highly reflective of the former Soviet model.

The State Science and Technology Commission was established with the mission of planning, organizing and coordinating all of these efforts,⁽⁶⁾ with its direct subordinate China Scientific and Technological Information Institute.

Again patterned along Soviet lines, the Chinese Academy of Sciences which was founded in 1949 serves today as the center of all of the PRC's research and development in the natural sciences. The Academy has since grown to a population of some 36,000 scientists engaged in conducting basic and applied research and the study of major scientific and technological problems which are important to Chinese economic and strategic development.

Additionally, individual and independent academies are affiliated with various industries and conduct specialized research in a variety of areas ranging from aerospace to agriculture, from telecommunications to materials development and processing.

Today, China has over one million scientists, engineers and technicians working in over 6,000 research and development institutes with total annual funding of some 14.5 billion yuan (5.38 yuan/US\$1.00) which represents approximately one percent of the Chinese GNP. The PRC's scientific and technical pool is between eight and ten million people.⁽⁷⁾

Since Deng's 1984 directive that the PLA was to be more streamlined and cost-effective, the military has created commercial enterprises that produce dual use technologies which account for approximately 20 billion yuan annually. By persuading the military that they would only get the money necessary for the advanced equipment and technologies required to modernize its forces, Deng turned the military toward capitalism. That the Chinese defense budget itself is in the range of 25 billion yuan annually, this clearly suggests both military success in commerce as well as military self-sufficiency. The following organizations are a representative sampling of those commercial enterprises which take the results of the integrated research efforts to market:

- China Electronics Import and Export Corporation (CEIEC) which manufactures everything from radars to laser rangefinders and other electronics systems;
- China Shipbuilding Trading Company Limited (CSTC) which constructs ships and facilities

- for export and which imports foreign marine technologies;
- China Great Wall Industry Corporation (CGWIC), which manufactures commercial satellites and other space systems, along with the import or development of the supporting electronics, instrumentation and communications systems;
 - China Nanchang Aircraft Manufacturing Company (CNAMC) which produces the Silkworm anti-ship missile;
 - China National Aero-Technology Import and Export Corporation (CAITC) which is the ex-im agent for aviation systems ranging from aircraft components to advanced fighters and missiles;
 - China North Industries Corporation (NORINCO), which manufactures and markets ground-based systems ranging from armored fighting vehicles to fire control systems and anti-aircraft weapons;
 - China National Instruments Import and Export Corporation (CNIIE), which produces computers, earth stations, satellites and other space and communications equipment;
 - China Nuclear Energy Industry Corporation (CNEIC) which is the sole agent for export and import of all research and development as well as production organizations associated with the Ministry of Nuclear Industry;
 - China Precision Machinery Import and Export Corporation (CPMIEC) which manufactures and markets systems from surface-to-surface and air-to-air missiles to space systems and electronic products.

Such organizations have their own subordinate relationships, e.g., all the nation's shipyards and shipbuilding and marine equipment firms are subordinated to the CSSC. In turn, these organizations are themselves subordinated to a coordinating agency for international marketing. Taking the above organizations as examples, CEIEC, CATIC, NORINCO, CNEIC, CPMIEC and CSSC are members of the Beijing-based Xinshidai Group. Concurrently, they are all subsidiaries of Ministry level organizations, e.g., CPMIEC is a subsidiary of the Ministry of Aerospace Industry and NORINCO is a direct subsidiary of the PLA. ⁽⁸⁾

Similarities with the Japanese business organization model of *keiretsu* are not coincidental. In the Chinese blend of socialism-capitalism that represents the alternative to a Soviet style collapse in the People's Republic, the same characteristics are indeed present.

In the case of horizontal *keiretsu*, giant business groups are collections of major companies spanning several different industries and are held together by a formal or informal structure from the top, laterally by cross-shareholdings, old-boy networks and family relationships, and a united desire to beat the competition. The Chinese government serves in largely the same way that Japanese banks support their *keiretsu* members: with low-cost, patient capital. The other values of *keiretsu* linkages are also clear, particularly when collaboration in research and development allows member companies to regularly deliver new products to market long before opponents who operate individually.

In the case of vertical *keiretsu*, the other Japanese variety, the Chinese have replicated those structures as well. These are pyramids of companies that serve one single, superior company. Every large manufacturer, whether it belongs to a horizontal group or not, dictates virtually everything from pricing strategies at the points of sale to the pricing of its downstream suppliers - suppliers who are more often than not prohibited from supplying others who are outside the *keiretsu*. Then, as in Japan, at the bottom are the hundreds and thousands of job shops and family ventures which operate in primitive working conditions, and with only subsistence level wages and profits. ⁽⁹⁾

Chinese Intelligence Services: The principal intelligence collection agencies of the PRC which are germane to this discussion are the Ministry of State Security and the Military Intelligence Department. Centralized tasking, with integrated scientific and technological support from various ministries and departments, was created on the Soviet model and has been highly successful in collecting information and through a rigorous analytical process, turning it into useful intelligence. In addition to the scientific and technical support provided to the collectors as described above, some of the non-scientific analytical support organizations include the Party Research Office, Foreign Policy Research Office, Institute of International Studies, College of International Politics, Beijing Institute for International Strategic Studies and the Institute for Contemporary International Relations.

HUMINT collection among the 60,000-odd travellers to the United States, almost all of whom have a technical or scientific purpose for travel - whether as students, researchers or otherwise - pose a considerable threat from the perspective of American counterintelligence services. In operations which mirror the "vacuum cleaner approach" characteristic of Japanese travellers whose reporting is processed through their firms to the Ministry of International Trade and Industry, Chinese travellers contribute to the same process.

There has also been considerable discussion within the American counterintelligence community that the traditional Chinese intelligence service approach to espionage - that is, exploiting ethnic Chinese overseas - has yielded to another aspect of capitalism. In this light, the Chinese are seen as paying for the information from an intelligence asset whose sole motivation is financial, and not ethnic, cultural or political. Naturally, a complicating factor from the American perspective, and an enabling one from the Chinese perspective, is that with the break-up of the Soviet Union, there is one less potential buyer for information of value.

Sub-national Linkages: Two distinct groups emerge as having considerable influence on the course of technological and economic developments in China, which in turn, have relevance for this discussion: overseas Chinese and *taizi*, or princelings - the children of the elites.

Overseas Chinese include both Taiwanese, who increasingly invest in the Mainland irrespective of any lingering political problems and those other ethnic Chinese residing elsewhere outside China.

In the case of the former, conservative estimates place the investments from Taiwan at over \$4 billion, with the actual probably much higher. In fact, there may also be upwards of \$10 billion worth of trade each year between the two so-called enemies. A final element worthy of consideration is that the success of the Taiwanese industrial base now permits them the control of the largest single hoard of hard currency in the world - over \$80 billion - with additional investment opportunities nearby.

When coupled with Hong Kong, Taiwan and the PRC together enjoy a growing flood of cross-border investment, trade, tourism and cultural exchanges which increase their linkages even further. In terms of economic power alone, these three states have accumulated over \$160 billion in reserves - more than double that of the \$70.5 billion which Japan has accumulated.

Ethnic Chinese living elsewhere also enjoy considerable affluence and economic influence, just from their sheer numbers alone. More than 50 million ethnic Chinese reside outside the two Chinas, representing the most powerful financial and commercial force in Asia and one of the greatest in the world. According to the *Economist*, "Worldwide, the overseas Chinese probably hold liquid assets (not including securities) worth \$1.5 to \$2 trillion. For a rough comparison, in Japan, with twice as many people, bank deposits in 1990 totalled \$3 trillion." Continuing the trend of investment in China by the overseas Chinese, the PRC will enjoy considerable opportunities for both economic incentive

and ethnic solidarity. Naturally, the latter case becomes even more potentially problematic for counterintelligence practitioners.

Taizi are playing increasingly important leadership roles as their parents and grandparents age. This is true on several levels, including national politics, provincial leadership or in business. For instance, more than 3,100 of these princelings already occupy positions of influence within the political structure, while many more are operating in the business environment. Their influence derives not only from their family ties, but also the Western experiences which many bring back to China after having been selected for Western educations. The exemplary *taizi* start at the top with Deng Xiaoping's own children and their spouses. Daughter Deng Nan is the vice-chairman of the State Commission for Science and Technology; son Deng Zhifang is assistant general manager of the China International Trust and Investment Corporation; son-in-law Zhang Hong is a bureau director within the Chinese Academy of Science; son-in-law Wu Jianchang is vice-president of China Non-Ferrous Metals Industry Corporation; son-in-law He Ping is deputy director of the PLA's Armaments Department where he was actively involved in the sale of Chinese Silkworm missiles to Iran.

Other Regional Actors and Issues: Conventional wisdom states that China's internal political and economic limitations, along with external isolation, make her a doubtful actor on the regional stage for many years to come. This wisdom is ostensibly supported by references to the economic success and international linkages of her neighbors, particularly Japan and South Korea.

However, although her economy still remains somewhat smaller than Japan's, the gap is closing daily. Additionally, China appears to be well-disposed to translate her limited gains into international influence. Unlike Japan, China has little compunction about being a major international arms merchant, as discussed below. Conversely, she is also engaged as one of the leading importers of weapons and systems that can be used for power projection, e.g., the current negotiations for the purchase of an aircraft carrier from the cash-poor Ukrainians; the completed purchases of high-performance fighter aircraft from Russia (MiG-31); and, on-going efforts to retrofit cargo aircraft for service as fighter support tankers.

Concurrently, China has become increasingly active in her territorial disputes with a number of her neighbors. One celebrated issue revolves around the postulated oil reserves beneath the 433 Spratly Islands in the South China Sea and China is sparring with Viet Nam, the Philippines, Brunei, Taiwan and Malaysia.

Further, China's "elder brother-younger brother" relationship dating from tributary state times with Japan is both highly manipulative and psychologically effective. This, along with continual, yet oblique, references to the Japanese conduct in World War II translates directly into access to Japan's extensive financial reserves. This is, of course, against the larger backdrop of China's nuclear forces and their present delivery systems. Japanese reticence for foreign deployment in virtually any context can be seen in the national crisis over the dispatch of Japanese engineers as part of the UN Peacekeeping Force in Cambodia. For these, and a variety of other reasons, a *Pax Nipponica* which was to have been based on Japan's economic miracle as postulated by observers for the past decade, does not appear to have any future.

Additionally, China has established diplomatic relations with South Korea, which translates into additional regional influence. Coupled with the great changes incident to the reversion of Hong Kong to China in 1997, little salient opposition can be mounted to challenge any Chinese-designed role. Naturally, Vietnamese influence has significantly waned in light of the demise of its principal benefactor, the Soviet Union. Clearly, American withdrawals from the region (of which more can be

expected under the new administration), coupled with a Chinese desire to reoccupy Asian space vacated by the now-defunct Soviet Union, validate other, long-time Chinese aims and claims.

In a larger frame of reference, China's history as a Great Power prepares her well for legitimate regional and world power. This history, in spite of her relatively light military and economic weight over the past twenty years, has done much to cement her role as one of the five permanent members of the UN Security Council.

Aftermath of the Gulf War and Arms Trade: In an overall sense, the international arms market accounted for approximately \$1 trillion annually each year of the 1980's. Since the end of the Gulf War, those figures have dropped only slightly while a major participant - the former Soviet Union - has essentially withdrawn from the competition. Several issues bode well for the Chinese, while still presenting some challenges with implications for the United States.

Survivability: First, the inability of Soviet systems to survive in the face of Western technology and strategy does not bode well for Russia to continue as a major player in the international arena. Potential buyers want to be assured that the weapons and systems they buy will defeat those of their opponents on the battlefield. The well-reported firesales that are going on in the former Soviet republics provide only short-term satisfaction for the arms buying community. With a massive attempt to reconfigure defense related industries to satisfy long unmet consumer demands, purchasers of such weapons and systems have no assurances of technical assistance, replacement parts and upgrades and the myriad of other benefits that come from having a stable and reliable arms supplier.

Second, and to a lesser extent, French arms manufacturers have the same problem, since much of Iraq's arsenal came from the French.⁽¹⁰⁾ This has resulted in a net decline in the sales of French armaments, and net operating losses amounting to over \$310 million in 1992. Much of the argument during the recent French elections, presented by the winning conservatives, was that when weighted down by rising budget deficits, the only way to resolve the financial shortfall was to increase defense exports. Whether the French will be able to accomplish this in the face of Chinese successes remains to be seen.

Thus, while the Chinese are in an excellent position to become the alternative to the American arms industry as replacements for the Soviets and the French, there are readily identifiable challenges as well. They must clearly be able to demonstrate their survivability against the very systems which defeated the French and Soviet systems fielded by the Iraqis. In order to be able to do so, they will have to gain access to critical elements of the systems which assured the success of the American arms. Since reverse-engineering of any systems which they would buy from the United States on the open market will only gain access to the "export" versions and not to the most advanced (and effective) systems, espionage will remain as the only real alternative. Clearly, this logic trail has implications for American security planners and practitioners.

Market size and shares: Of the aforementioned \$1 trillion spent annually on arms sales, approximately 86% was spent by the advanced, capitalist countries together with the command economies; the remaining 14% was spent by the developing countries of the Third World each year. Between 1983 and 1990, the United States and the Soviet Union together accounted for two-thirds of the \$301 billion in arms exports to the Third World (with the Soviet Union having had approximately \$130 billion share of that \$200 billion market).

In addition to the discussion above, it is highly unlikely that Russia will ever be able to recoup anywhere near the lost market share of the former Soviet Union. The collapse of that structure, along

with its implications for world arms trade, coincided precisely with a fall in the overall world business cycle during which the resources to buy arms in the Third World had diminished. Nonetheless, the PRC continues to see - as do many other less successful countries - opportunities to increase their market share at the expense of the former Soviet Union.

In terms of concentration of the Third World's \$301 billion in purchases, approximately \$160 billion was sold to the Middle East.⁽¹¹⁾ Applying the same percentage split of the Middle East market between the Soviet Union and the United States, this represents a potential market for the Chinese of approximately \$70 billion.⁽¹²⁾ In order to place this amount into its proper perspective, China's total foreign trade volume for 1991 (both exports and imports) amounted to \$135.7 billion.⁽¹³⁾ Another measure of the attractiveness of this opportunity in the international arms market for China is that her entire arms sales to the rest of the world during the decade of the 1980's amounted to only a little more than \$10 billion.⁽¹⁴⁾

A final factor which is particularly worrisome to those concerned with the destabilizing effects of international arms trade is the behavior of China itself. Masters of oblique, non-committal statements followed by actions which are considered violative of international agreements, protocols and regimes, the Chinese repeatedly confound Western counterparts with what Roger Sullivan has termed "classic creative ambiguity formulations."⁽¹⁵⁾ Details continue to surface internationally which chronicle some of her less savory exports: of nuclear technologies to strategically sensitive Third World countries like Pakistan; sales of long range missiles to Saudi Arabia; and, Silkworm missiles to Iran among many others. These sales are often in direct opposition to the protocols of such international agreements ranging from the Nuclear Non-Proliferation Treaty to the Missile Technology Control Regime (MTCR).⁽¹⁶⁾

Whether called global citizenship, or more disparagingly, regional hegemony by detractors and potential adversaries, China is positioning herself to resume her historical place as a nation of great power. For the first time in 150 years, professionals conducting threat analyses must realistically assess China as both powerful and influential. As Mao Tsetung would have phrased it, China is now poised for its strategic counteroffensive in the world. Even if Mao's model is no longer quite operative, Deng Xiaoping's Four Modernizations appear to be proceeding toward satisfaction. Add the People's Republic of China to your list.

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