

# Economic Implications and Near-Term Strategic Impacts of Military-Civil Fusion for the Next China

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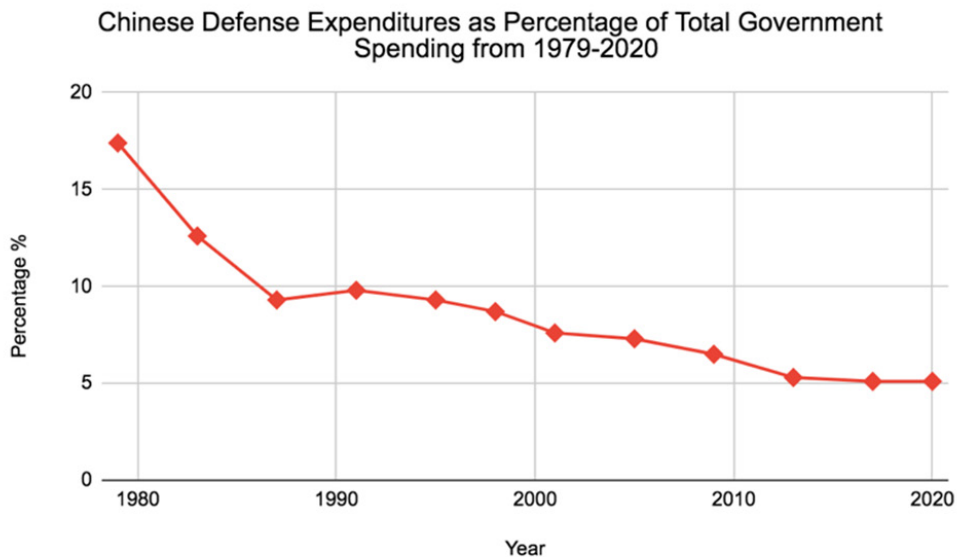
## Introduction

In January 2020, former US secretary of state Mike Pompeo described China's Military-Civil Fusion (MCF) modernization initiative as a "technical term, but a very simple idea."<sup>1</sup> However, Pompeo's characterization of MCF belies the initiative's sophistication and its multifaceted intentions. MCF, as currently perceived by military experts, is the common term for the Chinese Communist Party's (CCP) strategy to modernize the People's Liberation Army (PLA). While this is partly true, academic circles neglect to observe how MCF marries competing objectives: economic development and national security. MCF aims to transform the PLA into a more agile institution by integrating the it into China's commercial apparatus. This unorthodox view demands greater evaluation of alarming measures that were previously ignored by the United States. This article examines, first, MCF's origins and organizational framework, along with its execution today under President Xi Jinping. The analysis documents key economic and political interactions among MCF's various stakeholders. Additionally, the article uses as an example the participation one State-Owned Enterprise (SOE) in MCF to highlight the technological force multipliers that China gains. In doing so, I describe the challenges to MCF's implementation and contend that MCF is a complex military and economic enterprise requiring greater attention by the Department of Defense.

## Chinese Rejuvenation: Origins and the Need for MCF

The People's Republic of China's internal debate over whether to prioritize spending on defense or economic development dates to its founding. After the end of the Korean War, then-Chairman Mao Tse-tung reduced China's defense spending from 30 percent to 20 percent of Beijing's budget to focus on national economic construction.<sup>2</sup> Even then, Mao asked that production lines produce civilian goods and defense equipment simultaneously. The reversal of Mao's policies began immediately with his successor, Deng Xiaoping. Although Deng la-

beled defense as a pillar to the “Four Modernizations,”<sup>3</sup> as chairman of the Central Military Commission he relegated the defense industry and the military below the other tents of modernization. The Soviet Union’s breakup as a result of excessive investments in defense convinced Deng that such a move was appropriate.<sup>4</sup> Deng also feared that higher levels of defense spending would jeopardize China’s international image as a peaceful state in an era of “hide and bide.”



Source: Stockholm International Peace Research Institute, “SIPRI Military Expenditure Database” (2020), <https://www.sipri.org>.

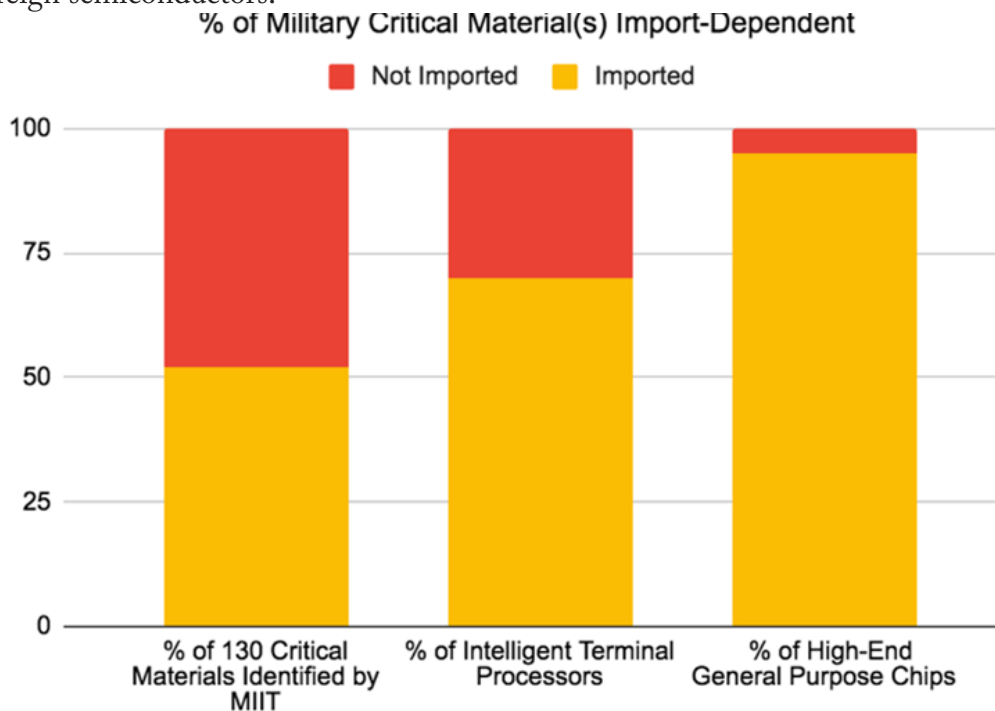
**Figure 1. Chinese defense expenditures as percentage of total government spending from 1979–2020**

China’s view on defense mobilization changed in the aftermath of the Persian Gulf War. China witnessed the United States implement rapid technology and modern warfare strategies that led to the West’s quick victory against Iraq. This event deeply alarmed the Chinese Communist Party’s national security establishment. In a Sputnik-like moment, the Persian Gulf War galvanized Deng’s successors, Jiang Zemin and Hu Jintao, into coordinating a national strategy that would prepare for twenty-first-century warfare.<sup>5</sup> Consequently, the concept of MCF first appeared in Hu Jintao’s 17th Party Congress report published in 2007.<sup>6</sup> Under Hu, the CCP envisioned that “fusing” China’s national development strategies with its military planning goals was feasible, if not critical, to sustaining high growth.

Under Xi's patronage, MCF has evolved into a national project. In January 2017, Xi founded the Commission for Military-Civil Fusion Development.<sup>7</sup> He followed this action by then delivering a speech that summer, urging the 19th Party Congress to prioritize MCF.<sup>8</sup> Xi, unlike his predecessors, institutionalized and created a governance system that would guide MCF to reach its long-term strategic goals. The explicit missions of MCF are (1) to morph the PLA into a world-class military by 2049 and (2) to accelerate China's science and technology (S&T) capabilities past its competitors.<sup>9</sup> Less noticeable in the speech is how Xi imagines MCF as another method to centralize economic power within the state. While defense spending as a percentage of total government spending<sup>10</sup> has been decreasing, as shown in figure 1, this trend is deceiving.<sup>11</sup> China's funding of MCF comes in the form of increased spending in "nonmilitary sectors" through SOE subsidies and preferential loans to commercial partners, to name but two. Thus, China challenges the assumption that the military is a separate account. Experts should realize that MCF is *not* a traditional stimulus package for the defense industrial base. Instead, MCF is designed to promote more efficiency in the defense sector. In accomplishing this, Beijing can continue frugal defense-spending measures, especially in a post-COVID-19 era.

Why is MCF taking place now? MCF targets undeveloped areas of interest for the military, but it also attempts to fill glaring holes in the public sector that China views as hindering future economic growth. First, private industry participation in the defense ecosystem has been problematic and minimal. The lack of private sector competition has induced public defense conglomerates to be complacent and stagnant in innovation. Current data paints a picture of a dysfunctional Chinese defense base. In 2019, less than 3,000 firms out of some 150,000 registered Chinese high-tech companies were involved in the defense supply chain.<sup>12</sup> This problematic 2 percent participation rate is compounded by the fact that, of these 3,000 companies, 68 percent were information and communications technology (ICT)-related companies.<sup>13</sup> This signifies that China lacks commercial engagement in crucial non-ICT fields. China wishes to expand its core competencies in traditional domains like aviation and nuclear engineering, and thus MCF is designed to address this disengagement. Existing civilian participation in defense R&D also predominantly resides in low value added activities.<sup>14</sup> National University of Defense Technology academics point to late civilian input in defense R&D as a troublesome status quo: simply using the private sector as a parts producer rather than as a research partner fails to leverage the full value of commercial services and human capital.<sup>15</sup> In addition, the CCP hopes MCF will cultivate corporate patriotism as more firms work with PLA contracts and bind business relations with the CCP.

Second, China itself struggles with supply chain offshoring. Of 130 components necessary for defense manufacturing, 52 percent are imported into China.<sup>16</sup> Even more concerning for CCP officials is China's reliance on foreign production of high-end chips and processors. Now, 95 percent of all-purpose chips are imported from nations such as South Korea and the United States.<sup>17</sup> The lopsided import-export ratio in the semiconductor space threatens China from expanding its innovation capacity in technologies dependent on such materials. The technologies at risk are quantum computing, microelectronics, artificial intelligence, and the like. MCF fixes this trade imbalance by pushing swaths of capital into joint cooperative research centers that can wean China from industrial reliance on foreign semiconductors.



Source: MIT: *China Is Import-Dependent on 130 Critical and Basic Materials*, translated to English, Sina, 17 July 2018, <http://finance.sina.com.cn>

**Figure 2. Percentage of military critical material(s) import-dependent**

Third, China also faces a plethora of deficient SOEs in the defense sector that desperately need reform. However, China does not wish to dismantle these SOEs or, for that matter, diminish their market power in favor of private industry. Xi Jinping sees SOEs, including these defense firms, as the primary business forces that should create national wealth.<sup>18</sup> MCF hopes to introduce mixed ownership

to the executive management of defense SOEs to preserve their financial well-being. MCF agencies, such as the State Administration for Science, Technology and Industry for National Defense (SASTIND), are tasked with relationship-building and arranging favorable agreements between defense SOEs and state banks.<sup>19</sup> Besides introducing more efficiency to SOEs, SASTIND and similar organizations strive to increase job growth at these firms.

Tangentially related is China's aspiration to disrupt and penetrate the global defense market.<sup>20</sup> This requires significant private sector support. In FY 2000, US companies cornered the market in foreign arms sales and defense technology. US entities completed more than 60 percent of the share of global arms sales that year; developing nations like China contributed only 4 percent of total arms sales.<sup>21</sup> China's lack of private counterparts to the primary US defense contractors (e.g., Boeing, Northrup Grumman, Huntington Ingalls, and Lockheed Martin) also motivate China to cultivate an in-house contender. Of the 100 largest defense companies by revenue, 43 were listed as US-based, including eight of the top 10.<sup>22</sup> It is reasonable to infer that post-9/11 defense postures have strengthened the US grip on the market, undercutting China's ability to enter the arms transfer market. Most nations generally sign arms agreements with exclusivity contingencies. Due to the inferior nature of existing Chinese platforms compared to those of the United States, Chinese opportunities in ally-building are limited.

Finally, and perhaps most important, China is wary of falling behind the United States in next-generation dual-use technology research. China sees US military inventions such as the internet and GPS as products resulting from successful integration of universities into the defense R&D base. In order not to miss the next revolution in military affairs, China identifies targeted technologies (including 5G, AI, aerospace, biotechnology, nuclear engineering, and advanced materials) as areas under the responsibility of universities.<sup>23</sup> In other words, MCF accompanies Made in China 2025 national strategic plan by providing additional funding routes for scientific research and acting as an alternative sponsor for academic grants.

These problems are noticeably more economic in nature. Thus, contrary to popular consensus, MCF activities center more around economic policies and less on military reform. Taken together, however, MCF's objectives to address systemic economic issues are: (1) the welcoming of more permanent public-private partnerships; (2) implementation of structural reforms to large SOEs in the defense industry; (3) the leveraging of human capital in S&T and universities for the military's benefit; and (4) an international mergers and acquisitions (M&A) strategy in targeted technologies.

## **Key Stakeholders**

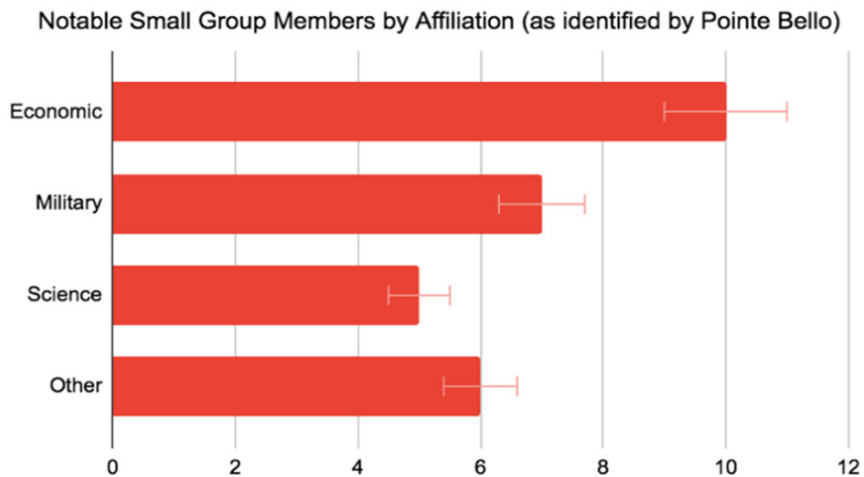
Achieving the goals summarized just above is a task that involves hundreds of organizations. In MCF, stakeholders can be categorized into four categories: political organs, commercial enterprises, economic institutions, and the military.<sup>31</sup> These four interest groups collaborate at the national environment all the way down to the prefectural level. Key military stakeholders are the Central Military Commission, PLA elites, and military institutions of higher education (IHEs). Civilian participants are drawn from top-ranked academic institutions such as Tsinghua University, private and public firms, and joint research centers. Economic agents encompass financial blocs such as the People's Bank of China, the Ministry of Human Resources and Social Security, and the State-Owned Assets Supervision and Administration Commission. Finally, the political establishment overseeing MCF is a coalition of State Council bodies, forming a powerful trinity. State Council units are the Ministry of Industry and Information Technology (MIIT) and its subordinate agencies—the Civil-Military Integration Promotion Department and SASTIND.<sup>24</sup>

Although MCF appears from the outside to be a project spearheaded by military bureaucrats, its membership and the inclusion of economic actors suggest that state developers and economists are delegated more responsibility in policy decision-making than is the PLA. This is substantiated by how economic representation is greater than the number of military-related officials in the administrative bodies under MCF. One such essential body is the Inter-Ministerial Coordination Small Group for Military-Civil Fusion Integrating Weapons Research and Production Systems, the policy arm of MCF known as the “Small Group.”<sup>25</sup> This policy body consists of high-profile leaders from all four stakeholders. Pointe Bello, a strategic intelligence firm specializing in Chinese affairs, created a table with the names of members who were equivalent to deputy directors or above in their respective organizations.<sup>26</sup> Aggregating this membership list and sorting individuals by affiliation produced the chart below, which provides evidence that economic advisors are a clear plurality. The remaining three interest groups display marginal differences in representation to each other. The “Other” category includes political figures as well as officials in nontraditional domains such as the Ministry of Education. The Small Group's membership composition offers credence to speculation that an economic advisory role is at the heart of MCF's operation. More indicative is how the chair and vice chairs are currently occupied by economic and tech-related ministers such as Miao Wei (MIIT minister) and a deputy director of the National Development and Reformation Commission, respectively.<sup>27</sup> Thus, military officers, although deemed essential, may in reality be



acting in a support role to MCF's leadership decisions, thereby reflecting MCF's overarching priority of economic development.

Other reasons propelling overrepresentation by economic figures at the expense of military bureaucrats may be due to the PLA's history with corruption when charged with leading domestic business ventures.<sup>28</sup> Likewise, the impact of Xi Jinping's purges during his tenure is likely to have diminished the influence of military leaders. During his time in office, Xi has purged more than 60 percent of the top 90 military officers appointed after the 18th Party Congress and also arrested more than 52 senior military officials throughout his anticorruption campaign.<sup>29</sup> The current first-ranked vice chairman of the Central Military Commission, Xu Qiliang, has used almost all of his public addresses to the Party Congress to discuss the importance of MCF and the PLA's efforts in it.<sup>30</sup> This history demonstrates that, possibly, the PLA lacks the will or the congregation to challenge Xi in securing a more dominant role in his MCF planning.



*Source: Levesque and Stokes, "Blurred Lines."*

**Figure 3. Notable small group members by affiliation**

### **MCF Strategies and Interactions Among Interest Groups**

Observations on leadership, however, should not detract from MCF's authentic intentions to enhance the PLA's capabilities and to improve its professionalism. An agenda of MCF set forth by Xi Jinping at the 12th National People's Congress in 2017 is to increase the PLA's brainpower and to create a leaner force.<sup>31</sup> As the PLA procures more sophisticated informatized weaponry and al-

locates more resources in cyber and space operations, its workforce will require more intensive STEM education. Thus, the role of universities and academia in MCF carries a dual mandate: to host innovative research, and to educate the PLA. The latter is more interesting to study given the lack of literature on the second. MCF's strategy on military education is trinitarian. Labeled the "Triad System," this innovation education initiative is based on three mutually reinforcing elements.<sup>32</sup> Physical implementation of the Triad System has overhauled Chinese higher education completely in recent years. First, MCF in the education sphere has focused on cutting poorly performing programs. MCF's educational policy eliminated China's National Defense Student Program, a commissioning source similar in style to the ROTC in the United States.<sup>33</sup> The program was discontinued because MCF wants to save money by selecting future military officers through direct recruitment of college graduates. MCF also halved the amount of existing military IHEs (from 63 to 34)<sup>34</sup> to reorient the PLA and rely more on civilian universities to cultivate military talent. MCF's cutbacks accompany significant expansion in other areas. An ongoing segment of MCF's engagement strategy with universities is increasing the number of billets dedicated to joint master's/PhD degree-granting programs for PLA personnel. This effort seems to have scaled up quickly and is well received by the PLA and its university administrators. The commandant of the PLA Rocket Force cites the fact that almost nine out of 10 of his recently promoted missile brigade commanders graduated from PLA-supported doctoral programs hosted by top-ranked research universities such as Tsinghua, the Harbin Institute of Technology, and Zhejiang University.<sup>35</sup>

MCF's goal to leverage civilian S&T talent and to foster STEM education for military professionals has ramifications. First, MCF brings the Ministry of Education closer to the PLA, nearly folding the ministry under the influence of the PLA. The number of civilian IHEs who had subscribed to a talent cultivation agreement with the military at last count was 118.<sup>36</sup> MCF's progress in fusing higher education with the military indicates that this number will likely grow. The collaboration between the PLA and higher education also stimulated the proliferation of defense-related vocational training (civil aerospace engineering, air defense, nuclear and radiological studies, radar, and cybersecurity) taught in civilian universities.<sup>37</sup> Second, research in these universities currently is more accessible to the military because of the cross-pollination of PLA personnel mentored by academic professors.

Defense SOEs have witnessed how MCF's reforms can restructure and reconfigure businesses. At the heart of the action plan is mixed ownership reform. Starting with SASTIND's recommendations in the 2017 MCF Action Plan,<sup>38</sup>



Chinese defense SOEs opened pathways for more private capital or market-based diversified financing. The plan additionally called for 41 defense SOEs and their subsidiaries to privatize and to complete asset sales.<sup>39</sup> SASTIND encourages parent firms to sell state-owned equity and to dissolve inefficient departments with low commercial potential. In addition to pushing defense SOEs toward abdicating complete state control, SASTIND and MCF's political committees are directing Chinese state-owned banks to double down on financing defense SOEs. For example, in late 2016, the Industrial and Commercial Bank of China extended a generous five-year credit line worth \$7.5 billion for the China Shipbuilding Industry Corporation (CSIC).<sup>40</sup> Defense SOEs such as CSIC need more capital for M&A efforts encouraged by SASTIND.

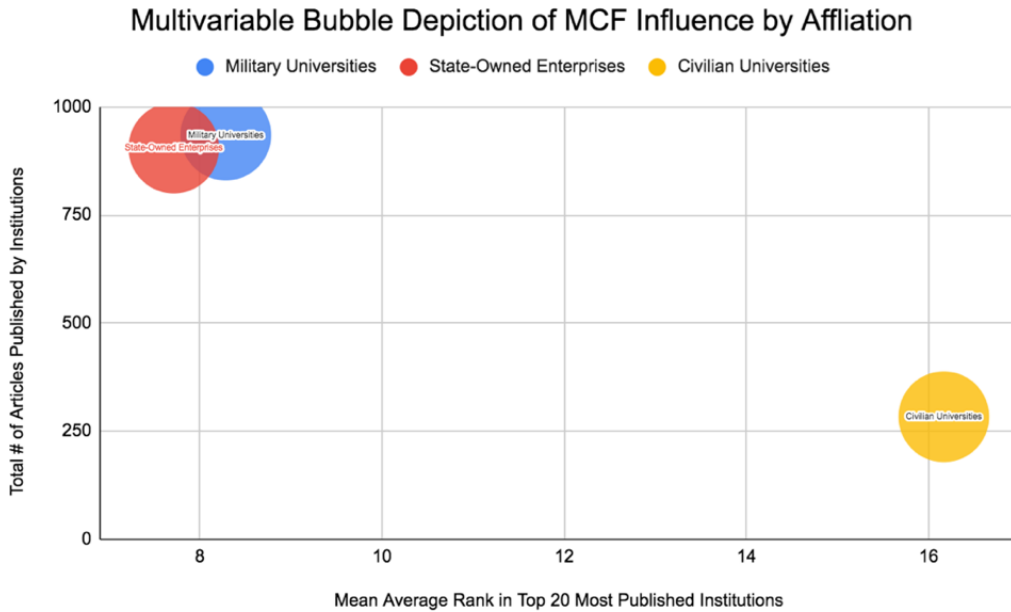
A recurring theme in MCF is how defense SOEs pursue aggressive M&A with foreign entities. Take, for example, the Aviation Industry Corporation of China (AVIC) and its recent corporate strategy in the international market. Armed with a private equity fund worth US\$3 billion backed by the China Construction Bank, AVIC acquired aviation suppliers and dual-use technology providers in the United States and Europe.<sup>41</sup> AVIC has spent almost \$1.25 billion worth of shares in European companies. One company purchased, Future Advanced Composite Components (FACC), is a major supplier to Western military and civil aviation contractors including General Atomics, Boeing, and the French-based Airbus.<sup>42</sup> It is unclear, however, whether AVIC sought these acquisitions to make connections or for to consolidate control over global arms sales. If so, a strong case for the former is AVIC's acquisition of the aircraft diesel engine manufacturer Thielert Aircraft. This German-founded firm produces engines used in the General Atomics MQ-9 UAV—the same drones operated by the US Air Force.<sup>43</sup> Although China could be attempting to bottleneck or spy on US supply chains through such acquisitions, such a conclusion might be oversimplified.

Alternatively, China's primary motivation for these acquisitions is its desire to receive intellectual property that is passed along as part of a deal. AVIC has not shown a tendency to discontinue or drastically change the prebuyout services of acquired companies. FACC's services under its new parent, AVIC, moved to Zhenjiang, where the joint-venture center has continued to produce critical aircraft materials such as wing spoilers at normal rates.<sup>44</sup> In other words, the purpose of this MCF-induced M&A strategy appears to exploit latecomer advantage and find nascent technology not yet available in China. For example, AVIC bought a majority stake in the Barcelona-based Aritex in 2016. This small company designs and constructs wings for the Eurofighter Typhoon, a twin-engine combat fighter jet. The Eurofighter's primary users (the Royal German, Italian, and Spanish Air Forces) state that its flexible wings and architecture enable the aircraft to reach an

extraordinary top speed of Mach 2.0.<sup>45</sup> It is plausible, given the Chinese J-20's head-to-head inferiority to the American F-35 fighter jet, that China is purchasing, through legal means, technology that can be copied and reproduced for its own legacy systems. Given how AVIC's board members also serve in the Small Group committee,<sup>46</sup> this concurrent M&A strategy may not be innocuous.

The visibility of M&A transactions by defense SOEs implicates the discussion over stakeholder influence. One metric in measuring stakeholder influence besides committee representation (e.g., the Small Group) is authorship of reports and documents referring to MCF doctrines. The China Aerospace Studies Institute (CASI) published a table detailing the top 20 institutions with the most journal articles published on MCF.<sup>47</sup> CASI researchers collected bibliometrics data gathered by the Central Commission on Military-Civil Fusion Development to conduct a current state analysis on MCF literature. In using this table, a multivariable bubble chart was assembled to capture "influence." The graph visualizes the extent to which stakeholders are lobbying and impacting policy decision-making discussion by assessing three variables. These variables are the number of journals published by a stakeholder; the number of institutions represented on the top 20 list by a stakeholder; and the mean average ranks by stakeholders.

The data provides a cogent argument that defense SOEs show a considerable amount of influence over military IHEs, especially civilian universities. The evidence sheds light on how SOEs are likely expending a greater proportion of resources dedicated to MCF through reports and research papers. It also suggests that civilian SOEs, compared to the PLA, show a greater amount of interest on MCF's impact on industry versus defense. Unsurprisingly, the military IHE with the most publications on the subject is the PLA Military Economics College.<sup>48</sup> This fact, paired with the diverse representation of SOEs, illustrates the economic focus of MCF. SOEs are influential players deeply engaged in MCF's policies, but the table below notably omits political stakeholders. Although not represented, state economists and political officials at the provincial level are making significant headway in MCF as well. MCF has created "MCF cities" or hubs focused mostly on MCF-targeted initiatives. More than eight provincial counties including Hubei signed strategic cooperative framework agreements (SCFAs) with SASTIND.<sup>49</sup> These SCFAs involve local government support for favorable business zoning and construction of facilities that house MCF-funded companies. County governments enjoy increased economic activities as employees relocate, and SOEs benefit from industries migrating to a specific region. Hubei Province acts as ground zero for corporate operations on space situational awareness and encryption communications.<sup>50</sup>



*Source: Stone and Wood, China's Military-Civil Fusion Strategy, 20.*

**Figure 4. Multivariable bubble depiction of MCF influence by affiliation**

### MCF's Reality and Future Challenges

Is MCF successful? It is too soon to make an assessment. While conceived by Hu in 2007, MCF as a national policy for the CCP started around the early transition period of the Trump administration in 2017.<sup>51</sup> Failures are less advertised than successes. China realizes that the reality of meeting all its goals set in MCF is ambitious. Several challenges in MCF's implementation are becoming clear. First, defense SOEs have embraced reform but in an extremely lethargic manner. SASTIND hoped that, by the end of 2018, more than 41 defense conglomerates would introduce some semblance of mixed ownership reform. Only China South Industries' Automation Research group has completed this goal.<sup>52</sup> Second, there is an unwavering US commitment to dismantle MCF. US export controls imposed by the US Department of Commerce's Bureau of Industry and Security (BIS) are inhibiting Chinese firms reliant on American manufactures such as microwave integrated circuits, marine technology, syntactic foam, and so forth. Concerns about dual-use technology handed over from civilian companies to military end-users prompted the BIS to enact the "744" trade ruling.<sup>53</sup>

Private companies working in MCF also experience similar US impediments that damage revenue streams. After being indicted by the US Department of Justice in 2019 for theft of trade secrets and violation of the International Emergency Economic Powers Act of 1977, Huawei was named to the Trump administration's Entity List.<sup>54</sup> Even if these companies were to discontinue their joint ventures, US officials cite the Chinese National Intelligence Law's Article 7 as the primary reason for ensuring that Huawei and other Chinese firms remain excluded from the US economy.<sup>55</sup> Resistance to Chinese private companies also stems from shared membership with the PLA. Huawei's simultaneous employment of PLA affiliates fosters US skepticism of the company's allegiances, although the extent to which MCF influenced the hiring practices of Huawei is debatable. It is also questionable if placement of PLA personnel on the boards of China's major companies are due to MCF's will. In 2004, more than 200 presidents and vice presidents of China's top 500 companies served or worked for the PLA.<sup>56</sup> This suggests that, long before MCF, China's executive class had high numbers of transitioning PLA officers.

The United States' vehement opposition to MCF has impacted Chinese nationals as well. The enrollment of PLA-associated students in US universities elicits accusations of intellectual property theft and academic espionage. A Department of Justice official stated that more than 1,000 researchers affiliated with the PLA fled the United States in summer 2020 to avoid the DOJ's crackdown on researchers with undisclosed PLA relationships. Six PLA researchers were arrested, convicted, and subsequently sentenced for violating federal law.<sup>57</sup> Suspicions of Chinese researchers seeking to study abroad, however, are likely to continue. This negative consequence portends possible discrimination toward innocent Chinese students and professors uninvolved in MCF or in the Thousand Talents Plan.<sup>58</sup> Former secretary of state Mike Pompeo's numerous trips to Silicon Valley indicated that, even during the COVID-19 pandemic, the Trump administration wanted to focus on limiting US relationships with the PLA, whether it be through subcontractors or technology transfer agreements.

Still, MCF's progress appears somewhat optimistic. The United States' denial of visas and increased counterintelligence presence will accelerate MCF's inward focus on training the military at home. This can act as a positive incentive for MCF's steady march toward greater domestic integration of academia and the PLA. MCF has also altered a slow and laborious defense acquisitions process into a more efficient and open procurement network. One achievement is MCF's creation of China's first online military contracting portal in 2015.<sup>59</sup> Defense SOEs have promised greater outsourcing to private Chinese subcontractors, and more private entities are participating in after-market services such as military repair

and maintenance—tasks originally conducted in-house. Since 2010, the PLA has seen a 127 percent increase in Chinese defense partners developing and producing military equipment and more than 1,000 private companies actively involved in the defense industrial base compared to five years prior.<sup>60</sup> In pre-MCF times, the rate of commercialized defense science technologies in China was only 15 percent.<sup>61</sup> MCF has now showed progress in modernizing its national intellectual property system by negotiating strategic cooperative frameworks with the State Intellectual Property Office. A new Defense Industry Intellectual Property Center has emerged from this initiative and has already licensed more than 600 defense-related patents proprietary to Chinese companies.<sup>62</sup> MCF cities and demonstration bases are proliferating beyond Hubei's border toward rural zones of the nation, stimulating economic growth in noncoastal parts of the country. Baotou Industrial Park in China's Inner Mongolia region hosts more than 240 MCF projects.<sup>63</sup> Despite US pressure on MCF, China's joint ventures with other Western nations such as Germany are inarguably thriving. For example, Baotou houses multiple Sino-German joint ventures with companies including Siemens, Fritz Werner, and HESS.<sup>64</sup>

## **Conclusion**

MCF is China's largest package of reforms ever targeted at its defense industrial base, but the plan intends to accomplish more than just military modernization. MCF's other priorities are economic: a revamping of SOEs in the defense industrial base; international engagement in the defense manufacturing sector; and a foundation for domestic R&D in dual-use technology. Achieving these goals requires strong political stewardship, as well as consistent communication between the policy planners and stakeholders. The consequences of MCF's objectives include the PLA's closer collaboration with Chinese universities and an emerging private sector accommodating China's defense innovation and defense supply chain. MCF's outcome will either deliver an embarrassing blow to the CCP or create a reputation of competency that will further legitimize party leadership. Proper execution will teach valuable lessons that can be transferred to other national initiatives such as Made in China 2025 and the Belt and Road Initiative.

An essential issue that China must answer now is how MCF directly benefits the "Fifth Stakeholder," that is, China's average citizen. China confronts many issues outside the military sphere that MCF must solve indirectly. As China's population ages, Beijing will need all the money it can save to invest in a comprehensive social safety net in a post-COVID-19 world. Social programs and the government budget for the future depend on the efficiency in the public sector

promised by MCF. The effects of MCF have trickled down to the typical Chinese student in higher education. Chinese students, who represent 25 percent of the graduate student population in the United States,<sup>65</sup> may find more it more attractive to work at home due to MCF's generous research opportunities and the deterioration of Sino-American relations. In light of the fact that China's MCF poses a military threat to the United States, MCF provides further credence to the notion that China desires to modernize its military for the next conflict. In this case, the United States must pay closer attention to the progress of MCF and, if necessary, identify strategies that will safely guide US commerce and businesses from unwittingly supporting the PLA and its defense industrial base.

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Andrew Song is a senior at Yale University studying for a BA in global affairs while pursuing a certificate in energy studies. He is a Naval ROTC midshipman and has interned with the Defense Innovation Unit, the Office of the Director for National Intelligence, and National Defense University. On campus, Andrew is a board member of the Yale Executive Committee and Captain of the Yale Pistol Team. His past works have been published in *Military Review*, *The Wall Street Journal*, and the *Yale Review for International Studies*.

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