PLA's Intelligentized Warfare: The Politics on China's Military Strategy*

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Abstract

The People's Liberation Army (PLA) is becoming increasingly aware of "intelligentized warfare" as the future of warfare, through its observations of the United States' Third Offset Strategy. Against this backdrop, the Xi Jinping administration adapted the "military strategic guideline for a new era" in 2019. As the development of military intelligentization holds the key to the outcome of future wars, the PLA under the Xi Jinping administration aims to get ahead of the U.S. military in the medium-to-long term by capturing this important opportunity and anticipating the new trends of reform in the military sector. Preparations by the PLA toward intelligentized warfare will lead to changes in the organization, education, and training of military units in the future. Moreover, it is a long-term government-wide effort that includes military-civil fusion aimed at rebuilding the system for the development of science and technology for national defense. On the other hand, the shift toward intelligentized warfare is throwing up a wide range of challenges for the PLA, including short-term issues such as creating confusion in the process of military reform by the Xi Jinping administration, and long-term issues such as the relationship between the Chinese Communist Party (CCP) and the military, human resources and the lack of experience in fighting actual wars.

Introduction

This paper aims to deepen understanding of the political background behind the awareness by the PLA of the People's Republic of China (hereafter, "China") of intelligentized warfare as the future of warfare, and of the impact that this has on China's efforts to build its military forces.

The PLA published its national defense white paper, *China's National Defense in the New Era* (hereafter, "NDWP 2019"), in July 2019 for the first time in four years. This document notes that "War is evolving in form towards informationized warfare, and intelligent warfare is on the horizon," and demonstrates an awareness of the emergence of new forms of warfare.[1] According to the NDWP 2019, "Driven by the new round of technological and industrial revolution, the application of cutting-edge technologies such as artificial intelligence (AI), quantum information, big data, cloud computing and the Internet of Things (IoT) is gathering pace in the military field," creating the backdrop for the emergence of intelligentized warfare. Although the PLA has not set out an official definition for intelligentized warfare, researchers in the PLA's National Defense

* Originally published in Japanese in *Anzenhosho Senryaku Kenkyu* [Security & Strategy], vol. 1, no. 2 (October 2020). Some parts have been updated.

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1 *Xin shidai de zhongguo guofang* [China's National Defense in the New Era], The Chinese Central Government, July 24, 2019, http://www.gov.cn/zhengce/2019-07/24/content_5414325.htm.

University defines it as "integrated warfare waged in land, sea, air, space, electromagnetic, cyber, and cognitive domains using intelligent weaponry and equipment and their associated operation methods, underpinned by the IoT information system."[2]

The fact that the PLA is beginning to show awareness toward intelligentized warfare means that the PLA will review its military strategy in response to new warfare. In fact, the PLA has been building its forces in line with the "military strategic guideline for a new era" adopted in early 2019."[3] As the military strategic guideline provides unified guidance on the outline and principles for all aspects of war over the medium-to-long term, it is believed that the PLA will change its troop organization, weapons and equipment systems, and training systems going forward, based on the new military strategic guideline that supports intelligentized warfare.[4] This paper examines what intelligentized warfare is, and what impact it has on the China's building of its forces.

The Xi Jinping administration formulated "the military strategic guideline of active defense in the new situation" around the summer of 2014 based on the premise of informatized warfare. Strangely, the military strategic guideline, which is usually adjusted over an approximately ten-year period, was adjusted twice over this short period of time under the Xi Jinping administration. This is likely to be associated not only with military rationality, but also with the great-power strategy by the Xi Jinping administration. Moreover, as two-time change in the military strategic guideline was carried out during the process of large-scale military reform since November 2013, it is inevitable that this paper examines the interaction between military strategic guideline shifts and military reform. In order to understand PLA's intelligentized warfare, there will be a need to analyze debates within the PLA, as well as to discuss the political background leading to the change in the military strategic guideline and its impact on the building of China's military forces.

Concerning the intelligentized warfare, several previous studies have shed light on interesting issues and facts. However, they do not provide a full response to the problem identified above. A series of research carried out by Elsa Kania focuses on the trends for the military use of AI in China, and elucidates its relationship with China's industrial policy based on a strategy of military-civil fusion development, as well as the establishment of relevant organizations.[5] However, it would be difficult to say that they have given sufficient consideration to the PLA's discussions on intelligentized warfare. Asano Ryo, who conducted discourse analysis on China's intelligentized warfare, has pointed out the difference between the attitudes of leaderships over the approach to

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2 As this definition is the same as that set out in Discussion by Li Minhai, Professor at PLA National Defense University and Pang Hongliang, *21 shiji zhanzheng yanbian yu gouxiang Zhinenghua zhanzheng* [Evolution and Vision of Warfare in the 21st Century: Intelligentized Warfare], *Shanghai Shehui Kexue Yuan Chubenshe* [Shanghai Academy of Social Sciences Press], 2018, p. 84 published in *Jiefangjun Bao* [PLA Daily], November 6, 2018, it is deemed to be the definition that is widely accepted by the PLA Academy of Military Science.

3 *Xin shidai zhongguo guofang de zhanlue zhidao shi guanche luoshi xin shidai junshi zhanlue fangzhen* [The Strategic Guidance for China's National Defense in the New Era is to Implement the Military Strategic Guideline for a New Era], *Xinhua Wang* [Xinhua News Agency], July 24, 2019, http://www.scio.gov.cn/xwfbh/xwbfbh/wqfbh/39595/41105/zy41109/Document/1660290/1660290.htm.

4 All-Military Military Terminology Management Committee and Academy of Military Science, *Zhongguo renmin jiefangjun junyu* [People's Liberation Army Military Terminology], *Junshi Kexue Chubanshe* [Military Science Press], 2011, p. 52.

5 Elsa B. Kania, "Battlefield Singularity: Artificial Intelligence, Military Revolution, and China's Future Military Power," Center for a New American Security, November 2017; Elsa B. Kania, "Chinese Military Innovation in Artificial Intelligence," in Testimony before the U.S.–China Economic and Security Review Commission Hearing on Trade, Technology, and Military-Civil Fusion, June 7, 2019.

intelligentized warfare.[6] Furthermore, Momma Rira points out the characteristics of intelligentized warfare that accelerate the speed of military operations and expand the defense area, which leads the PLA to be more offensive in its strategic ideology of "active defense."[7] While both of these studies raise interesting points, they do not pay attention to clarify the political background for the adoption of the new military strategic guideline, which is an indispensable element for understanding the PLA's military development.

With regard to the military strategic guideline, there is a need to touch on the important research carried out by Taylor Fravel on the historical development of China's military strategy, even though the research does not discuss intelligentized warfare.[8] According to Fravel, the shift in military strategy can be classified based on the major and small changes that are dependent on the extent of changes to the PLA. He asserts that major change in military strategy contains two components: (1) the strategy articulates a new vision of warfare and a call for change in how a military prepares to fight in the future, and (2) the new strategy must require some degree of organizational change from past practices, including operational doctrine, force structure, and training[9]. In order to assess whether the adoption of the military strategic guideline constitutes a major change or not, there is a need to review the relatively long-term processes with regard to the PLA's awareness and organizational changes.[10] For this reason, it is still too early to assess if the changes that (could possibly) arise as a result of the adoption of the "military strategic guideline for a new era" correspond to the major changes in military strategy that Fravel defines. The purpose of this paper is not to make this assessment, but to shed light on the political background and direction for the adoption of a military strategic guideline based on intelligentized warfare. On the other hand, the adoption of the "military strategic guideline for a new era" holds the potential for such a major change. This is because, as this paper clarifies, before and after the adoption of this military strategic guideline, firstly, a change in awareness of the forms of war can be observed in the PLA, and secondly, major changes in the force structure and training can already be observed in Xi Jinping's military reform. In addition, in the educational aspect, a new military education policy has been launched based on the military strategic guideline for a new era. In these respects, the analysis in this paper presents some materials for Fravel's discussion.

This paper discusses the relationship between military reform and the political background leading to the shift in the military strategic guideline, through an analysis of the debates on intelligentized warfare within China. To that end, this paper is organized as follows. Section 1 analyzes the process through which the PLA came to an awareness of intelligentized warfare and the logic behind the building of military forces in Xi Jinping's great power strategy. This section demonstrates that the Xi Jinping administration's perception of the United States had a significant impact on the adoption of the military strategic guideline. Next, Section 2 looks at the

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6 Asano Ryo, "Chugoku no Chinoka Senso" (China's Intelligentized Warfare), *Defense Studies Number 62*, March 2020, pp. 19-41.

7 Momma Rira, "China's Preparations for Informatized Warfare," *NIDS China Security Report 2021*, The National Institute for Defense Studies, 2020, pp. 6-17.

8 M. Taylor Fravel, *Active Defense: China's Military Strategy since 1949* (Princeton: Princeton University Press, 2019).

9 Ibid., pp. 11-12.

10 Yatsuzuka Masaaki, "Book Review: M. Taylor Fravel, *Active Defense: China's Military Strategy since 1949*," *AZIYA KENKYU (Asian Studies) Vol. 65 Issue 4*, Oct. 2019, pp. 46-50.

discussions taking place within the PLA with a view to intelligentized warfare, and discusses the various measures put in place by the Chinese government. Specifically, in addition to introducing the discussions in the PLA on the characteristics and outlook for intelligentized warfare, this section also reviews the organizations and measures related to the development of military intelligentization, and discusses its relationship with Xi Jinping's military reform. Finally, section 3 seeks to establish clearly the medium-to-long term issues that the PLA will face in the future.

This paper attempts to deduce the stance of the Xi Jinping administration and the awareness of the PLA mainly through an interpretation of editorial articles in the *People's Liberation Army Daily*, the newspaper of the PLA, as well as books and papers written by members of the CCP, government, and military.

1. Political Background behind Adopting the Military Strategic Guideline for a New Era

This section reviews the political background behind the military strategic guideline that has been newly adopted by the PLA. In order to understand this political background, there is a need to analyze both the process for the development of the PLA's awareness of the forms of war, as well as the logic behind the development of force by the Xi Jinping administration. The following presents a brief verification of the PLA's understanding of war and the changes to the military strategic guideline, then reviews the process in which the awareness of the need to respond to intelligentized warfare permeates the consciousness of the PLA, with a view to shedding light on how the development of military intelligentization is positioned within Xi Jinping's great power strategy.

(1) Changes in the PLA's Military Strategy

According to the PLA's dictionary of military terminology, *CPLA Junyu*, the definition of military strategic guideline is "a unified guidance on the outline and principles for all aspects of war for a certain period of time. It constitutes the core of the military strategy. It can be categorized into a guideline that summarizes all the aspects and processes of the overall policy of military action, and a guidance for the different stages and scopes of the specific guidelines for military action."[11]

Looking back on the history, the PLA has consistently changed its military strategy in response to the forms of war and the environment. During Mao Zedong's era, its military strategy aimed to win the "people's war." The concern of this protracted battle was to entice stronger opponents such as the Kuomintang (the Chinese Nationalist Party) and the Imperial Japanese Army, the United States and the Soviet Union, deep into the PLA's own territories. During Deng Xiaoping's era, in contrast with the "people's war" theory of Mao's era, its awareness of the forms of war changed to that of a "people's war under modern conditions," which places the emphasis on defense from areas outside the border for the purpose of national defense. In 1980, a new military strategic guideline was adopted in the process of this shift from Mao Zedong's "people's war" to Deng Xiaoping's "people's war under modern conditions."

During the period of the Jiang Zemin administration after the end of the Cold War, the PLA drew lessons from the U.S. army's operation in the Gulf War and analyzed the impact that

[11] All-Military Military Terminology Management Committee and Academy of Military Science, *Zhongguo renmin jiefangjun junyu* [People's Liberation Army Military Terminology], *Junshi Kexue Chubanshe* [Military Science Press], 2011, p. 52

the development of advanced technology has on war. Based on that, the PLA began to look for a strategy for the new form of war, amidst growing emphasis on economic development under the reform and open policy, the Chinese government aimed to win local wars rather than full-scale wars. Thus, a military strategic guideline focusing on "local wars under high-tech conditions" was adopted in 1993. Following that, information technology developed dramatically at the start of the 21st century, and attention was placed on the central role that information systems play in connecting various equipment, military branches, and the chain of command. As a result, a military strategic guideline for "local wars under conditions of informatization" was adopted in 2004 under the Hu Jintao administration, and the PLA has developed its informatization under the guideline.

The Xi Jinping administration has already adopted a military strategic guideline twice. In the summer of 2014, two years after the inauguration of the administration, the expression of war was changed subtly from "local wars under conditions of informatization" to "informatization wars" alongside the adoption of "the military strategic guideline of active defense in the new situation."[12] Then, the awareness of the form of war in the 2015 NDWP, as indicated by the text "The form of war is accelerating its evolution to informationization," was updated in the 2019 NDWP to "War is evolving in form towards informationized warfare, and intelligent warfare is on the horizon." At the same time, the military strategy that should be followed was changed from "military strategic guideline of active defense in the new situation" to "military strategic guideline for a new era." The expression "military strategic guideline for a new era" first began to appear in government-affiliated media, the *People's Liberation Army Daily*, after Xi Jinping spoke about the "military strategic guideline for a new era" at a meeting of the Central Military Commission (CMC) on military work held on January 4, 2019.[13] It is likely that the new military strategic guideline was adopted either at this meeting, or at the expanded meeting of the CMC held around the same time.

After the announcement of the NDWP in July 2019, Major General Cai Zhijun, deputy director general of the Operation Bureau of the Joint Staff Department under the Central Military Commission, acknowledged the change to "military strategic guideline for a new era" at a press conference held after the announcement of the NDWP. Cai also declared that eight major adjustments had been made to the military strategic guideline to date, and that these adjustments usually occurred at a period of about eight to ten years. This is generally in line with the changes to the military strategy that we have already seen.[14] In view of the fact that the last time a military strategic guideline was adopted was around the summer of 2014, the Xi Jinping administration, unlike the customary practice, had made changes to the military strategic guideline in less than five years. The following sheds light on this political background, taking hints from the process in which the PLA became more deeply aware of intelligentized warfare as well as how the building of PLA forces is positioned within Xi Jinping's great power strategy.

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12 Fravel, *Active Defense*, p. 233.

13 *Xi Jinping chuxi Zhongyang junwei junshi gongzuo huiyi bing fabiao zhongyao jianghua* [Xi Jinping Attended the Central Military Commission's Meeting and Delivered an Important Speech], *Xinhua Wang* [Xinhua News Agency], January 4, 2019, http://www.xinhuanet.com/politics/leaders/2019-01/04/c_1123949510.htm.

14 *Xin shidai zhongguo guofang de zhanlue zhidao shi guanche luoshi xin shidai junshi zhanlue fangzhen* [The Strategic Guidance for China's National Defense in the New Era Is to Implement the Military Strategic Guideline for a New Era], *Xinhua Wang* [Xinhua News Agency], July 24, 2019, http://www.scio.gov.cn/xwfbh/xwbfbh/wqfbh/39595/41105/zy41109/Document/1660290/1660290.htm.

(2) Awareness of Intelligentized Warfare within the PLA

"Intelligentized warfare" is not a new term. Researchers in the PLA has been strong interested in the unmanned aircraft operated by the U.S. military in Afghanistan and Iraq since the first half of the 2000s, and used "intelligentized warfare" to described the future warfare since around the same time.[15] However, such discussions only took place among some researchers, and discussions about intelligentized warfare did not expand to the level of the PLA leadership. There has been a growing number of discussions within the PLA on the development of military intelligentization and intelligentized warfare since around the mid-2010s.

Initiatives related to the military innovation in the United States are likely to have had a significant impact on this spread of awareness of intelligentized warfare within the PLA. In particular, the United States' Third Offset Strategy was the trigger that had a major impact on the PLA's understanding of war. In November 2014, then-U.S. Secretary of Defense Chuck Hagel launched the Department of Defense's Defense Innovation Initiative (DII) and set out the policy for the creation of the Third Offset Strategy.[16] The Offset Strategy refers to a strategy for creating deterrence by combining weapons, systems, and tactical concepts in new forms to offset the military advantage that the opponent has and to secure surplus military capabilities.[17]

Commentaries by PLA researchers concerning the United States' Third Offset Strategy began to emerge from early 2015, two months after Hagel's address. The first focus of these commentaries was that advanced technology such as AI was positioned at the center of the DII in the Third Offset Strategy. For example, Tong Zhen, research fellow at the PLA Academy of Military Science, pointed out that the core of the Third Offset Strategy lies in the development of game-changing, advanced technological weapons.[18] In addition, the 2016 report published by the China Defense Science and Technology Information Center states that, with the advancement of this strategy, the change from informatized warfare to intelligentized warfare is likely to pick up pace.[19] In short, the PLA recognized that the United States, through its Third Offset Strategy, was calling for new reform of military affairs centered on the development of military intelligentization.[20]

The second focus of commentaries by the PLA was on the impact that the Third Offset Strategy has on China's strategic environment. A certain commentary in the *People's Liberation Army Daily* points out that the United States' Third Offset Strategy was established against the background of growing unease and anxiety in the United States over the rise of China, and that its primary purpose is to restrain China's development and protect the global hegemony of the United States.[21] Furthermore, there are also discussions, such as those by researchers from the Naval Aviation University in recent years, which express a clearer sense of caution that the

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15 For example, *Jiefangjun Bao* [PLA Daily], April 30, 2009.

16 Memorandum from the Secretary of Defense to the Deputy Secretary of Defense et al.,"The Defense Innovation Initiative," United States Department of Defense, November 15, 2014, https://archive.defense.gov/pubs/OSD013411-14.pdf.

17 Mori Satoru, "The United States' Offset Strategy and Defense Innovation Initiative," *Domestic Factors Influencing US Foreign Policy*, The Japan Institute of International Affairs, 2016, p. 53.

18 *Jiefangjun Bao* [PLA Daily], January 16, 2015.

19 China Defense Science and Technology Information Center, *Guofang keji fazhan baogao (zonghe juan)* [National Defense Science and Technology Development Report, Comprehensive Volume], Guofang Gongye Chubanshe [National Defense Industry Press], 2016, p. 235.

20 *Jiefangjun Bao* [PLA Daily], September 5, 2017.

21 *Jiefangjun Bao* [PLA Daily], May 4, 2016.

United States' Third Offset Strategy represents an unprecedented challenge to the development of the PLA.[22]

Since the United States has launched Third Offset Strategy as an attempt to military innovation through military use of cutting-edge technology with a view to long-term military competition with China, various research activities have been observed within the PLA on the development of military intelligentization. In June 2016, a discussion was held on "research on complex war systems in the era of Big Data" by an academic study group on war complexity and informatized war models, at the PLA National Defense University.[23] Moreover, when the revised edition of *Zhanluexue* ("Science of Military Strategy"), which is an authorized textbook in the PLA, was published by the PLA National Defense University in 2017, "military competition in intelligent domains" was added as new content.[24] The PLA has transformed its own understanding of war by observing the changes to the United States' strategy.

(3) Great Power Strategy and the Intelligentized Warfare

Next, I shall look at how the Xi Jinping administration positions the development of military intelligentization within the policy for the building of the PLA forces. As the following shows, these points are considered to be closely associated with this shift in the military strategic guideline: firstly, the Xi Jinping administration places emphasis on promoting science and technology as a means for achieving the long-term goal of strengthening national power; secondly, Xi Jinping possesses strong political leadership over the military; and, thirdly, the Xi Jinping administration has a heightened sense of caution over strategic competition between the States and China.

The emphasis that the Xi Jinping administration places on science and technology has been particularly notable since the inauguration of the administration. At the 9th group study session of the Political Bureau of the Central Committee held in September 2013, Xi Jinping stated that the implementation of a development strategy led by innovation will determine the future fate of the Chinese people.[25] The emphasis placed by the Xi Jinping administration on promoting science and technology is backed by the recognition of the need to ensure continued national development through "the building of an innovation-driven nation" in order for the Chinese economy to move from its present stage of rapid development to a stage of quality development, in anticipation of a "new normal" based on the premise of a decline in the working population alongside an ageing population and declining birth rates.[26] We can say that the Xi Jinping administration is increasingly positioning the strategy of developing a powerful nation through science and technology as an important constituent element for securing the legitimacy

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22 Ding youbao, Peng Zhigang, and Zhang Hongqun, *Zhinenghua zhanzheng ji jundui zhanlue tuijin yu fazhan* [Intelligentized Warfare and Army Strategy Advancement and Development], *Guofang Keji* [National Defense Science & Technology], no.4, vol.40 (August 2019), p. 6.

23 It is said that more than 200 experts, including officials from the Central Military Commission, attended this meeting. Guo Ruobing, Si Guangya, He Xiaoyuan, *Yingjie zhinenghua shidai junshi zhihui mianlin de xin tiaozhan* [Meet New Challenges to Military Command in the Intelligence Era], *Zhongguo Junshi Kexue* [China Military Science], vol.5 (2016), pp. 149-156.

24 Kania, "Chinese Military Innovation in Artificial Intelligence," p. 5.

25 CCCPC Party Literature Research Office, *Xi Jinping guanyu keji chuangxin lunshu zhaibian* [Excerpts of Xi Jinping's Remarks on Scientific and Technology Innovation], *Zhongyang Wenxian Chubanshe* [Central Party Literature Press], 2016, p. 25.

26 *Zhongguo Guofang Bao* [China National Defense Daily], October 19, 2017.

of the governance by the CCP.

The science and technology that is being emphasized as the core of this strategy is the so-called "intelligentized technology" that will drive the fourth industrial revolution. These include AI, quantum information, Big Data, cloud computing, and IoT. In the 13th Five-Year Plan for Economic and Social Development, which spans the period from 2016 to 2020, the Xi Jinping administration positioned the intelligent manufacturing sector as one of the core technologies that should be developed in the future.[27] In addition, the State Council drafted the "New Generation Artificial Intelligence Development Plan" in July 2017, which sets out the strategic goals related to AI development in the years leading to 2030.[28]

The emphasis that the Xi Jinping administration placed on science and technology was also prominent in the military aspect. In his speech at the 19th National Congress of the Chinese Communist Party (19th NCCCP) held in October 2017, Xi Jinping established that "technology is the core combat capability, so we will encourage innovations in major technologies, and conduct self-innovations. We will strengthen the system for training military personnel, and build innovation-driven forces," with the long-term goal of making the PLA "world-class forces" by the mid-21st century.[29] These remarks by Xi Jinping are likely to have stemmed from the awareness that the key to overcoming the PLA's military inferiority, in comparison with the U.S. military, lies in strengthening its military capability with a focus on science and technology.

Furthermore, against the backdrop of the rapid deterioration of U.S.-China relations after the establishment of the Trump administration, the Xi Jinping administration is beginning to respond to the long-term strategic competition between the United States and China. In his report at the 19th NCCCP, Xi Jinping also stated that the world order is currently going through a period of flux, stating that "The world is undergoing major developments, transformation, and adjustment, but peace and development remain the call of our day. […] as a world we face growing uncertainties and destabilizing factors. […] As human beings we have many common challenges to face."[30] In addition, as the decoupling of the United States and China becomes a growing reality with the intensification of economic conflict between the two countries, Xi Jinping said on a visit to Guangdong Province in October 2018 that the starting point of the struggle by the Chinese people is self-reliance, and that independent innovation is the path that leads to the pinnacle of science and technology in the world. In this sense, he demonstrated an eagerness to develop science and technology for self-reliance, in preparation for a long-term conflict between the United States and China.[31] Coupled with this sense of crisis is another aspect, set out in the national industrial policy, *Made in China 2025*, which attempts to make Chinese corporations in key industries, including the

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27 State Council, *Zhonghua renmin gongheguo guomin jingji he shehui fazhan di shisan ge wunian guihua gangyao* [Outline of the 13th Five-Year Plan for Economic and Social Development of the People's Republic of China], March 17, 2016,

28 *Guowuyuan guanyu yinfa xin yidai rengong zhineng fazhan guihua de tongzhi* [Notice of the State Council on Printing and Distributing a New Generation of Artificial Intelligence Development Plan], The Chinese Central Government, July 8, 2017, http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm.

29 *Zhongguo Guofang Bao* [China National Defense Daily], October 19, 2017.

30 Ibid.

31 *Xi Jinping zai guangdong kaocha* [Xi Jinping's Inspection Tour to Guangdong Province], The Ministry of National Defense of the People's Republic of China, October 25, 2018, http://www.mod.gov.cn/topnews/2018-10/25/content_4827875.htm.

intelligent manufacturing sector, improve their ability to guarantee autonomy.[32]

In view of the Xi Jinping administration's strategy to build a powerful nation that was driven by this sense of crisis, the aforesaid discussions on developing military intelligentization within the PLA were certainly welcomed. Zhang Shibo, who served as the Principal of the PLA National Defense University from 2014 to 2017, points out that it is impossible to stop the momentum toward the revolution to develop military intelligentization, and that this situation presents a rare historic opportunity for the PLA to achieve dramatic growth and overtake its opponents at this turning point.[33] In other words, as the outcome of future wars is dependent on the military application of such advanced technologies, he believes that the PLA may be able to overtake the U.S. military by capturing this important opportunity and anticipating new trends in military reform amidst the intensification of U.S.-China conflict. This is precisely the logic behind the promotion of the development of military intelligentization in the PLA by the Xi Jinping administration. Thus, Xi Jinping raised the subject of advancing the development of military intelligentization at the 19th NCCCP.[34] In short, with the intensification of the U.S.-China conflict, he indicated that the PLA will adopt the achievements of science and technology at an early stage, including the development of military intelligentization, in order to build a world-class force that is on par with the U.S. military.

Triggered by Xi Jinping's mention, at the 19th NCCCP, of the development of military intelligentization founded on authority in the military, military leaders including Xu Qiliang, Vice Chairman of the Central Military Commission, have also begun to talk about the development of military intelligentization.[35] Similarly at the 19th NCCCP, Liu Guozhi, Chairman of the CMC Science and Technology Commission, said that accelerating the development of military intelligentization provides China with the strategic opportunity to overtake its opponents at a turning point. His words appeared to complement Xi Jinping's remarks on the same occasion. He expressed that AI accelerates the process of military reform and brings about fundamental changes to the generative model for troop organization, operational style, equipment systems, and combat power, thereby suggesting that the introduction of AI will have significant impact on the way that the PLA operates in the future.[36]

On the other hand, while there is no doubt that there is general consensus within the PLA about advancing the development of military intelligentization, it should also be noted that there may be some doubts and resistance toward the rapid transition to intelligentized warfare. Firstly, the PLA may not necessarily be able to fight intelligentized warfare in one stride. As Xi Jinping himself suggested at the 19th NCCCP by establishing the goal of basically realizing mechanization in 2020 and achieving significant progress in informatization, the PLA is finally at a stage of

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32 Yatsuzuka Masaaki , Iwamoto Hiroshi, "China's Military-Civil Fusion Strategy," *NIDS China Security Report 2021*, National Institute for Defense Studies, 2020, pp. 59-60.

33 Zhang Shibo, *Zhanzheng xin gaodi* [New Highland of War], *Guofang Daxue Chubanshe* [National Defense University Press], 2016, p. 288.

34 *Zhongguo Guofang Bao* [China National Defense Daily], October 19, 2017.

35 In the *People's Liberation Army Daily*, Xu Qiliang spoke about capturing the direction for the development of an intelligent military, which is an important development. *People's Liberation Army Daily*, November 14, 2017.

36 Liu Guozhi, Rengong zhineng jiang jiasu junshi biange jincheng [Artificial Intelligence Will Accelerate the Process of Military Transformation], *Xinhua Wang* [Xinhua News Agency], March 8, 2017. http://www.xinhuanet.com/mil/2017-03/08/c_129504550.htm.

achieving mechanization. In fact, the expression "integrated development of mechanization, informatization, and intelligentization" also began to emerge from around the time when the NDWP was released.[37] A certain commentary pointed out that "it does not mean at all that we do not need mechanization and informatization," suggesting that there are also discussions advocating that the move toward "intelligentization" should not signify a rejection of the moves toward mechanization and informatization that have been undertaken so far.[38] Intelligentized warfare is ultimately warfare of the future, so there is a need to put in place steady efforts that do not reject the achievements that have been made to date. At a group study session of the Central Politburo of the CCP held on July 31, 2020, Xi Jinping used the words "accelerate the integrated development of mechanization, informatization, and intelligentization." This can also be perceived as an expression that takes such views into consideration.[39]

Secondly, the Xi Jinping administration made an announcement on military reform in November 2013, and has taken decisive action to undertake large-scale structural reform with a view to completion in 2020. There are likely to be discussions on how this military reform is linked to preparations for intelligentized warfare. The Xi Jinping administration has adjusted the military strategic guideline twice in the process of this military reform. One can well imagine that the change in the military strategic guideline during the course of military reform, in order to take the concept of intelligentized warfare into account, will create some confusion for a military reform that has until then been implemented for the purpose of winning informatized wars. The *People's Liberation Army Daily* published commentaries cautioning against the hasty transition to intelligentized warfare, in light of reasons such as risks from the underdeveloped discrimination ability of AI, vulnerabilities to cyber and electromagnetic attacks, and inadequate theoretical research on the continuity from informatized warfare.[40] As discussed in the next section, in reality, this change of strategy appears to have impacted the formulation of ordinances and fundamental principles related to organizational restructuring and military strategy.

Based on the contents in this section, we can say the following about the background to China's adoption of the "military strategic guideline for a new era" based on the premise of intelligentized warfare. Discussions took place within the PLA, at the researcher level, on the need to develop military intelligentization in response to the United States' announcement of the Third Offset Strategy. This awareness of the PLA was welcomed by the Xi Jinping administration, which aims to build "world-class forces" through the military use of cutting-edge technology in its long-term strategy to build a powerful nation. Hence, it spread widely, including among PLA leaders, as the official stance. Furthermore, we can say that the adoption of this military strategic guideline was greatly influenced by the international environment, in the sense of the deteriorating relations between the United States and China. In other words, as the Xi Jinping administration made preparations for long-term strategic competition with the United States, the PLA deepened its awareness of intelligentized warfare through observations of the United States' strategy, and consequently changed its own military strategic guideline.

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37 *Jiefangjun Bao* [PLA Daily], September 12, 2019

38 *Jiefangjun Bao* [PLA Daily], August 12, 2020.

39 *Jiefangjun Bao* [PLA Daily], August 1, 2020.

40 For example, *Jiefangjun Bao* [PLA Daily], May 19, 2016; November 21, 2017; February 27, 2020.

2. Discussions/Measures/Organizations for the Move toward Intelligentized Warfare

As we have seen in Section 1, while the PLA under the Xi Jinping administration established the policy of advancing preparations toward intelligentized warfare, discussions are ongoing within the PLA even now on how intelligentized warfare differs from the preceding informatized warfare, and on how the organization, training, and education of the military can be made to adapt to that. Based on this, I shall examine the discussions on intelligentized warfare and the related measures in the following section.

(1) Characteristics of Intelligentized Warfare

Is the PLA aware of how warfare will change as a result of intelligentized warfare? While various discussions are now ongoing within the PLA, I shall look at the characteristics of intelligentized warfare while taking reference from the opinions of researchers from the PLA Academy of Military Science, who organized the changes from informatized warfare into four main points.[41]

The first point is the development of sensing and information processing (intelligence) technologies across all dimensions. Information gathering is the bottleneck that places constraints on reconnaissance and monitoring capabilities in informatized warfare. However, in the case of intelligentized warfare, this bottleneck would be information processing. In intelligentized warfare, it is important to process a wide range of information data, including images, text, videos, and codes captured in various dimensions such as space, air, and land. Technologies such as Big Data analysis, AI, and image recognition are key to this information processing capability. This information processing capability is said to be the core element that affects victory or loss in intelligentized warfare. In this regard, Wang Peng, Deputy Chief of Staff of the General Staff Department of the Army in the Eastern Theater Command, points out that it is important to capture the "intelligence dominance," which commands control of the intelligent domains.[42] AI provides the foundation for intelligentized warfare; in military operations, capturing and weakening the opponent's intelligent operation capability will secure the freedom of one's own intelligent operations, which in turn makes it possible to carry out intelligent military operations without delay.[43]

The second point is swift decision-making through cloud control and AI. In informatized warfare, decision-making is still carried out through human thinking; in intelligentized warfare, decision-making is carried out through integration with the collective intelligence on the cloud. As the speed of military operations will accelerate on multiple dimensions in future wars, it will be necessary to make decisions with accuracy and agility. Thus, by applying advanced computing capabilities, AI, machine learning, and game theory to decision-making, it will be possible to control the cloud and achieve swift decision-making in the land, sea, air, space, and cyberspace domains.

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41 Yang Yi and Ren Huiqi, *Zhinenghua zhanzheng tiaojian xia guofang gongcheng jianshe gouxiang* [Conception of National Defense Engineering Construction under the Condition of Intelligentized Warfare], *Fanghu gongcheng* [Defense Engineering], vol.40, no.6, December 2018, pp. 65-69.

42 Wang Peng, *Bawo zhinenghua zhanzheng tedian guilyu tuidong zhinenghua xunlian chuangxin fazhan* [Understanding the Principles of the Characteristics of Intelligentized Warfare and Promoting the Development of Intelligentized Training Innovation], *Guofang keji* [National Defense Technology], vol.40, no.1, February 2019, pp. 1-4.

43 *Jiefangjun Bao* [PLA Daily], July 26, 2018.

The third point is community ("swarm") collaboration and "smart" offensive. While the focus is placed on enhancing strike precision to improve offensive capability in informatized warfare, it is important in intelligentized warfare to enhance collaboration with intelligent "swarms." The development of AI, cyber technology, control technology, and unmanned technology has contributed to the advancement of "swarm" offensive and corresponding forms of defense tactics. Hence, it will be important to consider how the respective intelligentized elements can conduct tactical missions independently and in collaboration with one another.

The fourth point is offense and defense in all dimensions, and determining victory and loss through intelligentization. In informatized warfare, the main battlefields are concentrated in the physical domain; in intelligentized warfare, however, in addition to physical domains such as land, sea, air, and space, the battle will also spread to non-physical domains such as cognitive, social, and cyber domains. Furthermore, with the development of computer networking technology, competition in the cognitive domain will intensify such that the cognitive domain will become the next most important battlefield after the physical and information domains. Concerning this point, PLA personnel have also been observed to engage in discussions on whether the emphasis should be placed on psychological warfare and cognitive opposition (opposition in the cognitive domain) in intelligentized warfare.[44]

If these characteristics were to become manifest in a real war, it will likely be necessary to make major changes to operational doctrine, equipment systems, force structure, and training in the process of transitioning from informatized warfare to intelligentized warfare. Of course, such changes will become apparent gradually, over a long period of time. To begin with, according to the timeline set out by Xi Jinping for the building of the PLA, mechanization would be achieved and dramatic progress made in informatization by 2020. Rather than becoming military intelligentization, the PLA is now finally in the process of completing its mechanization and on the path toward informatization. Cai Mingchun and Lu Shoukun from the Beijing Institute of Electronic System Engineering have categorized the progress of intelligentized warfare into three stages, as shown in Table 1. According to their predictions, the shift to intelligentized warfare will take place over the next 30 years. While this is only one example, the PLA's preparations for intelligentized warfare are probably advancing based on such discussions among experts. If this were the case, concrete changes to the operational doctrine, force structure, and training toward intelligentized warfare are likely to take a considerable amount of time to become apparent.

(2) Initiatives and Organizations

What impact does the shift to a military strategic guideline that focuses on intelligentized warfare have on the policy for building military forces? To shed light on this point, there is a need to review the relationship with the large-scale military reform that the Xi Jinping administration has been implementing since the end of 2013. Of particular note is the fact that the shift in the military strategic guideline to support intelligentized warfare took place after the implementation of a radical organizational reform that continued until 2016, described as "above the neck" military reform. As an example for verifying the impact that preparations for

[44] For example, *Jiefangjun Bao* [PLA Daily], January 2, 2020.

Table 1. Process for the Development toward Intelligentized Warfare

Initial stage (–2020)
AI technology will primarily be applied to equipment, toward the main goals of developing intelligentized equipment, automating command, and developing tactical systems. Along with improving operational capability through the upgrading and refurbishing of existing equipment, a substantial degree of AI technology will also be introduced to equipment that is partially new (in particular, systems to support decision-making). As for conventional weapons, precision guidance capability will be improved, and progress will be made in the development of multitasking intelligent weapons. Reliance on humans will be reduced significantly, while cost performance will improve.
Intermediate stage (–2030)
With the main goals of achieving unmanned operations on the battlefield through the automation of equipment, integration of military forces, and increased collaboration between humans and machines, highly autonomous joint operations by a wide range of unmanned systems and unmanned equipment, as well as close collaboration between manned systems and unmanned systems, will be realized. AI will be introduced to all areas, extending to attack and defense systems, and the form of war will change gradually to intelligentized warfare.
Advanced stage (–2045)
Multilayered intelligentized management will be realized for all government resources and elements. Swift interlocking organizations and close collaboration will be established for diverse military forces and tactical elements, such as land, sea, air, space, cyberspace, and electromagnetic space.

Source: Cai Mingchun and Lyu Shoukun, *Zhinenghua zuozhan xingtai ji zhicheng jishu tixi* [Forms of Intelligentized Operations and Support Technology System], *Guofang Keji* [National Defense Science & Technology], no.38, vol.1 (February 2017), p.95.

intelligentized warfare have on the process of military reforms by the Xi Jinping administration, I have set out three elements—promotion of military-civil fusion, combat forces, and research, education and training—that constitute a part of the rebuilding of the national defense technology development system, and I shall look at the representative initiatives and organizations related to intelligentized warfare.

a) Military-Civil Fusion

With regard to the system for the development of national defense technology, in preparing for intelligentized warfare, it is important to build a system for developing advanced technology that is highly universal and applicable to both the military and civil sectors. In particular, in the national defense science and technology industry, there is a need to establish a "civilian participation in the defense industries" system for the flexible and rapid diversion of a broader range of civilian technological innovation to military use, including innovation from start-up enterprises and research institutes that are conducting research on the latest technologies.[45] From this perspective, the Military-Civil Fusion (MCF) development strategy, which the Xi Jinping administration has been promoting as a national strategy since 2015, will become increasingly important. The MCF development strategy aims to strengthen military strength and realize national promotion by linking the military with economic society.[46] This strategy is a long-term initiative that not only involves the PLA, but also the CCP and government, as well as society. At the first general meeting of the Central Commission for Military-Civil Fusion Development held

[45] Wu Mingxi, *Zhinenghua zhanzheng - AI junshi changxiang* [Intelligent Wars], *Guofang gongye chubanshe* [National Defense Industry Press], 2020, pp. 62-74.

[46] Yatsuzuka, Iwamoto, "China's Military-Civil Fusion Strategy," p. 56.

in June 2017, five domains were established as priority areas for military-civil fusion.[47] These are maritime, space, cyberspace, biology, and new energy. However, after the 19th NCCCP when Xi Jinping spoke about the development of military intelligentization, Jin Zhuanglong, Executive Deputy Director of the Office for the Central Commission for Military-Civil Fusion Development, added AI as a priority area for MCF development in a certain commentary, suggesting that minor changes had been made to the priority areas for MCF development to support preparations for intelligentized warfare.[48]

With regard to organizations directing the MCF development strategy, the Central Commission for Military-Civil Fusion Development established in January 2017 is a powerful party organization that oversees and supervises the strategy. Within the PLA, the CMC Science and Technology Commission and the Steering Committee on Military Scientific Research (the latter of which was newly established in 2017), in cooperation with the CMC Equipment Development Department, promote the development of weapons using advanced technology, while the CMC Strategic Planning Office Military-Civil Fusion Bureau is believed to be responsible for reflecting military technological development projects into long-term economic plans.[49] In the State Council, the Military-Civil Fusion Promotion Officer under the Ministry of Industry and Information Technology is believed to be engaged in coordination related to MCF. In addition, the respective municipal governments also formulate their own MCF development strategies and promote the construction of "national military-civil fusion innovative model districts." The initiatives that are expected to be implemented in these model districts include attracting corporations such as AI-related manufacturing industries to partake in the military market and providing them with subsidies, and the sharing of large-scale research facilities. Concrete measures have also been put in place as a part of this policy. For example, regulations related to entry into the military market, known as the "four certificate" system for military enterprises, were significantly relaxed in 2015 and 2017 to enable start-up enterprises and a wide range of other companies to partake in the military market. In this way, China is developing a national defense science and technology development system that strongly mobilizes social capital and straddles the CCP, government, military, and local governments.

b) Combat Forces

Next, the Strategic Support Force (PLASSF), newly established at the end of 2015, is perceived to be a core combat force related to intelligentized warfare. In the NDWP 2019, "new technology testing" was included as one of the roles of this unit in addition to other roles such as information security. It also stated, "In line with the strategic requirements of […] aligning civil and military

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47 *Xi Jinping zhuchi zhaokai zhongyang junmin ronghe fazhan weiyuanhui di yici quanti huiyi* [Xi Jinping Presided over the First Plenary Meeting of the Central Commission for Development of Military-Civil Fusion], The Chinese Central Government, June 20, 2017, http://www.gov.cn/xinwen/2017-06/20/content_5204059.htm.

48 Jin Zhuanglong, *Kaichuang xin shidai junmin ronghe shendu fazhan xin jumian* [Opening Up a New Phase of Deeper Development of Military-Civil Fusion in the New Era], *Xinhua Wang* [Xinhua News Agency], July 16, 2018, http://www.xinhuanet.com/politics/2018-07/16/c_1123133733.htm.

49 Kazama Takehiko, "China's Strategy for Acquiring Technology—Utilization of Military-Civil Fusion and the Related Policies (2)," *CISTEC Journal No. 181*, May 2019, pp. 313-314.

endeavors, the PLASSF is seeking to achieve big development strides in key areas and accelerate the integrated development of new-type combat forces […]" Here, "new-type combat forces" is believed to include combat forces in the areas of cyberspace and electromagnetic domain, as well as AI-driven intelligent weapons and equipment.[50] Research and development teams for unmanned aircraft and intelligent weapons are also being established successively in the respective military branches, and various research projects are being implemented.[51]

c) Research, Education and Training

As a part of the military reform that is being carried out under the Xi Jinping administration, a new military academy system was established with the PLA Academy of Military Science, PLA National Defense University, and the National University of Defense Technology positioned at the top of the structure. Amidst this organizational restructuring, new organizations related to intelligentized warfare are successively being established within these research institutes. For example, the National Defense Science and Technology Innovation Research Institute was established under the PLA Academy of Military Science in September 2017, while the National University of Defense Technology and PLA National Defense University are also conducting research and education related to intelligentized warfare through the College of Intelligence Science and Technology and the scientific research department respectively. The leaders of such research institutes are also seen to be people who place importance on the military use of advanced technology. For example, Yang Xuejun, who was originally a supercomputer researcher, previously served as the President of the National University of Defense Technology from 2011, but was transferred to the PLA Academy of Military Science in 2017 under the Xi Jinping administration. In 2019, he was promoted to the rank of Major General.

In the educational aspect, Xi Jinping set out "the military education policy in the new era" at a meeting of the Presidents of all military academies held on November 27, 2019.[52] This military education policy calls for the acceleration of processes for the fusion and development of mechanization, informatization, and intelligentization of the PLA. In this respect, it is believed to be based on the "military strategic guideline for a new era."[53]

On the other hand, the situation differs slightly with regard to training. In January 2018, provisional regulations for the military training of the PLA were revised and enforced for the first time in 17 years, while the outline for military training was revised in February 2018 for the first time in a decade. However, according to the Training and Administration Department of the CMC, both of these documents were formulated based on the premise of the "military strategic guideline of active defense in the new situation" adopted in 2014, and it is not clear how they are

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50 Yatsuzuka Masaaki, "China's National Defense White Paper 2019 and Intelligent Warfare," *NIDS Commentary No. 105*, September 2, 2019, p. 2.

51 For details on the organizations and projects related to the development of the respective intelligent military branches, see Kania, "Chinese Military Innovation in Artificial Intelligence," pp. 12-14.

52 *Renmin Ribao* [People's Daily], November 29, 2019.

53 *Jiefangjun Bao* [PLA Daily], February 10, 2020.

linked to the "military strategic guideline for a new era" that supports intelligentized warfare.[54] It is also problematic that different military strategic guidelines are used as the premise for the educational and training policies. Based on these examples, as the Xi Jinping administration had adjusted the military strategy twice during the process of the military reform, we can see that these adjustments had made an impact on the reform of the forces at least in the short term. While various measures were put in place to respond to intelligentized warfare, and new organizations were added and newly established, there were also a number of cases in which confusion arose in the PLA's initiatives as a result of these changes, as shown by the example of the training policy.

3. Various Issues with the PLA's Intelligentized Warfare

Going forward, how will the PLA implement intelligentized warfare in real-life battle? As explained earlier, in light of the fact that the processes toward intelligentized warfare are advancing gradually, I shall consider the future outlook by reviewing the various issues that could become long-term problems for the PLA as it moves toward intelligent warfare.

The first issue is the extent to which AI can replace humans in the decision-making process for operations. Even within the PLA, there is a wide range of discussions on the involvement of universal AI in military operations. On the one hand, there is debate over how unmanned operations do not entail only operations by automated, unmanned weapons; rather, humans should intervene in the loop of the chain of command.[55] On the other hand, intelligentized warfare is warfare where the data is present within this loop. Data and energy flow are key to this, and the right to control the information lies with these two elements. Therefore, some people are of the view that it is possible to gain an advantage over the opponent by eliminating the human element as far as possible.[56] Both of these arguments are based on the premise of cooperation between humans and machines, but the question lies in the degree of this cooperation. Furthermore, there are also those who hold the view that humans and machines play different roles in decision-making depending on the stage of war.[57] For example, in the case of carrying out searches on the target system during times of peace, humans are primarily responsible for planning the mission and making decisions. However, during times of war, humans take on an auxiliary role in identification and mission execution, while humans and machines take turns to carry out missions after the war, such as defense, counterterrorism, and early warning. There are reports on moves within the PLA to introduce the use of AI to carry out command functions for submarines, but details on the extent to which the command functions will be delegated to AI remain unknown.[58]

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54 *Junwei xunlian guanli bu lingdao jiu banfa xin junshi xunlian dagang youguan qingkuang da jizhe wen* [Leaders of the Training Management Department of the Military Commission Answer Reporters' Questions on the Issuance of the New Military Training Outline], Ministry of National Defense of the People's Republic of China, February 1, 2018, http://www.mod.gov.cn/topnews/2018-02/01/content_4803908.htm, and *"zhongguo renmin jiefang jun junshi xunlian tiaoli (shixing)" xuanjiang quanmian zhankai* [Full-Scale Publicization of "People's Liberation Army Military Training Regulation (for Trial Implementation)"], Ministry of National Defense of the People's Republic of China, February 6, 2018, http://www.mod.gov.cn/topnews/2018-02/06/content_4804251.htm.

55 *Jiefangjun Bao* [PLA Daily], November 21, 2017; January 14, 2020.

56 *Jiefangjun Bao* [PLA Daily], February 11, 2020.

57 Wu Mingxi, *Zhinenghua zhanzheng – AI junshi changxiang* [Intelligent Wars], p. 69.

58 "China military develops robotic submarines to launch a new era of sea power" *South China Morning Post*, July 22, 2018.

The impact that the adoption of AI has on conflict escalation management is related to this point. After the reform and opening-up of the Chinese economy, the PLA has avoided full-scale wars that sacrifice economic development, while at the same time developing a military strategy that is focused on winning local conflicts. From this perspective, emphasis is placed on conflict escalation management. To a certain extent, if universal automated weapons that have a degree of freedom in decision-making were to be introduced into war, there is likely to be serious impact on the methods of crisis management.[59] Attention should be paid to how the PLA will engage in discussion on the introduction of AI and conflict escalation management in the future.

The second issue is how to maintain party control in the development of military intelligentization. In intelligentized warfare, political commissars will become less important in military operations from the following three perspectives: (1) increased expertise in military operations; (2) speed of operations becoming faster than they have ever been; and, (3) the trend for AI to complement and replace humans in operational decision-making. On the other hand, the Xi Jinping administration places importance on the role political commissars play in strengthening the party control over the military. How will the PLA deal with the contradiction that arises between the political character that is required as party military, and the expertise that is required for intelligentized warfare?

In this regard, researchers from the Army Medical University have pointed out that the political grounding and knowledge of such military personnel will become even more important due to the small number of military personnel involved in operations in intelligentized warfare.[60] If military personnel who are in possession of intelligentized weapons that have great destructive power do not fall in line with communist philosophy and guidance from the CCP, they could possibly pose a grave threat to party control. For this reason, they raise the point of using AI and other means to examine the suitability of such military personnel and their ideological leanings, as well as conducting politics examinations, in order to inspect their political thoughts down to the depths of their consciousness.[61] However, imposing such stringent ideological examinations and political education can lead to the outflow of outstanding human resources, and it is entirely plausible that the enhancement of the expertise of military personnel will be sacrificed. Li Xiang, President of the National University of Defense Technology, emphasizes the need to nurture a new style of military human resources with expertise even under the military education policy in the new era, while at the same time adhering to the fundamental principle of having the party retain control and manage education.[62] These remarks highlight instead the difficult relationship between full adherence to party leadership and the realization of specialized military education.

The third issue is that of developing human resources to respond to intelligentized warfare. As mentioned above, in developing military intelligentization, equipment that harnesses advanced technology is developed and manufactured at an even faster pace than before and is applied flexibly

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59 Paul Scharre, *Army of None: Autonomous Weapons and the Future of War* [Japanese edition], Hayakawa Publishing, 2020, pp. 408-410.

60 Lu Shaode, *Jiaqiang junshi zhinenghua shidai de jundui zhengzhi gongzuo* [Strengthening Military Political Work in the Era of Military Intelligentization], *Zhongguo Shehui Kexue Wang* [China Social Sciences Network], November 21, 2019, https://www.thepaper.cn/newsDetail_forward_5023562.

61 Ibid.

62 *Jiefangjun Bao* [PLA Daily], February 10, 2020.

to a wide range of equipment. This gives rise to problems such as the early development of human resources who are proficient in new forms of technology, competition with the private sector for human resources, as well as salary and treatment, and approach to organizational deployment, for newly hired personnel. On an inspection of the PLA Air Force Aviation University in July 2020, Xi Jinping visited a training facility for the operation of unmanned aircraft. He stated that unmanned aircraft is bringing significant changes to the approach to warfare, and gave instructions to accelerate the development of human resources to take up the work of operating and commanding unmanned aircraft.[63] The words and actions of Xi Jinping demonstrate a stance of placing importance on developing human resources who can adapt to intelligentized warfare, but also hints at the fact that the PLA faces the challenge of human resource development. Even in the U.S. Air Force, there is a sense of resistance to increasing the number of unmanned aircraft, which could lead to the argument that pilots would no longer be needed for manned aircraft. In addition, operators of unmanned aircraft are not recognized as pilots and are disadvantaged in aspects such as allowances and promotions, and the development of human resources for operating unmanned aircraft could lead to problems with salary and treatment within the military.[64] Furthermore, as the Chinese government promotes intelligent industries on a national scale, highly universal sectors such as AI could enter into a state of competition between the public and private sectors over human resources. The PLA will therefore need to address such difficult issues related to human resource development.

The fourth issue is the question of whether the PLA, which has not been engaged in an actual war for more than 40 years since the Sino-Vietnamese War, has the capability to fight an intelligentized warfare. Generally, military revolutions take great leaps forward as a result of real-life battles, but China must advance preparations for intelligentized warfare during peacetime without experiencing an actual war. In particular, there is a need to promote learning using quality Big Data in order to improve AI performance; to that end, it will be important to build up experience in the operation of intelligent equipment in real-life battles. Furthermore, in order to become a "world-class force," the PLA must make the shift from the previous stage where it was striving to catch up with the great military powers, to one in which it is a leader of military innovation. Without any practical experience, will the PLA be able to drive innovation in the development of military intelligentization?

To make up for this lack of practical experience, the PLA could potentially conduct test operations of unmanned aircraft and intelligent equipment in quasi-military domains such as patrolling activities and activities to assert claims in the surrounding areas, in addition to practical training and exercises that involve the use of intelligent weapons. It could also actively export intelligentized weapons and equipment to regions of conflict. For example, PLA personnel affiliated with the PLA Army Academy of Border and Coastal Defense have pointed out that in the current border and open sea defense and management missions, the promotion of "intelligentization" could bring about a reduction in the number of personnel engaged in the regular work of asserting claims through the shift to unmanned operations, the precise processing of sudden incidents through AI,

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63 *Xi Jinping bayi qianxi shicha kongjun hangkong daxue* [Xi Jinping Inspected the Air Force Aviation University Prior to August 1], *Xinhua Wang* [Xinhua News Agency], July 23, 2020, http://www.xinhuanet.com/politics/leaders/2020-07/23/c_1126277488.htm.

64 Fuse Satoshi, *Sentan Gijutsu to Beichu Senryaku Kyoso (Advanced Technology and Strategic Competition between U.S. and China)*, Shuwa System, 2020, p. 184.

and the mitigation of public opinion pressures within and out of the country, as well as allow China to capture leadership in politics and diplomacy.[65] In fact, incidents have also happened around Japan, such as a flight made by small unmanned aircraft from China for a certain period of time in the territorial waters of the Senkaku Islands in May 2017, and a flight by aircraft identified as unmanned Chinese reconnaissance aircraft for several hours within Japan's air defense identification zone north of the Senkaku Islands in April 2018. Chinese exports make up more than half of the export of unmanned aircraft in the world, and made-in-China unmanned aircraft that can carry weapons are already operating in Middle East countries such as Saudi Arabia, the UAE, and Iraq.[66] There is a possibility that it could seek to make up for the practical experience necessary for the development of military intelligentization through such simulated actual combat experience, such as the test operation of equipment in neighboring regions and the export of intelligentized weapons to countries in conflict.

Conclusion

As we have seen in this paper, as the awareness spreads through the PLA of the need to prepare for intelligentized warfare as the warfare of the future through observations of the United States' Third Offset Strategy, the Xi Jinping administration adopted the "military strategic guideline for a new era" in 2019 that focuses on intelligentized warfare, in response to the protracted deterioration of relations between the United States and China. As the development of military intelligentization holds the key to the outcome of future wars, the PLA under the Xi Jinping administration aims to get ahead of the U.S. military by capturing this important opportunity and anticipating the new trends of reform in the military sector.

It should be noted that preparations for intelligentized warfare not only have an impact on changes to the force structure, education, and training of the PLA, but also have the character of a government-wide initiative. The Xi Jinping administration is formulating a long-term plan for the development of AI-driven advanced technology at the governmental level, and at the same time, is also advancing the MCF development strategy that aims to mobilize a wide range of technological development capabilities from the private sector, including start-up enterprises, for military use. Preparations for an intelligentized warfare by the PLA could be described as a long-term and government-wide initiative toward the realization of "world-class forces."

Nevertheless, the PLA's initiatives toward intelligentized warfare are confronted by various issues and challenges. In the short term, the changes to military strategy on two occasions by the Xi Jinping administration have given rise to at least some confusion in the formulation of organizational restructuring, training and education policies in the process of military reform. In the long term, the introduction of AI creates wide-ranging issues such as a change in the nature of military operations, striking a balance between the political nature of the PLA as the party's military and specialization as an intelligentized force, human resource development, and the lack of real-life combat experience. Close attention will be paid to how the PLA addresses these issues in the future.

At a group study session of the Politburo held on July 30, 2020, Xi Jinping unveiled the thought on building a strong military, stating that a strong military is vital to a strong country, and

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[65] Huang Zicai, He Chunyao, and Yang Yuan, *Zhinenghua bianhaifang jianshe* [The Construction of Intelligent Coastal Defenses], *Guofang keji* [National Defense Technology], vol.39, no.3, June 2018, pp. 14-16.

[66] Scharre, *Army of None*, p. 150.

that a country first becomes secure when the military becomes strong. Furthermore, concerning the current global situation, he stated that the world is accelerating the move toward a major transformation that may or may not occur once every century, and the novel coronavirus is placing severe impact on the international order. Against this backdrop, China is facing growing uncertainty and instability in its security situation. The new global military reform is advancing rapidly, providing China with a rare opportunity while at the same time confronting it with difficult challenges.[67] There is no doubt that the PLA, under the Xi Jinping administration which is in possession of this thought on building a strong military and a sense of crisis at the same time, will strive to prepare for intelligentized warfare going forward.

(National Institute for Defense Studies)

[67] *Jiefangjun Bao* [PLA Daily], August 1, 2020.