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China's Ordnance Industry Under Modernization

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Summary

China's ordnance industry is undertaking industry-wide reform. The goal is to improve indigenous innovation capability so that the Chinese armed forces can obtain advanced weapon systems without reliance on foreign technology while at the same time making the industry responsible for its own financial performance. Restructuring has resulted in some gains, but indigenous innovation capability, as well as spin-on and spin-off, are still far in the future.

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ORGANIZATIONAL CHANGE

The ordnance industry was established in the early 1950s and has undergone several bouts of major organizational reforms. This restructuring though failed to accomplish the goals of the Chinese leadership, such as improving efficiency and innovation, because the sector still functioned as a command economy that had little autonomy.

A major change occurred in 1999 in line with the government's earlier policy that all state-owned enterprises (SOEs) should adopt modern corporate structures. In attempts to further transform SOEs, like other defense industries, the ordnance industry was divided into two sub-systems: China North Industries Group Corporation (CNGC) and China South Industries Group Corporation (CSGC). One goal of this division was to boost competition between the two newly created business groups. Further, both CNGC and CSGC were stripped of all government-related functions so that they could concentrate on business development.

Organizational restructuring continued after 1999. One direction was to devolve more autonomous power to lower-level enterprises (or subsidiaries) of CNGC and CSGC, while making the headquarters of the two groups responsible for investment decisions. The second direction was to form different "clusters" within CNGC and CSGC that were organized around similar product types. A leading enterprise would serve at the head of the cluster, and its corporate leadership would serve on the boards of subordinate enterprises within the same clusters.

CIVIL-MILITARY INTEGRATION

In addition to laying the groundwork through restructuring, China has also attempted to promote civil-military integration (CMI). It has been China's hope that CMI will create spin-off (military-to-civilian) and spin-on (civilian-to-military) effects. In the 1980s and 1990s, diversified production without any spin-off of military technology typified the ordnance industry's CMI. For example, a main battle tank factory was diversified to manufacture washing machines, a civilian product whose technology has nothing to do with tank production.

Entering into the twenty-first century, the pace for achieving CMI has been accelerated, but the approach has also changed. The new approach has been to break up established monopolies of suppliers traditionally affiliated with the ordnance industry, thereby opening up the market to those not previously affiliated with established defense industries and allowing them to provide spare parts, components, or sub-systems to enterprises responsible for prime defense contracts or to final assemblers of weapon systems.

On March 6, 2008, the "Regulations Governing Permitting Research and Production of Weapons and Equipment" (*Wuqi Zhuangbei Keyan Shengchan Xuke Guanli Tiaoli*) was issued by the State Council and the Central Military Commission, and became effective on April 1 of that year. In April 2010, the "Implementation Measures on Permitting Research and Production of Weapons and Equipment" (*Wuqi Zhuangbei Keyan Shengchan Xuke Shishi Banfa*) was jointly released by the Ministry of Industry and Information Technology and the PLA General Armament Department to implement the regulations.

In December 2008, an order by the State Administration for Science, Technology, and Industry for National Defense (SASTIND) entitled "Guiding Opinions on Non-SOE Participation in the Construction of Science, Technology and Industry for National Defense" (*Guanyu Fei Gongyouzhi Jingji Canyu Gongfang Keji Gongyie Jianshe De Zhidao Yijian*) was issued. This opinion is significant in clarifying areas where non-SOEs can take part in defense industrial activities.

TECHNOLOGY IMPORTS

Despite these reform efforts, little visible progress on spin-off and spin-on has been achieved, and reliance on technology imports has persisted. For instance, despite the fact that China is able to produce main battle tanks, it continues to import heavy engine technology from foreign countries and also seeks to obtain licensed production from foreign firms.

Take the case of Baotou Beiben Heavy-Duty Truck Co. Ltd. (Beiben). This company began to produce heavy-duty vehicles and carriages in the late 1980s, and its products include tractor heads,

logging trucks, semi-trailer tippers, commuter vehicles and various types of trucks. From the outset to the present, Beiben has relied on technology imported from Daimler Benz of Germany.

Horizontal cooperation between ordnance enterprises and universities has not ameliorated this reliance on foreign firms. Hebei Huabei Diesel Engine Co. Ltd. (Huachai), headquartered in Shijiazhuang, Hebei Province and established in 1970, specializes in producing diesel engines, which it supplies to Beiben. It was reported that Beijing Institute of Technology and other universities were asked by Huachai to provide training programs to its technicians on the design of advanced engines. More than 1,000 workers have been trained and the technical skills of these technicians have been improved. Several technological breakthroughs were reported between 2007 and 2010, and Huachai's overall core capability is said to have been improved. Nevertheless, Huachai imports a significant amount of foreign technology, such as seven types of motor technology from Deutz AG, a leading international combustion diesel engine producer.

This reliance on foreign technology suggests that few spin-off and spin-on capabilities have been generated, despite continuing efforts to pro-

mote CMI and horizontal cooperation between the ordnance industry and universities.

CONCLUSION

China has made great strides in modernizing its ordnance industry over the past three decades. Major civilian items have been developed and produced by some ordnance enterprises, the state has been able to gradually reduce its financial subsidies to enterprises that have been loss-making for many years, and CMI is gradually taking place.

Nevertheless, indigenous innovation capability, as well as spin-on and spin-off, remain a remote dream. Reliance on foreign technology will persist for a long time, and reverse engineering or licensed production will be the predominant trend in the near future. Consequently, catch-up without indigenous innovation best describes China's ordnance industry today.

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