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A biweekly newsletter on AI and autonomy developments in China

Welcome to the *China AI and Autonomy Report*, a biweekly newsletter published by CNA. Read in browser. In this issue, we bring you the AI-relevant information of the Five-Year Plan for Informatization. AI plays a prominent role in the plan and is a key part of the PRC's drive to establish its digital infrastructure, strengthen its smart manufacturing, and digitize its methods for governing its society. Meanwhile, China's local governments have been funding AI-related projects, with Jinan City government announcing more than 50 municipal projects with an "intelligent" component. Peking University's Institute of International Strategic Studies (IISS) published a controversial report that found that the US was ahead of China in some technology areas such as AI. The report concluded that while both China and the US would suffer from a technology decoupling, China's losses would be greater than those of the US. Shephard Media reported that although Chinese unmanned combat aerial vehicles (UCAVs) remain popular, international customers have been dissatisfied with their performance due to maintainability issues and relatively high crash rates.

THIS WEEK'S CONTENTS

FUTURE WARFARE

An article in the *People's Liberation Army (PLA) Daily* discusses the nature of "military intelligentization." *PLA Daily*, the official newspaper of the PLA, published an article titled "Scientific Understanding of Military Intelligentization," offering an in-depth discussion of the concept.[1] The authors provide a detailed definition of "military intelligentization," which they describe as a process that:

- Has "AI technology at its core."
- Includes "supporting technologies like Internet of Things, cloud computing, and big data" and "related frontier technology clusters like new materials, new energy, and additive manufacturing."
- Has a "high degree" of direct application in matters of "warfare, national defense, and the military."
- Greatly expands capabilities in "perception, memory, thinking, learning and decision making."
- Achieves a state in which "individuals, autonomous equipment, and organizations" are able to make decisions and use resources in a more "rational, efficient, and high-quality manner."

A PLA brigade certifies 60 new "data officers" in preparation for future, "intelligentized" combat environments. A recent report by *PLA Daily* claims that more than 60 personnel in an unidentified 75th Group Army brigade were certified as "data officers" after completing 20 days of professional training.[2] According to the report, the training provided data skills required for "data officers" to support commander decision-making and to "carry out research on data warfare tactics to cultivate the ability to deceive, interfere, suppress, and destroy enemy data." Training topics included network planning and construction, debugging wired transmission equipment links, information data management, statistics, and navigation. *PLA Daily* journalists reporting on the training emphasized that because future operations will be increasingly "transparent" and "intelligentized," command operations must rely on "strong data support."

UNMANNED SYSTEMS

A new report finds that PRC UCAVs are low cost but have maintainability issues. Defense industry news provider Shephard Media carried a report detailing the mixed experiences of countries that have purchased PRC-manufactured UCAVs.[3] Citing information from the Stockholm International Peace Research Institute, the report claims that in the past decade, the PRC sold 220 UCAVs to 16 countries, most of them in the Middle East and Africa. According to the analysis, PRC unmanned aerial vehicles (UAVs) have a reputation for being low cost but with maintenance issues and a high frequency of crashes. Iraq, for example, lost 8 of 20 CH-4Bs in the first few years of operations, and the remainder have been grounded because of a lack of spare parts. Algeria lost three CH-4Bs in the first few months of operation. The report notes that Jordan "put its CH-4Bs up for sale less than two years after buying them," and that "Morocco, Nigeria and Turkmenistan have moved on from Chinese UCAVs to Turkish ones instead."

INDUSTRY

A report by a top PRC university think tank suggests that the US is stronger than the PRC in AI and other technology areas, potentially making the PRC the bigger loser in tech decoupling from the US. Peking University's IISS recently published a report titled "U.S.-China Strategic Competition in Technology: Analysis and Outlook." It concluded that both the PRC and the US would suffer from a tech decoupling, but

that the PRC's losses may be greater than those of the US.[4] The report, which was authored by a research team overseen by Wang Jisi, president of Peking University's School of International Studies and a leading PRC expert on US-China relations, compared the development of the PRC and the US in areas such as information technology, AI, and aerospace technology. According to *Science*, the IISS report assessed each country's strengths in these three areas and found that the US has a clear lead in fields such as integrated circuits, computer operating systems, AI chips, and algorithms. The IISS report concluded that the PRC can "narrow its gap with the US," but "remains a long way off before China comprehensively surpasses the US." Shortly after its publication on the institute's official WeChat account and website, the report was deleted. Text of the report has been circulating online and can be found here from the US-China Perception Monitor.[5] In discussing possible reasons for the removal of the piece, Denis Simon, a China science policy expert at Duke University, stated that it is rare for the PRC to acknowledge its technological vulnerabilities and that the report was likely pulled for political reasons.[6]

A state-affiliated metaverse industry committee expands its membership amidst continued hype around the metaverse in the PRC. The China Mobile Communications Association Metaverse Consensus Circle (CMCA-MCC) (see official website here) is an industry committee under the "professional guidance" of the PRC's Ministry of Industry and Information Technology and was established in October of last year.[7] The organization brings together companies, institutes, associations, and individuals to promote the "healthy, orderly, and sustainable development" of the PRC's metaverse industry.[8] On February 16, CMCA-MCC announced that the group would be expanded to include 17 new members, including listed firms Inly Media Co Ltd., Beijing Topnew Info & Tech Co Ltd., and Beijing Quanshi World Online Network Information Co. Ltd., bringing total membership to 112.[9] Although, according to Reuters, experts have viewed the PRC's metaverse industry as lagging behind that of the US and South Korea, in the past year the metaverse has received more attention in the PRC, with sharp rises in stocks related to the metaverse and more than 1,000 companies scrambling to register metaverse-related trademarks.[10] The heightened interest around the metaverse has been attributed to Mark Zuckerberg's announcement of Meta last year.[11]

RESEARCH AND DEVELOPMENT

A PRC research institute develops a robot to maintain satellites. A group of PRC researchers affiliated with the Chinese Academy of Sciences, an organization under the PRC State Council, have written an article in the peer-reviewed PRC journal *Robot* claiming to have built a 1.5-meter-long snake-like robot for satellite maintenance (see original article with abstract in English here).[12] The robot consists of nine segments that can each generate a torque of 190 Newton-meters, which according to the *South China Morning Post*, is equivalent to the power generated by a 1,200-cc motorcycle engine. The robot is designed with the ability to enter hard-to-access parts of a satellite and can also be used to move or manipulate a satellite. Last month, SpaceNews reported that the PRC had used the Shijian-21 satellite to dock with a defunct Beidou navigation satellite to take it to a less-crowded orbit.[13] The *South China Morning Post* notes that the robot and the Shijian-21 maneuver both have potential antisatellite applications.

NATIONAL POLICY AND GOVERNANCE

The 14th Five-Year Plan for National Informatization emphasizes the importance of AI. On December 28, 2021, the PRC's Central Commission for Cybersecurity and Informatization issued the 14th Five-Year Plan for National Informatization (DigiChina's full translation of the plan can be found here).[14] The plan, the blueprint for the PRC's digital policy for the next five years, sets targets and lays out objectives for building

a "digital China," including popularizing and adopting 5G networks, increasing innovation in core technologies, and establishing a "digital social governance structure" led by the Chinese Communist Party.

AI is integral to the plan, which sets the "action goal" that by 2023, "notable advances should be made in artificial intelligence, blockchain, quantum information and other such cutting-edge technology research and development." By 2025, the plan envisions an increasingly comprehensive "cutting-edge digital technology innovation ecosystem" characterized by rapid expansion and the continual emergence of industry application demonstrations and benchmarks. The plan seeks to promote the innovation and application of AI through:

- *Improving fundamental AI theory and interdisciplinary research:* The plan seeks to improve upon fundamental AI theories and launch cutting-edge interdisciplinary research on AI and disciplines such as neuroscience, cognitive science, psychology, and social science.
- *Building open-source AI:* The plan advocates building open-source communities and public data collections for AI development. This involves creating open-source frameworks, open-source foundational software and hardware platforms, and an ecosystem that integrates these components.
- *Applying AI to national needs:* The plan aims to accelerate the transformation and application of key AI technologies to suit national strategies and industrial needs.
- *Ethical and legal frameworks for AI:* The plan aims to launch research on AI ethics standards and explore the establishment of legal, regulatory, ethical, and moral frameworks to ensure the healthy development of AI.

The plan lays out 10 major tasks and focus projects, many of which include an AI-component. A few notable major tasks that feature AI prominently include:

- *Building a "ubiquitous, intelligent, and connected digital infrastructure"* that includes "intelligentized port system applications," building the "Internet of Vehicles," the construction of a national data center system, and improving computing power services.
- *Building digital transformation and development systems for industry,* which includes advancing China's smart manufacturing capabilities through R&D that integrates AI, 5G, and blockchain. This initiative also involves exploring the application of AI in major technology equipment areas such as electricity, advanced rail, transportation, high-end machine tools, healthcare, and agriculture.
- *Building jointly constructed, jointly governed, and jointly shared digital social governance systems.* The plan aims to launch seven "artificial intelligence social governance experimentation projects" in the following areas: 1) medical AI; 2) urban management; 3) elder care; 4) environmental governance; 5) education; 6) risk prevention; and 7) big data and simulation platforms for scientific research.

LOCAL GOVERNMENT SUPPORT TO AI

Jinan City has announced more than 50 municipal projects that integrate the use of "intelligent" technology. According to local reporting, the Jinan City government announced 500 projects in February to energize the city's development.[15] More than 50 of these projects integrate an "intelligent" technology component. One of these projects includes an intelligent computing industrial park for Inspur, the PRC's leading cloud computing and big data service provider, which was sanctioned by the Biden administration

last year. Other initiatives include an intelligent highway system and intelligent manufacturing projects for motors, new energy vehicle components, and pharmaceuticals. Jinan, the capital of eastern Shandong Province, is home to one of the PRC's "new generation AI innovation pilot zones," which are designated by the PRC Ministry of Science and Technology.[16]

The Chengdu-Chongqing "economic circle" announces RMB 2 trillion in major projects, including in AI, as the region strives to become western China's "Silicon Valley."[17] On February 8, the Sichuan Provincial Development and Reform Commission announced a round of major projects for the Chengdu-Chongqing economic circle.[18] The official list of projects spans national and international initiatives and projects for multinational PRC companies.[19] Projects include a key national laboratory for big data and intelligent computing, a PRC-Singapore smart industrial park, phase one of the Huawei-Chengdu Intelligent Computing project, and an "AI city" project for leading PRC AI Internet of Things company Terminus. The Chengdu-Chongqing economic circle is an initiative intended to boost economic development in China's southwest (see explanation here from CGTN).[20] Recently, the PRC's big tech companies, such as Huawei, Tencent, and JD.com, have all established new projects in this region.[21]

EVENTS

The PRC's 2022 World Artificial Intelligence Conference (WAIC) will be held in Shanghai in July. According to reporting by a Shanghai-based news outlet, the kickoff meeting for the 2022 WAIC was held at the Shanghai World Expo Exhibition and Convention Center on February 16. This year's conference will be held from July 7–9, 2022, and will feature the theme "Intelligent, Connected World." Launched in 2018, WAIC is organized by several of the PRC's national ministries and the Shanghai city government.[22] Notable past attendees have included Elon Musk of Tesla and Robin Li of Baidu.[23]

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