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China's Civil-Military Integration

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Summary

China's pursuit of civil-military integration (CMI) intensified in 2012, as priorities enshrined in the Twelfth Five-Year Plan were pursued within China's defense science and technology (S&T) sector. Despite the political will to deepen CMI, significant structural and behavioral impediments remain. China's leaders view scientific innovation as a critical part of national security and economic development, treating it as an irreplaceable multiplier for national power. One of the government's key strategies for promoting innovation has involved deepening the integration of China's defense and national S&T systems. This policy, called 'military-civilian merging' (军民融合) in Chinese, is based on a simple premise: Formally breaking down the barriers that have separated China's defense industries from civilian economic and research systems, and integrating defense modernization into overall economic planning, will greatly expand the defense industries' access to China's overall S&T resources. In turn, integrating the defense S&T system into China's wider economic and research systems is expected to reduce wasteful redundancies in resource allocation and improve the government's ability to plan S&T development at the national, strategic level.

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In the five years since Hu Jintao began promoting his vision for civil-military integration, it has emerged as a key influence on China's defense modernization strategy. Chinese leaders believe that it offers the prospects of win-win outcomes, in which defense modernization can be bolstered without imposing costly constraints on economic development, and in turn, the rate at which new defense technologies are discovered, produced, and integrated into the PLA's arsenals can be increased. CMI offers China an opportunity to more effectively harness its S&T resources for technological innovation in the defense sector, which would have an important impact on its development as a peer competitor. This brief offers a primer on the recent developments, guiding policies, and upcoming plans for Chinese CMI.

CMI PROFILE

While China has had long experience with using non-military resources to support military development (and vice-versa), its application has typically been limited to specific activities, or used as a means to achieve a discrete end rather than as part of a broad development plan. However, China currently operates in a strategic environment that has created imperatives to pursue a more permanent and systematic integration of civilian and military resources. The need to pursue this kind of development strategy has been provoked by the changing nature of technological needs within the military. As noted by Jacques Gansler, modern information-based warfare has made the development and deployment of new, breakthrough technologies imperative to a country's ability to stay ahead, necessitating a long-term focus on the pursuit of technological superiority. In addition, the pace of modern technological change has dramatically increased, such that lagging development of advanced S&T capabilities can have progressively dire effects on a country's security. Cutting-edge technology, meanwhile, is increasingly compatible with both civilian and military applications, enabling civilian-use technologies to be adapted or directly transferred to military use. Indeed, Chinese analysts have argued that up to 85 percent of current technologies have dual-use applications.

Given these conditions, and the importance of the S&T issue, the limitations of relying solely on military resources to pursue defense-related S&T, or of only using discoveries in defense-related S&T for military purposes, have been brought into stark relief. China's top leaders have repeatedly demonstrated their awareness of these dynamics, and have helped make it untenable to treat economic and military development as independent or conflicting public policy issues. Accordingly, China's leaders have taken the conceptual foundation laid by previous efforts to "combine the military and civilian sectors," and "locate military potential in civilian capabilities," and elevated CMI to a national strategic priority, promoting an integrated development strategy that is focused on "overall coordination" (统筹规划) of defense and economic planning. As Defense Minister Liang Guanglie has stated, China intends to pursue civil-military integration in order to "provide rich resources and sustained momentum for national defense and armed forces modernization, to obtain more effective security guarantees and technological support for national defense and armed forces building from economic development, and to promote the coordinated development and positive interaction of the economy and national defense construction."

CMI LEADERSHIP

Despite the exhortations from senior leadership regarding the merits and necessity of CMI, the institutions and mechanisms needed to guide and supervise CMI work are still underdeveloped. China is in the midst of a build-up of national and lower-level administrative capacity to address this deficiency. Whether or not this increased support will translate into innovative policy design and/or improved CMI policy implementation remains to be seen, but to the extent that administrative shortcomings have been an important impediment to CMI, the expansion of resources that focus on the problem are an important step towards addressing those concerns.

Institutionally, CMI has been led at the national level by three organizations: the Ministry of Industry and Information Technology and two of its subordinate departments: the State Admin-

istration for Science, Technology, and Industry for National Defense (SASTIND) and the Department of Civil-Military Integration Promotion. Of these three, the Department of Civil-Military Integration Promotion has emerged as the leading state-level institution for CMI development. Other state-level institutions, like the Ministry of Science and Technology and the National Development and Reform Commission, have some natural overlap with CMI development, but they do not have the same kind of dedicated CMI portfolio as the three leading institutions.

The state's administrative oversight of CMI activities extends down through a variety of lower-level institutions. As one source described it, each province, city, and region has developed institutions, according to their particular needs, to guide their CMI work. While these lower-level institutions are too numerous to properly describe, they need to be highlighted in order to understand the degree of institutionalization that is developing around CMI administration.

Apart from these civilian organizations, the military also has a role in overseeing CMI-related S&T development through the General Armament Department (GAD). While much of GAD's involvement in the utilization of CMI for developing defense-related S&T remains unclear, press reports reveal that leaders of its S&T Committee regularly participate in national-level CMI meetings, expos, and forums. The GAD is also one of the key gatekeepers (along with SASTIND) that control private enterprises' access to the defense market. This is accomplished through its oversight of the application and certification process for its directories of organizations that have the legal ability to market their products to defense customers. With only a few exceptions, any company that wishes to engage in weapons or equipment production for the PLA must be on these lists.

THE CURRENT STATE OF CMI DEVELOPMENT

One of the key problems with respect to civil-military integration—in China and other countries—is the considerable difficulty involved in putting CMI aspirations into practice. As Gansler has argued, the critical stumbling block to greater integration is generally procedural, not technological, as a huge network of laws, regulations, and entrenched interests helps to perpetuate separate military and civilian domains. The complexity of actually enacting CMI stands in contrast to the relatively simple and persuasive logic in support of it.

Chinese analysts have been no more optimistic in this area, and have repeatedly identified the daunting scale of the policy challenges facing Chinese leaders. They have highlighted problems in orienting relevant actors towards thinking in terms of broader civil-military coordination, rather than narrower corporate interests; in untangling the web of incomplete and contradictory regulations governing CMI activities; in resolving secrecy concerns and conflicts over intellectual property rights for defense S&T; and in making the participation of civilian S&T enterprises in the defense market more feasible and incentivized. Thus, although it has been five years since Hu publicly announced the government's determination to deepen China's CMI, with respect to S&T development CMI is still at a stage where an increase in activity can obscure the fact that fundamental reforms still have not been achieved.

The key guiding document for CMI-related defense S&T work during the Twelfth Five-Year Plan (2011–2015) is the "Opinions on Building and Improving a 'Combining the Military and Civilian Sectors' and 'Locating Military Potential in Civilian Capabilities' Research and Production System for Weapons and Equipment," which was jointly issued in 2010 by the State Council and Central Military Commission. Typically referenced simply as "Document No. 37," it was promulgated as a broad guide to establishing a strategic framework for China's S&T-related CMI policymaking. In particular, it identified six major problems hindering China's institutionalization of S&T-related CMI, and called on relevant institutions to work on them. These problems were:

1. Imperfect CMI coordination mechanisms between relevant institutions in government, business, and research communities;
2. The prevalence of serious barriers preventing civilian enterprises from effectively participating in the defense market;

3. Insufficient resource sharing between civilian and military sectors;
4. Incomplete reforms in relevant institutional mechanisms;
5. Underdeveloped CMI industries; and
6. Poorly designed or incomplete policies and guidelines for CMI activities.

Many of the government's current CMI plans and related activities are focused on the needs and priorities outlined in Document No. 37, and it remains the key public statement on the government's strategic thinking regarding CMI development. Using Document No. 37 as a key source for inspiration and guidance, the publicly available sources regarding near-term policies to improve the PLA's S&T capabilities through CMI have focused on seven broad tasks.

1. Strengthen political guidance and coordination, and build a beneficial macro environment for CMI-based development.
2. Promote opening up and sharing of military-local resources, particularly for shared S&T platforms.
3. Encourage the mutual transfer of dual-use technologies.
4. Expand the scope of development in national key labs serving CMI.
5. Strengthen joint research of dual-use technologies.
6. Expand the scope and intensity of R&D work that civilian research institutions and enterprises conduct in military-use technologies.
7. Begin construction of civil-military integration S&T parks, and civil-military dual-use technology innovation bases.

As outlined in current industrial development plans, China hopes that civilian industrial development will support development in defense S&T industries, and that defense S&T will drive civilian industrial transformation and upgrading, especially in strategic, emerging industries. Moreover, defense industries have been charged with doing more to develop spin-off (defense conversion) industries while improving compatibility between military and civilian products.

This level of integration is a conceptual break from China's past experience, when the spin-off or spin-on (civilian technology transfer) activities of enterprises were typically treated as supplementary to their primary objectives. China's current CMI policies aspire to blend the two more actively, so that enterprises are conditioned to look to the other domain (civilian or military) for both R&D resources and production opportunities. By doing so, relevant resources in both the civilian and defense industry systems can be better deployed in service to innovation, and the efficiency of advanced technology production can be improved.

HIGHLIGHTS OF CURRENT CMI DEVELOPMENT POLICIES

Given the government's elevated prioritization of the issue, relevant organizations have gotten into the habit of touting how much they have done in the service of CMI, so as to highlight their cooperation with the government's directives. However, in some cases this has clearly involved rebranding older accomplishments with the CMI imprimatur, or supporting CMI goals in form but not substance. The most obvious examples can be found within the defense industries, which cite defense conversion projects that have been underway for many years as examples of their current CMI successes. Given the defense industry's long-standing involvement in defense conversion, it is difficult to ascribe specific causal significance to CMI promotion with regard to the bulk of its current conversion activities.

In four other areas, the impact of CMI strategies on current policies is more easily recognized. The first of these is in the government's ongoing push to open up the defense market to participation from private, civilian-owned enterprises. This development is focused on enabling spin-on civilian innovation into the defense sector via dual-use technologies (两用技术) or new products developed exclusively for military purposes (军用). To date, more than 900 civilian enterprises have been certified to produce goods for the defense market, although their participation has been relegated largely to non-core areas like subcomponents. This area of CMI development is still in

its infancy, and as indicated in Document No. 37, many institutional barriers and hindrances remain to stifle private enterprise participation in the defense market.

The second area of notable CMI–related reform is in the defense industry's attempts to attract civilian investment. The comparatively slow expansion of shareholding and other capitalization schemes among China's defense S&T industries has limited their capacity to function beyond the military domain, making financial reform an increasingly important and more heavily emphasized aspect of CMI. During the Twelfth Five-Year Plan, it will be pursued on two broad fronts: 1) making the defense S&T funding system's focus on CMI work deeper and more specialized; and 2) expanding capitalization within the traditional defense conglomerates.

The third area lies in broadening cooperative CMI links between S&T researchers and producers, which China's government and relevant stakeholders hope will be an important driver of technological innovation within the defense S&T industries. These coalitions are intended to spur the creation of joint, CMI-related R&D institutions and technological coalitions within industries, in which universities and research institutions discover technologies and carry out preliminary research, while enterprises commoditize, design, and produce those technologies. The core deficiency these coalitions are intended to address is that too few defense technology innovations are being "transformed" (转化) into real products.

The final area of China's current CMI reforms concerns clustering of CMI industries. China's government has begun experimenting with new methods to create conditions that allow enterprises to become drivers of innovation, as part of its broader S&T development strategy. One of the current strategies for fostering innovation involves the creation of industrial demonstration bases (国家新型工业化产业示范基地). They are reflections of the government's faith in the innovative potential of industrial clustering, predicated on the notion that innovation is facilitated by the geographic concentration of like industries that can serve as centers of gravity for talent and resources.

The demonstration parks are a pilot program for leading and driving the next wave of industrial development in China. The focus on clusters has reached defense S&T as well with the designation of 19 national-level CMI industrial demonstration bases since 2009. While the S&T focus of every park is broader than any one particular area, they generally have a predominate technology specialty, usually in one of the following broad areas: aviation, space, transportation, shipping, optoelectronics, or ordnance. The most common S&T focus areas are aviation and aerospace, followed by transportation and shipping.

CONCLUSION

China's commitment to CMI-based S&T development showed no signs of abating in 2012, but it still remains to be seen what kind of impact it will have. On the one hand, CMI activity continued to expand, with the creation of new CMI demonstration bases, new CMI-based R&D collaboration, and a deeper institutionalization of CMI administration. CMI is so underdeveloped that there are plenty of simple but meaningful gains that can be achieved, giving the appearance of quick and broad success. In the meantime, fundamental challenges, such as untangling the conflicting and incompatible laws and regulations between civilian and military domains, still loom. So long as they go unaddressed there will be natural limitations to CMI development in China. That said, to the extent that the starting point was so low, China may wind up satisfied with an RDA system that simply works a little better, thanks to achievable gains in CMI, and forgo pressing for fundamental changes that shape behavior towards deeper integration.

It is telling that Chinese leaders have been relatively muted about their expectations for CMI's impact on S&T development. There is no evidence that they are promoting the strategy on the basis of expectations-raising promises about the great changes it will bring. Rather, it is being promoted as a development strategy that avoids the mistakes of pursuing defense and broader civilian S&T development separately, with limited resource sharing and widespread redundancy in

resource allocation. As a strategy for promoting smarter, more efficient resource allocation, China is more than likely to be happy with the results, unless CMI unleashes new and unanticipated pathologies that are particularly harmful to resource usage. But the larger question of whether or not it makes China's S&T development process faster, better, and smarter remains to be seen.

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