



# Research Brief 2013-14

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### *China's Evolving Defense Economy: A PLA Ground Force Perspective*

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#### **Summary**

The ability of end users in the Chinese ground forces to convey needs and concerns to decision-makers and industrial producers in the research, development, and acquisition (RDA) system is one of the least understood components of the Chinese defense economy. This brief examines the state of ground force end user involvement in the defense RDA system, employing a multi-faceted analytic approach overlaying national defense strategy, People's Liberation Army (PLA) doctrinal developments, defense science and technology priorities and resources, end-to-end RDA processes, and ground force interfaces with each other. From roughly 1985 on, professionalization and modernization of the PLA ground forces have incrementally strengthened links between national science and technology policy, evolving strategic and doctrinal imperatives, and end user influence in defense RDA.

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## **FORCE MODERNIZATION AND THE END USER**

China's defense economy and the RDA process have evolved over the past two to three decades, commensurate with strategic and doctrinal shifts designed to protect economic centers of gravity along China's coast and to prevent outside powers from blocking China's objectives in a regional conflict. China's leaders have prioritized missile, air, and maritime weapon systems programs to extend air and maritime defensive perimeters beyond China's coast. The ground forces are undergoing more incremental modernization, with a focus on three key areas: providing advanced information technology through an experimentation and feedback process; organizational restructuring to build a more mobile and lethal force at the tactical level; and fielding of specific modern combat systems to key units (primarily tanks, amphibious vehicles, and multiple launch rocket systems).

The ground forces are the only service arm without a separate service-level headquarters, placing more responsibility on the PLA General Departments and the Military Region (MR) commands to ensure that ground force end user needs are represented at various stages of the RDA process. Despite this fragmentation, there is evidence that for certain priority ground force needs, end users at tactical and operational levels are increasingly involved in the weapons and equipment development and acquisition process. Determining the extent to which ground force end users inform scientific and technological research priorities and resources prior to engineering development is problematic, but the likelihood of extensive ground force end user interface during the initial research stage is low.

## **HISTORICAL PERSPECTIVE: STRATEGY, DOCTRINE, AND DEFENSE INDUSTRIAL REFORM**

Since the mid-1980s, the path of PRC military modernization has been marked by an evolving and often tortuous relationship between changing threat perceptions, doctrinal development, and Chinese interpretations of twenty-first century information war requirements. Evolving threat

perceptions held by China's elites, and the subsequent development of PLA doctrine, are inexorably pushing defense RDA reforms, civil-military integration, and increased involvement of end users in the procurement process.

By 1985, rapprochement with the United States and warming of relations with the Soviet Union led to a doctrinal shift from "People's War Under Modern Conditions" focused on attrition warfare for national survival, to "Local Wars Under Modern Conditions" fought for more limited objectives on China's vast periphery. In 1986 Deng Xiaoping established the National High-Technology Research and Development Program (中国高技术研究计划), or 863 Program to accelerate science and technology advances in both the civil and military sectors. This represented the initial impetus for an ongoing process to link defense RDA processes to Chinese security needs in a broader reform context.

The defense industrial sector during this period was directly controlled by the Central Military Commission (CMC) through the Commission on Science, Technology, and Industry for National Defense (国防科学技术工业委员会, COSTIND). At its inception in 1982, COSTIND was a military-civilian hybrid that managed both the defense industry enterprises and the procurement process, effectively ensuring that industrial interests trumped end user needs in all cases but those of highest priority to the leadership. Ground force operational and tactical needs were largely ignored while the leadership sought to shore up key gaps in aerospace, missile, and naval technologies via foreign purchases, key sector research, and industrial espionage.

In 1993, Jiang Zemin issued "Strategic Guidelines for the New Era," directing the PLA to respond to an information-era revolution in military affairs (RMA). This opened potential doors for ground force modernization advances, but few, if any, mechanisms were available for end user interface with the scientific community. Despite several internal reorganizations in response to strategic defense program changes, COSTIND practices continued to stymie end user involvement in RDA processes. In 1998, COSTIND was divested of its procurement-related functions, and the newly formed PLA General Armament Department (总

装备部, GAD) assumed responsibility for the acquisition and life-cycle management of weapons and equipment. Formation of GAD represented an increase in end user involvement in procurement, but COSTIND's legacy regulatory oversight of China's state-owned defense industrial conglomerates still ensured significant influence in R&D plans, priorities, and funding.

In 2002, the GAD received a boost when Jiang Zemin promulgated a plan for the PLA to simultaneously mechanize and "informatize" the force through 2020 and complete informatization by 2050. This stands as a watershed moment for the ground forces. Despite the fact that much of the PLA's focus is on catching up with or surpassing the West in the missile, rocket, and aerospace realms, the ground forces have served as a test bed for many of the communications and data transmission platforms that will eventually provide the backbone for an informatized joint force.

When Hu Jintao took over the reins of the CMC in 2004, he modified strategic guidance by delineating "new historical missions" for the PLA, which included a focus on both war and non-war requirements. While funding remained insufficient for major acquisitions across the entire ground force, the "new historic missions" foundation firmly undergirds producing, testing, and fielding command information platforms and limited numbers of new ground combat and logistical systems.

The ability of tactical and operational end users to influence research and production did not improve appreciably in the years immediately following GAD's inception. This influence was ostensibly exercised by uniformed PLA officers serving as liaisons at various levels of the defense industrial sector under the Military Representative Office (MRO) system. These officers had been embedded in the defense industry since the 1950s, but the system was notoriously corrupt and inefficient. In 2006, new regulations governing MROs provided guidelines for military representatives to manage the production cycle from contract bids through final equipment delivery.

In March 2008, COSTIND was replaced by the State Administration for Science, Technology, and Industry for National Defense (国防科技工

业局, SASTIND). SASTIND assumed most of COSTIND's duties, but as a subordinate organization to the newly created Ministry of Industry and Information Technology (工业和信息化部, MIIT), it fell in rank and influence from ministerial level to bureau level. The 2008 reforms did not directly affect the structure of GAD. GAD's perspective remains largely centered on ground forces, and the other services retain their own mechanisms for weapons and equipment life-cycle management. This may continue to hinder joint force RDA processes, but to some extent GAD influence helps to offset lower overall priorities for ground force programs. This seems especially true in the area of information technology and informatization. Ground forces lead much of the informatization experimentation at the operational and tactical level, and as such leverage the banner of "jointness" and its accompanying priorities in the development and fielding of command automation systems.

In 2010, the "Military Representative System Adjustment Reform Plan" and "Equipment Procurement System Adjustment Reform Plan" were published. This initiated an effort to improve links across service headquarters levels to weapons and equipment development and production. For ground forces, this provided MR-level influence through the MRO system to increase accountability in contracts and pricing. The focus of these reforms was contract specifications, but a more capable MRO system also offers an avenue for bottom-up inputs on weapons needs.

## **CURRENT STRUCTURE AND IMPLICATIONS FOR THE GROUND FORCE**

For the end user, GAD and SASTIND reside at the critical juncture between CMC-level guidance and production or procurement of needed weapons and equipment. The recent historical record shows GAD over time building bridges to end users that, on the regulatory side, are enhanced by SASTIND oversight. MROs are also key actors from the end user perspective. MROs manage contracts for all the General Departments and the separate services, but for the ground force, the GAD-controlled

MROs at bureau, office, and factory level will be increasingly important for RDA interface if recent regulatory reforms can overcome decades of corrupt practices.

GAD is responsible for life-cycle management of ground force weapons and equipment, which includes development, testing, and fielding. The MRs are the focus of GAD support, with equipment support and maintenance provided through a GAD equipment support network that extends to the regimental or brigade level.

GAD also manages research, education, and testing facilities that contribute to weapons research and development and involve the MRs. GAD centers and research institutes include air defense, artillery, engineering, ordnance, and a range of other combat support functional areas. GAD also has a Science and Technology Committee with the potential to represent end user priorities in the larger bureaucratic fight for focus and resources. The extent to which MR-level or below ground force voices reach the committee, and by what mechanisms, is unclear.

GAD has established stronger oversight of the MRO system, and the potential exists for improved end user inputs into research, contracting, production, and quality control processes. MROs are a key link in the chain of end user information management, but this appears to be primarily true for contractual compliance for systems during and after production, not for allowing end users to influence procurement and production requirements at the front end.

SASTIND is the key industrial interface for the end user, as it sets the rules for R&D. Along with GAD, SASTIND establishes and controls the operating environment for China's defense industrial conglomerates. The working relationship between GAD and SASTIND at this point provides a potential means for ground force needs to be represented in the design and production process. SASTIND also accredits defense key laboratories and defense industry research centers. Some are accredited in collaboration with GAD, and some are administered independently. GAD's involvement again offers a potential window for assessing end user involvement at the front end of research prioritization and funding, but our current

knowledge does not provide a clear picture of the extent of that involvement.

## **CASE STUDIES OF GROUND FORCE-RDA INTERFACE**

Two brief case studies provide an illustration of ground force influence and activity in the RDA process: the fielding of an Integrated Command Platform (ICP), and the development and fielding of highly capable multiple launch rocket systems (MLRS). The picture that these cases present is of a closing gap between the defense industrial bureaucracy and the end user. GAD and SASTIND are the key players on the defense industrial side. On the service end, ground force linkages are exercised via MROs and special organizations at MR-level and below. GAD interface with users is primarily still focused on preparation of the force to receive new equipment, but several new structures within the RDA process provide linkages at R&D junctures well before production. Evidence points to increased "bottom-up" demand influence on the industrial conglomerates relevant to ground force RDA.

Chinese sources have for some years discussed the need for an integrated regional electronic information system to realize informatization goals associated with a networked military. Chinese military standards, which are increasingly enforced in China and are critical to end user satisfaction, have reportedly been developed for a system that provides universal transmission capabilities for communications, command and control, intelligence, surveillance, and reconnaissance (ISR), early warning, and electronic warfare. The development and marriage of the software and hardware to bring the links into command posts is found in the PLA initiative to field an ICP.

According to PLA media sources, ground force units are involved in an active effort to shorten the development and deployment cycle for fielding new, "informatized" equipment. The picture painted by these outlets is one of specific, and perhaps ad-hoc, ground force units at various levels forming to provide end user research to support ICP development and employment, for both software and hardware requirements. While ICP as a