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Introduction

Tai Ming Cheung

The policy briefs included in this collection are summaries of research papers written for the annual conference on the Chinese defense economy held by the University of California’s Institute on Global Conflict and Cooperation (IGCC) in June 2011. The conference, the second of a series, is part of a research project led by IGCC and funded by the U.S. Defense Department’s Minerva Initiative on “The Evolving Relationship Between Technology and National Security in China.” This project examines China’s drive to become a world-class defense and dual-use technological and industrial power and the security, geopolitical, economic and technological implications of this transformation.

REVIEW OF THE 2011 CONFERENCE

Building upon the knowledge and insights from the first conference in 2010, which provided a broad overview of the current state of the Chinese defense industry at the end of the 2000s, this meeting focused in depth on a number of issues pivotal to understanding the developments taking place currently and over the long term within the Chinese defense economy:

- Different frameworks of analysis in examining Chinese military and defense innovation
- Understanding the relationship between defense contractors, regulators, and end-users
- Civil–military integration
- China’s defense innovation system
- Locating China’s place in the global defense economy
- Case studies of the Chinese space and missile industry

Groups of three to five scholars and policy analysts were assembled to address each of these topics with the goal of combining methodological rigor and rich empirical detail. Noteworthy progress was made in the development of analytical frameworks for assessing Chinese military innovation, industrial innovation, and the broader defense innovation system, especially in offering more clearly defined terms and application to case studies.

Andrew Ross, Tom Mahnken, and Tai Ming Cheung put forward an analytical framework to capture the nature, dimensions, and spectrum of innovation in the military and broader defense spheres with insights drawn from a range of disciplines, including history, social science, business, and strategic studies.

In her work on China’s defense innovation system (DIS), Kate Walsh argues that China is developing this approach as part of a broader effort to construct a national innovation system that incorporates a system-of-systems approach. Modeled on China’s commercial-sector economic development zones and investment strategies, the DIS is focused on enhancing integration and interaction among key defense industry actors, institutions, industry sectors, and regions, both domestic and international.

In the conference paper on China’s defense research, development, and acquisition (RDA) system, Tai Ming Cheung, Eric Hagt, Susan Puska, Debra Geary, and Joe McReynolds put forward a conceptual framework to analyze the Chinese defense RDA system, drawing upon the general literature on industrial and technological innovation and governance regimes with particular attention given to the development of the technology-push/end-user-pull model and the nature of interac-
tions between the players involved. Case studies were conducted on two areas that are important in understanding how the military, regulatory authorities and defense industry interact with each other. The first case, focusing on the technological decision-making and coordination level, looked at the role of the People’s Liberation Army (PLA) General Armament Department (GAD) and its Science and Technology Committee. The second study examined the evolving role and activities of the GAD military representatives system.

Brian Lafferty and David Yang examined the present state of civil–military integration (CMI) activities in China. In his paper, Yang points to the new set of guiding opinions on the development of the defense industry jointly issued in 2010 by the State Council and Central Military Commission. One of their central themes was the goal of achieving CMI. The long-term goal is to create an economy with civil–military synergies similar to those of Japan, but with a defense-industrial base on a scale comparable to that of the United States. Such an economy will consist of a small core of dedicated defense prime contractors focusing on R&D, systems integration, and marketing, with the low-value-added middle portion of the supply chain outsourced to a large base of secondary sub-contractors.

Mark Stokes, Kevin Pollpeter, and Alison Peet conducted a detailed case study of China’s evolving space and missile sectors. One of the key findings is that these two sectors appear increasingly capable of meeting the PLA’s long-term operational demands. Through participation in key advisory groups, such as the GAD Science and Technology Committee and the 863 Program, the space and missile industry also may push adoption of innovative technologies even in the absence of strategic or operational demands. With political support at senior levels, a more efficient and effective organization system may be a key driver of innovative technological advances, such as long-range precision strike and counter-space systems.

In a methodologically and empirically rich paper, Richard Bitzinger, Michael Raska, and two other colleagues seek to locate China’s place in the global defense-industrial hierarchy by assessing its relative and comparative progress in three key defense sectors: naval shipbuilding, fighter aircraft production, and space launch vehicles. Methodologies for comparative assessments are almost necessarily sector specific, but employment of following typology of defense-technological innovation: 1) duplicative innovation; 2) creative imitation; 3) creative adaptation; 4) incremental innovation; 5) architectural innovation; 6) modular innovation; and 7) radical innovation.

In a briefing specially written for this compendium, Oliver Bräuner assesses China’s rise as a global technology power through the window of cooperation with the European Union (EU). Bräuner points out that EU leaders see China as both a competitor and as a partner for scientific cooperation. The EU benefits immensely from cooperating with China and has great expectations regarding access to Chinese markets, knowledge, personnel, and funding opportunities. However, China–EU science and technology cooperation has also met a number of challenges, including the infringement of intellectual property rights, increasing competition from the Chinese high-tech sector, limited market access for European companies, and Chinese “indigenous innovation” measures. Concerns have also been raised about the potential security impact of European technology transfers to China. Bräuner’s conclusion is that the best way to stay ahead in the global science and technology race is not to follow a strategy of “scientific containment,” but to strengthen Europe’s own innovative capabilities.

This compendium also contains nearly two dozen charts and diagrams that provide up-to-date and relevant information on key aspects of the Chinese defense economy and the broader national science and technology enterprise.

This compendium would not have been possible without the hard and talented work of Lynne Bush (editing), William Hart (charts), and Hanlu Lu (research).

La Jolla, September 2011
NEW PERSPECTIVES ON ASSESSING THE CHINESE DEFENSE ECONOMY