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China's Quest for Foreign Technology: Beyond Espionage
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The Chinese dream of becoming a first-tier innovator from its long-term status as the world's manufacturing factory is not a new phenomenon as much as it is swiftly being geared up during Xi Jinping's times. As early as the 1990s, the aspirations of revitalizing the nation through Science, Technology and Education (*kejiao xigguo*) and loyally repaying the ancestral land with the intellect have been well-pronounced in various Chinese policy sentiments. Ever since the 15-year Medium to Long-term Plan (MLP) for the Development of Science and Technology in 2006, the quest for transitioning from an imitator to an innovator has been implemented at institutional and policy levels (Appelbaum, Cao, Han, Parker, & Simon, 2018). China's path towards leapfrogging into advanced technologies in order to become the 'global innovation powerhouse' and 'technology superpower' boasts of the state's ability to foster and strengthen indigenous innovation (*zizhu chuangxin*). However, there have been scholarly apprehensions that these state-led efforts to provide avenues for scientific enterprises and the subsequent setting up of national high-tech parks for the sake of innovating "key industries" have not really effectively reaped in adding to the dreams of indigenous innovation (Cao, Suttmeier, & Simon, 2009). International Science and Technology collaborations for the acquisition of foreign technology, thus, becomes crucial for the targeted innovation goals set forth by the party-state. The book under review places the growing phenomenon of *zizhu chuangxin* under the radar of foreign technology transfers and traces how these technology influxes have been serving the preservation of the autocratic state. The authors add to the literature not only in Science and Technology Studies but also in understanding the authoritarian use of technology and its related implications in International Relations. By providing a deliberation of case studies on how the grey areas of extralegal and informal technology transfers

are carried out, the book successfully initiates a huge lot of research problematique that demands greater attention especially in the times of China's rise as technology superpower.

The book comes as an update to the authors' earlier work on China's industrial espionage[1]. Going beyond espionage, as the title verily suggests, this work studies the state's systematic attempts to bring technology back to China via the use of open sources, intelligence networks and more. Categorically divided into six parts, the authors, seventeen of them, from their various academic and bureaucratic standpoints, scrutinize the "various other means" of foreign technology that comes into China – majorly through talent programs, overseas investments and commerce, and worldwide transfer networks.

By providing case studies of Sino-US research collaboration and the PRC institutions involved in the joint research, particularly in technologies like Artificial Intelligence through innovation and entrepreneurship (*Shuangchuang*), the prospects in the direction of PLA's civil-military fusion are pointed out. Furthermore, in a separate section dedicated for 'the technology in the shadows', the Chinese model of utilizing technology for building a surveillance state, and the dual-use dilemma of the state-led attempts to indigenize foreign technologies for the sake of building a 'world-class military' in sectors such as avionics, aerospace, semiconductors and cyber technologies are analysed in detail.

In probably a first of all accounts, the authors have also explored and exposed the role of departments such as the United Front Work Department (UFWD) and individual players in their legit and illicit means of acquiring technologies and 'returning entrepreneurial opportunities' to China. The authors hint that while state-led efforts in leveraging the overseas networks have long been practiced in China, the party's growing motivations under Xi Jinping, with more power to UFWD, are likely to pick more flowers in foreign lands to make honey in China.

While there have been previous proposals from the US policy circles calling for a 'constructive vigilance' on China based on the principles of transparency, integrity and reciprocity, specifically to keep a check on China's influential operations and talent programmes (Diamond & Schell, 2019), the continuing perils of trade secret thefts and economic espionage needs stringent redressal

[1] Hannas, W. C., Mulvenon, J., & Puglisi, A. B. (2013). *Chinese industrial espionage: Technology acquisition and military modernisation*. Routledge.

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on a case-by-case basis. The authors, in the last section of the book, have attempted to present empirical trends in such espionage and trade secret theft activities, and seek to infer commonalities between the academic and commercial structures of technology acquisitions. They also give a view of various national-level sanctions and mitigation policies with more emphasis given to an US perspective. The authors of this book have contributed immensely to the exploration of extralegal transfers of technologies both at the personnel level and at the organization levels. Given that the US counterintelligence measures majorly focus on official PRC intelligence networks, and not more on forums such as returnee enclaves, professional facilitators, and incentive programmes, the identification of various other venues of transfer and the informal systems in place may thus hugely aid policies in addressing China's illicit modes of technology transfer.

If "*gathering talent all over and using it for China*" by whatsoever means is what the party-state follows in building its science, technology and innovation ecosystem, then monitoring technology transfers becomes crucial for individual nations as well as the international community even *before* the occurrence of any problem (problems such as thefts, accidental leaks, unintended consequences such as what are being feared in lab leak hypotheses of the COVID-19 pandemic). By recommending coordinated efforts and legislative measures that would prevent China from utilizing technology transfer as a zero-sum game, the authors have succeeded in alerting not only the US legislators but also the emerging technology powers that may have corporate advantages over certain emerging technologies. Besides, by presenting empirical case studies, both from historical perspectives and technology-specific narrow-downs, the book provides a comprehensive overview of policies, institutions, and other non-state actors that are behind China's technology acquisition process. In this way, this work shall remain a substantial resource for students and researchers as it not only offers a holistic understanding of processes that are being in play for decades of China's scientific quest but also sets forth provoking research agendas and policy ruminations for the years to come.

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