



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**UTILIZING SEA TURTLES: A STUDY OF HOW
THE CHINESE DIASPORA IS GALVANIZED
FOR TECHNOLOGY TRANSFER**

by

Christopher Y. Yong

December 2023

Thesis Advisor:
Second Reader:

Covell F. Meyskens
Erik J. Dahl

Approved for public release. Distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC, 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2023	3. REPORT TYPE AND DATES COVERED Master's thesis	
4. TITLE AND SUBTITLE UTILIZING SEA TURTLES: A STUDY OF HOW THE CHINESE DIASPORA IS GALVANIZED FOR TECHNOLOGY TRANSFER			5. FUNDING NUMBERS	
6. AUTHOR(S) Christopher Y. Yong				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) This thesis examines the question, What factor most effectively enables the People's Republic of China (PRC) to use the Chinese diaspora in the United States and Australia for technology transfer? The thesis investigates three factors: the PRC methods of domestic incentives to returning scientists, the role of overseas organizations, and the coercion of diaspora members. To find which factor is most effective, this thesis first examines how each mechanism is employed legally and illegally in the United States. Next, the thesis applies the same method for Australia. Finally, the thesis compares the findings of the United States and Australia. After comparison, the research identified different factors for the United States and Australia. For the United States, financial incentives currently are the most prevalent factor. For Australia, overseas organizations are the most critical factor leading to technology transfer. The difference in findings is most likely due to a lack of information on the specific technology transfer instances in Australia, or that the PRC has not used the diaspora in Australia to engage in illegal technology transfer. Based on these findings, this thesis recommends that the United States improve its financial incentives to retain top talent from China and that Australia develop better databases and tracking for PRC technology transfer efforts.				
14. SUBJECT TERMS PRC, CCP, China, United States, Australia, Chinese diaspora, technology transfer, intellectual property theft, technology, FBI, counterintelligence			15. NUMBER OF PAGES 87	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

**UTILIZING SEA TURTLES: A STUDY OF HOW THE CHINESE DIASPORA
IS GALVANIZED FOR TECHNOLOGY TRANSFER**

Christopher Y. Yong
Captain, United States Air Force
BS, United States Air Force Academy, 2019

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(EAST ASIA AND THE INDO-PACIFIC)**

from the

**NAVAL POSTGRADUATE SCHOOL
December 2023**

Approved by: Covell F. Meyskens
Advisor

Erik J. Dahl
Second Reader

Afshon P. Ostovar
Associate Chair for Research
Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

This thesis examines the question, What factor most effectively enables the People's Republic of China (PRC) to use the Chinese diaspora in the United States and Australia for technology transfer? The thesis investigates three factors: the PRC methods of domestic incentives to returning scientists, the role of overseas organizations, and the coercion of diaspora members. To determine which factor is most effective, this thesis first examines how each mechanism is employed legally and illegally in the United States. Next, the thesis applies the same method for Australia. Finally, the thesis compares the findings of the United States and Australia. After comparison, the research identified different factors for the United States and Australia. For the United States, financial incentives currently are the most prevalent factor. For Australia, overseas organizations are the most critical factor leading to technology transfer. The difference in findings is most likely due to a lack of information on the specific technology transfer instances in Australia, or that the PRC has not used the diaspora in Australia to engage in illegal technology transfer. Based on these findings, this thesis recommends that the United States improve its financial incentives to retain top talent from China and that Australia develop better databases and tracking for PRC technology transfer efforts.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	INTRODUCTION.....	1
B.	SIGNIFICANCE	3
1.	United States-China Competition.....	4
2.	Chinese-Australian Regional and Technological Competition	5
C.	LITERATURE REVIEW	7
1.	Coercion Means.....	7
2.	Domestic Incentives for Returning Scientists.....	10
3.	Overseas Organizations.....	12
4.	Financial Motivations	14
5.	Three Main Mechanisms for PRC Technology Transfer.....	16
D.	POTENTIAL HYPOTHESES.....	16
E.	THESIS OUTLINE AND METHODOLOGY.....	19
II.	DIASPORA IN THE UNITED STATES.....	21
A.	INTRODUCTION.....	21
B.	DOMESTIC INCENTIVES TO RETURNING SCIENTISTS	23
C.	DOMESTIC INCENTIVES EXAMPLES.....	25
1.	Illegal Transfer Examples	25
2.	Legal and Extralegal Transfer Examples	27
D.	INTERNATIONAL OUTREACH THROUGH OVERSEAS ORGANIZATIONS	28
E.	OVERSEAS ORGANIZATION EXAMPLES.....	30
1.	Illegal Transfer Examples	31
2.	Legal and Extralegal Transfer Examples	32
F.	COERCIVE EFFORTS	33
G.	COERCION EXAMPLE.....	35
H.	CONCLUSION	36
III.	CHINESE DIASPORA IN AUSTRALIA.....	39
A.	INTRODUCTION.....	39
B.	PRC DOMESTIC INCENTIVES TO RETURNING SCIENTISTS.....	42
C.	EXAMPLES OF DOMESTIC INCENTIVES	45
1.	Photovoltaic Industry	45

2.	Thousand Talents Plan	47
D.	INTERNATIONAL OUTREACH THROUGH CHINESE STUDENT SCHOLAR ASSOCIATIONS.....	49
E.	EXAMPLES OF CSSAS	50
1.	Chinese Student Scholar Associations	50
2.	The Diaspora’s Role in Artificial Intelligence	52
F.	CONTROL OF THE DIASPORA	53
G.	HYPOTHETICAL EXAMPLE OF PRC CONTROL OF THE DIASPORA.....	55
H.	CONCLUSION	56
IV.	CONCLUSION	59
A.	INTRODUCTION.....	59
B.	FINDINGS FOR THE CHINESE DIASPORA IN THE UNITED STATES	59
C.	FINDINGS FOR THE CHINESE DIASPORA IN AUSTRALIA	60
D.	COMPARISON OF FINDINGS.....	61
E.	POLICY RECOMMENDATIONS	63
1.	U.S. Policy Recommendation	63
2.	Australian Policy Recommendation	64
F.	CONCLUSION	65
	LIST OF REFERENCES	67
	INITIAL DISTRIBUTION LIST	73

LIST OF ACRONYMS AND ABBREVIATIONS

CCP	Chinese Communist Party
CSSA	Chinese Student Scholar Association
FOCASA	Federation of Chinese Scholars in Australia
GE	General Electric
HOME	Help Our Motherland through Elite Intellectual Resources from Overseas
MOE	Ministry of Education
MOHRSS	Ministry of Human Resources and Social Security
MOST	Ministry of Science and Technology
MSS	Ministry of State Security
NSS	National Security Strategy
PLA	People's Liberation Army
PRC	People's Republic of China
RMIT	Royal Melbourne Institute of Technology
SABPA	Sino-America Biotechnology and Pharmaceutical Professional Association
TTP	Thousand Talents Plan
UESTC	University of Electronic Science and Technology of China
UFWD	United Front Work Department

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

I would like to thank my friends and family for their support and encouragement with this project; without their support, it would not have been possible. I especially want to thank my grandfather, Dr. Charles Tipton, who always encouraged me to read and pursue knowledge, and always asked me what I did for my brain today. I would also like to thank my professors, especially my advisors Professor Meyskens and Professor Dahl, who helped me immeasurably in completing this project. Lastly, I would like to thank the members of the GWC, especially Lauren Callihan, for helping me organize my thoughts as well as helping me stay on schedule.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. INTRODUCTION

The People's Republic of China (PRC) has risen from an agrarian country to a highly advanced one with the second-largest economy in the world, in an unprecedented amount of time. According to the World Bank, since the PRC opened its economy in 1978, it has grown at an impressive 9% on average annually.¹ One of the key aspects that has helped China's rise is the Chinese diaspora. The Chinese diaspora is the largest in the world, estimated at over 60 million people as of 2021.² One of the largest concentrations of the diaspora is in the United States, with the rest spread worldwide, primarily in other parts of East and Southeast Asia. While many diaspora members often stay overseas, diaspora members are increasingly returning to the PRC after studying abroad and are often referred to as "Sea Turtles." The potential uses for this wide-ranging diaspora especially with the increase in those returning is not lost on the PRC. Since the 1990s, the PRC has encouraged the Chinese diaspora to use their position and knowledge to help China succeed economically.³ One critical way the Chinese diaspora has helped is through technology transfer. Through legal and illegal activities, the Chinese diaspora has used its position around the world to provide a technological and economic boost to the PRC.

According to the FBI, a new counterintelligence investigation into China is opened every 10 hours.⁴ Furthermore, approximately 60% of all trade theft cases brought to the

¹ "The World Bank in China: Overview," World Bank, September 29, 2022, <https://www.worldbank.org/en/country/china/overview>.

² Yan Tan, "China's Diaspora Engagement Policy and Its Powerful Effect Outside Its Borders," *Melbourne Asia Review* 8 (November 2021): 1, <https://doi.org/10.37839/MAR2652-550X8.9>.

³ Ryan Fedasiuk and Emily Weinstein, *Overseas Professionals and Technology Transfer to China* (Washington, DC: Center for Security and Emerging Technology, 2020), 2, <https://doi.org/10.51593/20190038>.

⁴ Nomaan Merchant, "U.S. Needs to Reform Efforts to Stop Enemy Spies, Report Says," AP News, September 20, 2022, <https://apnews.com/article/china-congress-government-and-politics-eebc9ccb505f82c09d8e8e50400a127c>.

FBI involve some nexus to China.⁵ While not all of these cases involve the Chinese diaspora, the Chinese diaspora is one of the many methods used by the PRC to conduct technology transfer. Although many scholars have studied Chinese technology transfer, determining which factor is the most effective in allowing the PRC to use its diaspora for technology transfer has been less studied. Due to programs like the FBI's China initiative, which has been heavily criticized for racial profiling, it is clear the United States needs to take a closer look to develop ways to separate the upstanding citizens of the Chinese diaspora from those who have nefarious intent.⁶ Thus, this thesis aims to discover which factor enables the PRC to use its diaspora to conduct technology transfer in the United States and Australia most effectively. This thesis focuses on illegal, legal, and extra-legal situations. Extralegal situations are those in which while not expressly prohibited by law, the technology transfer is not done in good faith.⁷ Some examples include breaching employment contracts or requiring countries to provide proprietary technology to Chinese companies as part of doing business in the PRC.

The United States and Australia were chosen for this study since they are two technologically advanced countries with a substantial Chinese diaspora. The United States has the fourth-largest Chinese diaspora and is one of the key destinations for the Chinese diaspora to live and study.⁸ The Chinese diaspora currently makes up one-third of the foreign scholars and students in the United States, or about 420,000 people in total, making it the largest group from a single country in academia.⁹ With a large Chinese diaspora

⁵ "Information About the Department of Justice's China Initiative and a Compilation of China-Related Prosecutions Since 2018," July 31, 2020, <https://www.justice.gov/archives/nsd/information-about-department-justice-s-china-initiative-and-compilation-china-related>.

⁶ John Berthelsen, "Chinese Academics in U.S. Increasingly Going Home Out of Fear," *Asia Sentinel*, October 3, 2022, <https://www.asiasentinel.com/p/chinese-academics-us-going-home-fear>.

⁷ Larry Diamond and Orville Schell, eds., *China's Influence & American Interests* (Stanford, California: Hoover Institution Press, 2019), 139, <https://www.hoover.org/research/chinas-influence-american-interests-promoting-constructive-vigilance>.

⁸ "China: Countries with the Largest Number of Overseas Chinese 2021," Statista, accessed April 18, 2023, <https://www.statista.com/statistics/279530/countries-with-the-largest-number-of-overseas-chinese/>.

⁹ Li Tang et al., "Decoupling in Science and Education: A Collateral Damage beyond Deteriorating US-China Relations," *Science and Public Policy* 48, no. 5 (October 9, 2021): 630–34, <https://doi.org/10.1093/scipol/scab035>.

living in the United States and heavily involved in academia, the United States is a key place to try to understand how the PRC uses its diaspora for technology transfer.

As relations between the PRC and the United States strain, Australia has seen an increase in its Chinese diaspora as Chinese citizens who initially would have gone to the United States are now going to Australia.¹⁰ Australia currently has the seventh-largest diaspora in the world, which is growing as more Chinese choose Australia over the United States.¹¹ Furthermore, since Australia has a substantive Chinese diaspora, the CCP has already used it to significant effect to gain political and economic influence.¹² One example is the sale and shipment of strategic assets and dual civil-mil technology to PRC state-owned enterprises using their diaspora in Australia.¹³ Furthermore, Australia's research institutions place in the top 1% of 15 key research fields, including computer science and physics, are one of the top spenders for research and development, and are number one in growth for government research and development allocation.¹⁴ Thus, as Australia has seen the effective use of a growing Chinese diaspora by the CCP and is growing in its research development, it is an apt place to study the factors that have allowed the CCP to utilize its diaspora successfully.

B. SIGNIFICANCE

Understanding Chinese technology transfer efforts using the Chinese diaspora in the United States and Australia is of key importance for understanding the competition that

¹⁰ Elizabeth Redden, "For International Students, Shifting Choices of Where to Study," Inside Higher Ed, August 24, 2018, <https://www.insidehighered.com/news/2018/08/24/international-enrollments-slowng-or-declining-some-top-destination-countries-look>.

¹¹ Statista, "China."

¹² Clive Hamilton, *Silent Invasion: China's Influence in Australia* (Richmond, Victoria: Hardie Grant Books, 2018), 25–26.

¹³ Aldric Hama, "Silent Invasion: China's Influence in Australia," *The Journal of Social, Political, and Economic Studies* 43, no. 3/4 (Fall /Winter 2019 2018): 328, <https://www.proquest.com/docview/2119859657/abstract/40C135D016454A98PQ/1>.

¹⁴ Australian Government, *Australia Is A Top 20 Country All Topics* (Canberra: Australian Government, 2022), 3, <https://www.dfat.gov.au/sites/default/files/australia-is-a-top-20-country-all-topics.pdf>.

is currently occurring between the PRC and the United States as well as the PRC and Australia.

1. United States-China Competition

The competition between the United States and the PRC has only increased in recent years. According to the 2022 National Security Strategy (NSS), “The PRC is the only competitor with both the intent to reshape the international order and, increasingly, the economic, diplomatic, military, and technological power to do it.”¹⁵ With the PRC’s intent to reshape the international order, the United States and the PRC are at odds. Furthermore, as the PRC grows and becomes more powerful, the chances of war between the United States and the PRC increase. While war is not inevitable, the United States must prepare for such a conflict as not doing so could lead to disastrous consequences. If war does break out, one key aspect would be which side possesses the technological advantage.

While possessing technological superiority is not the only factor, the side with superior technology typically holds a decisive advantage in the war. In the technological arena, the Chinese have already made advancements in several critical areas, including artificial intelligence, robotics, 3D printing, genetic engineering, and quantum information science.¹⁶ In AI, China is considered a “full-spectrum peer competitor” according to former Google CEO Eric Schmidt, meaning it is a serious competitor with the United States and is dangerously close to overtaking the United States in terms of its ability.¹⁷ In quantum information science, the PRC is already ahead in quantum communication and not far behind in computing.¹⁸ In addition to these areas, in the areas of life science

¹⁵ White House, *National Security Strategy* (Washington, DC: White House, 2022), 23, <https://s3.documentcloud.org/documents/23130452/biden-harris-administrations-national-security-strategy.pdf>.

¹⁶ Tan, “China’s Diaspora Engagement Policy and Its Powerful Effect Outside Its Borders,” 4.

¹⁷ Graham Allison et al., *The Great Tech Rivalry: China vs. the U.S.* (Cambridge, MA: Harvard Kennedy School, 2021), 3.

¹⁸ Allison et al., 4.

companies and green energy, the United States still has the advantage though the PRC is rapidly closing the distance thanks to their researchers.¹⁹

In the 20th party work report, the Chinese Communist Party (CCP) specifically mentions strengthening relations with overseas Chinese by stating they will “improve and strengthen our work related to Chinese nationals overseas to give shape to a powerful joint force for advancing the rejuvenation of the Chinese nation.”²⁰ The PRC clearly sees the Chinese diaspora as a critical pillar for the great rejuvenation of China by calling out the Chinese diaspora by name in one of the PRC’s most authoritative documents for planning its future. The FBI estimates that the PRC steals between 225 and 600 billion USD annually in intellectual property from the United States.²¹ While the exact number of how much of this theft can be associated directly with the Chinese diaspora is unknown, given the vast size of the Chinese diaspora in the United States in science and technology, it is a logical assumption that some diaspora members play a crucial role. With the Chinese diaspora targeting the intellectual property of the United States, the United States risks losing the technological advantage it has long enjoyed. Furthermore, while potentially disastrous in a conflict, the PRC can improve its economy even more rapidly and surpass the United States economically by having access to more advanced and diverse technology.

2. Chinese-Australian Regional and Technological Competition

The United States is not the only country the PRC targets for technology transfer. The PRC is also attempting to use the Chinese diaspora for technology transfer in Australia to help boost the PRC’s economy. While Australia is not the technological hub the United States is, it still has one of the most powerful economies in the region and a strong research and development base. Australia has the world’s 12th-largest GDP and is a common destination for Chinese scholars.²² China is Australia’s number one trading partner and

¹⁹ Allison et al., 4.

²⁰ Chinese Communist Party, *20th Party Congress Work Report* (Beijing: Chinese Communist Party, 2022), 34.

²¹ Federal Bureau of Investigation, *China: The Risk to Academia* (Quantico, VA: Federal Bureau of Investigation, 2019), 1, <https://www.fbi.gov/file-repository/china-risk-to-academia-2019.pdf/view>.

²² Australian Government, *Australia Is A Top 20 Country All Topics*, 1.

routinely receives approximately 30% of Chinese exports, and Australia imports 26% of its goods to China.²³ Thus, they are a prime target for extra-legal technology transfer, especially considering how close the existing Chinese diaspora already works with China.²⁴

As Australia is a key regional ally for the United States and a critical part of the deterrence strategy for China by the United States, as shown by their inclusion in the Quad, Australia must keep its technological and economic edge.²⁵ If the PRC is allowed to continue and expand its extra-legal technological acquisition in Australia, then Australia risks losing its technological edge. Furthermore, if the United States is going to be successful in stopping technology theft by the PRC, it must have allies.²⁶ Australia is an apt ally as it is in Asia and shares close and long preexisting ties with the United States. Thus, by better understanding Chinese legal and extra-legal technology transfer in Australia a better more cohesive strategy for deterring future Chinese technology theft can be established.

The methods of technology transfer used by the PRC in Australia are compared with those in the United States to see if the PRC uses different methods based on Australia's circumstances vs. those of the United States. The methods are then compared to see how the different methods and factors in the United States vary from those in Australia to determine if there is a common factor allowing for the PRC to engage in technology transfer.

²³ David Uren, "Australia's Trade Diversification Away from China Picks up Pace," *The Strategist*, October 13, 2022, <https://www.aspistrategist.org.au/australias-trade-diversification-away-from-china-picks-up-pace/>.

²⁴ Rosalie L. Tung and Henry F. L. Chung, "Diaspora and Trade Facilitation: The Case of Ethnic Chinese in Australia," *Asia Pacific Journal of Management* 27, no. 3 (2009): 372, <https://doi.org/10.1007/s10490-009-9146-3>.

²⁵ The Quad is a diplomatic arrangement between India, Australia, Japan, and the United States designed to help promote a free and open Indo-Pacific; "Quad," Australian Government Department of Foreign Affairs and Trade, accessed May 18, 2023, <https://www.dfat.gov.au/international-relations/regional-architecture/quad>.

²⁶ Andrew Imbrie and Ryan Fedasiuk, *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer* (Washington, DC: Brookings, 2020), 1, https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_chinese_technology_transfer_imbrie_fedasiuk.pdf.

C. LITERATURE REVIEW

Based on the initial reach question, this literature review is broken into four broad themes to account for the factors allowing the PRC to leverage its diaspora. This literature review examines how the PRC leverages its diaspora, with an emphasis on technology transfer. The first section covers coercive methods used by the PRC to control its diaspora. The second covers domestic incentives and bureaucracy provided by the PRC to returning scientists to support technology transfer. The third looks at overseas organizations set up and supported by the PRC to help facilitate technology transfer from diaspora scientists still abroad. Then the fourth looks at the financial incentives provided by the PRC to diaspora members for engaging in technology transfer.

1. Coercion Means

Many experts in the field of security studies understand the PRC uses coercion to ensure that members of the Chinese diaspora continue to align with party objectives. The PRC has established an advanced system to monitor its diaspora from home and does its best to ensure they continue to toe the party line even while abroad. Sheng Ding discusses how the PRC monitors and corrects its diaspora through several methods, including using its embassies, PRC outreach organizations such as the Confucius Institutes, and other members of the Chinese diaspora and monitoring popular Chinese social media platforms such as WeChat.²⁷ Through this advanced network, the PRC can observe them and ensure they continue to support Chinese goals. If someone steps out of line, the CCP can use these same mechanisms to help bring them back into the fold. Christine Han and Yaobin Tong also weigh in on this discussion and show that during the Hong Kong protests, the CCP used its student diaspora to launch counter-protests against those protesting PRC actions in Hong Kong and have also used this same tactic against those protesting the treatment of

²⁷ Sheng Ding, "Chinese Diaspora's New Roles in China's Diplomacy," in *Routledge International Handbook of Diaspora Diplomacy*, ed. Liam Kennedy (Routledge, 2021), 66;70; Christine Han and Yaobin Tong, "Students at the Nexus Between the Chinese Diaspora and Internationalisation of Higher Education: The Role of Overseas Students in China's Strategy of Soft Power," *British Journal of Educational Studies* 69, no. 5 (September 3, 2021): 590, <https://www.tandfonline.com/doi/full/10.1080/00071005.2021.1935446>.

the Uighurs in Xinjiang.²⁸ Furthermore, Ding reports that the PRC can also censor conversations on prominent Chinese apps such as WeChat, which is still heavily used by the Chinese diaspora despite the PRC coming under attack from governments for doing so.²⁹ Additionally, China is increasingly coming under pressure for setting up a series of secret overseas police stations to help control their diaspora including centers in the United States and Australia.³⁰ While the stated goal of these centers is to help with administrative tasks, they also have been accused of being used to “to harass, threaten, intimidate and force targets to return to China for persecution”.³¹ While these centers are only recently being understood, it is clear they play and likely will continue to play a role in the PRC’s efforts to control its diaspora.

So far, the unclassified academic literature shows little direct evidence that coercive methods are being applied directly to convince academics in both the public and private sectors to engage in technology transfer. The PRC instead uses these methods to silence Chinese dissidents who are critical of the CCP. While the PRC can monitor and correct its diaspora to some degree, its ability remains relatively limited. Larry Diamond and Orville Schell discuss how prominent members of the Chinese diaspora living in the United States are occasionally contacted by the FBI and offered protection if their circumstances warrant, which provides them with further protection.³²

Furthermore, as countries such as the United States and Australia are becoming more aware of the Chinese influence operations, both countries are adopting similar efforts to curb the influence. These efforts can be seen by both countries working to decouple with

²⁸ Han and Tong, “Students at the Nexus Between the Chinese Diaspora and Internationalisation of Higher Education,” 591.

²⁹ Ding, “Chinese Diaspora’s New Roles in China’s Diplomacy,” 66.

³⁰ Aleisha Orr, “China Allegedly Had Two Secret Police Stations in Australia. What Do We Know About Them?,” SBS News, December 11, 2022, <https://www.sbs.com.au/news/article/china-allegedly-has-two-secret-police-stations-in-australia-what-do-we-know-about-them/dz2lmxb13>; Hannah Rabinowitz Valle, Evan Perez, and Lauren Del, “FBI Arrests Two Alleged Chinese Agents and Charges Dozens with Working Inside U.S. to Silence Dissidents,” CNN, April 17, 2023, <https://www.cnn.com/2023/04/17/politics/fbi-chinese-agents/index.html>.

³¹ Orr, “China Allegedly Had Two Secret Police Stations in Australia. What Do We Know About Them?”

³² Diamond and Schell, *China’s Influence & American Interests*, 42.

the PRC, as shown by the decrease in trade between Australia and China and a reclassifying of how the United States views its relationship with the PRC.³³ Thus, while the PRC is attempting to increase its ability to monitor its diaspora, its efforts are often countered in many countries where the diaspora resides making it more difficult for the PRC to effectively control its diaspora.

While the PRC has established programs to control their diaspora while abroad, the PRC has also developed and established programs to ensure the diaspora's loyalty before they depart. Han and Tong state that the Chinese diaspora has been "inoculated against Western mores and ideas by a lifetime of ideological and political education."³⁴ Thus, before they even depart from the Chinese mainland, they are already used to the idea that it is their duty to support the Chinese mainland by aiding in the rejuvenation of China. This indoctrination starts at the age of 6 and continues through their time at a university.³⁵ Thus, the Chinese diaspora that leaves for undergraduate or graduate education has already had a lifetime of inoculation, making them more willing to support the PRC with technology transfer. Zhen Zhang discusses how this tactic does help as many of the Chinese diaspora still consider themselves Chinese despite being abroad and desire to help.³⁶ On the other hand, Ding reminds us that despite the training, a vast Chinese dissident population still speaks out against the party while abroad.³⁷ One of the main reasons this disparity occurs is that the United States and other Western countries are often used as safe havens for Chinese dissidents who continue to speak out against the CCP.³⁸ Thus, while some

³³ Tang et al., "Decoupling in Science and Education," October 9, 2021, 2; Uren, "Australia's Trade Diversification Away from China Picks up Pace."

³⁴ Han and Tong, "Students at the Nexus Between the Chinese Diaspora and Internationalisation of Higher Education," 587.

³⁵ Han and Tong, 587–88.

³⁶ Zhen Zhang, "The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared" (Phd Diss, University of Sydney, 2014), 6, <https://ses.library.usyd.edu.au/handle/2123/13945>.

³⁷ Ding, "Chinese Diaspora's New Roles in China's Diplomacy," 71.

³⁸ Jie Chen, "The Chinese Political Opposition in Exile: A Chequered Development," *Europe-Asia Studies* 70, no. 1 (January 2, 2018): 114, <https://doi.org/10.1080/09668136.2017.1418297>.

members of the Chinese diaspora believe in the party line, other members reject the party line and instead choose to follow the values of Western democracy.

2. Domestic Incentives for Returning Scientists

Improving the living standards for returning overseas talent through PRC incentives is one area the PRC uses to help encourage scientists to return. Yan Tan notes that at every level of the CCP, changes have been made to make returning home more appealing.³⁹ William Hannas discusses how China's technology transfer is a series of hundreds of statutes and programs promoting transfers enacted over decades.⁴⁰ Ding notes that one such example is that the CCP has improved immigration reform to make it easier for Chinese scholars to return by shortening the time to get a visa and opening up opportunities.⁴¹ Additionally, Jeffrey Stoff notes that PRC talent programs are involved at every level, from national, to provincial, to municipal, and even at multiple institutions throughout the PRC.⁴²

Andrew Spear agrees with this and builds on how the CCP uses a "whole of government support" more specifically.⁴³ The Ministry of Human Resources and Social Security (MOHRSS) is one the key organizations along with the United Front Work Department (UFW) to help entice returning overseas Chinese to help with the rejuvenation of China. Spear reports that the MOHRSS, along with the Ministry of Education (MOE), are the point agencies for handling affairs domestically to entice returning Chinese while the United Front focuses more on foreign policy.⁴⁴ The MOHRSS

³⁹ Tan, "China's Diaspora Engagement Policy and Its Powerful Effect Outside Its Borders," 3.

⁴⁰ William Hannas and Huey-Meei Chang, "Chinese Technology Transfer," in *China's Quest for Foreign Technology: Beyond Espionage*, ed. William C. Hannas and Didi Kirsten Tatlow, Asian Security Studies (Milton: Taylor and Francis, 2020), 9, <https://doi.org/10.4324/9781003035084>.

⁴¹ Ding, "Chinese Diaspora's New Roles in China's Diplomacy," 67.

⁴² Jeffrey Stoff, "China's Talent Programs," in *China's Quest for Foreign Technology: Beyond Espionage*, ed. William C. Hannas and Didi Kirsten Tatlow, Asian Security Studies (Milton: Taylor and Francis, 2020), 39, <https://doi.org/10.4324/9781003035084>.

⁴³ Andrew Spear, "Serve the Mother Land While Working Overseas," in *China's Quest for Foreign Technology: Beyond Espionage*, ed. William C. Hannas and Didi Kirsten Tatlow, Asian Security Studies (Milton: Taylor and Francis, 2020), 24, <https://doi.org/10.4324/9781003035084>.

⁴⁴ Spear, 21.

has thus funded numerous plans helping to entice the diaspora to sign over 9,000 cooperation agreements in 2017 and 2018.⁴⁵ The MOHRSS has also helped support numerous technology competitions and programs to help build relations linking domestic and overseas locations.⁴⁶ The whole-of-society approach has allowed the PRC to create a highly effective apparatus to help with technology transfers, and it has enacted approximately 24 different laws to allow this apparatus to function.⁴⁷ These institutions and domestic bureaucracy help give more opportunities for the diaspora to return and provide opportunities and support for other programs.

The Thousand Talents Plan (TTP) is one of the most well-known programs the CCP uses to help provide diaspora incentives to return to the PRC. Ryan Fedasiuk and Emily Weinstein discuss how under the TTP, the PRC has constructed numerous “Research Parks” or “Dream Gardens” that provide housing and advanced labs to returning scientists under the TTP.⁴⁸ These labs are state of the art and provide modern equipment for returning scientists, similar to those of the Western countries they returned from. Previously, the PRC’s research and development had not yet caught up with the West making returning less desirable. Building these research parks, therefore, provides a strong incentive for scientists to return since they can easily continue their research in China while also receiving large salaries and grants.⁴⁹ Furthermore, these parks additionally have CCP support in helping overseas returning scientists settle in the PRC.⁵⁰ This support is accomplished in many ways, including providing childcare and immigration services to help place them in an appropriate park.⁵¹

⁴⁵ Spear, 26.

⁴⁶ Spear, 27–32.

⁴⁷ Diamond and Schell, *China’s Influence & American Interests*, 140.

⁴⁸ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 8.

⁴⁹ Remco Zwetsloot, *China’s Approach to Tech Talent Competition: Policies, Results, and the Developing Global Response* (Washington, DC: Brookings, 2020), 4, <https://www.brookings.edu/research/chinas-approach-to-tech-talent-competition/>.

⁵⁰ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 16.

⁵¹ Zwetsloot, *China’s Approach to Tech Talent Competition: Policies, Results, and the Developing Global Response*, 4.

While most authors agree that the PRC widely uses the TTP, not all agree on the program's success. Remco Zwetsloot argues that the TTP program has yet to be as successful as many thought it would be, as many Chinese who went to the United States are staying and not returning to the PRC as the CCP hoped.⁵² Zwetsloot shows this by showing that the amount of Ph.Ds studying in the United States who do not return to China has remained steady at 90% despite improvements like the research parks. Furthermore, while the percentage of students staying in the United States is staying steady, the number of students from the CCP is increasing.⁵³ Thus, this evidence suggests that the research parks and reforms are actually not helping entice academics and scientists to return to China or commit licit or illicit technology transfer at the scale the PRC hoped for. Lili Yang and Giulio Marini further add that often the scientists who return under the TTP are not the most qualified and their work is not as impressive as the members of the Chinese diaspora who choose to continue working abroad.⁵⁴ However, it provides a golden parachute for those who decide to engage in legal or illegal technology transfer or return to the PRC.⁵⁵

3. Overseas Organizations

Two of the main goals of the CCP as it pertains to the diaspora is convincing scholars to return and using the Chinese diaspora while they are still abroad as emphasized by Xi.⁵⁶ Diamond and Schell point out that the PRC has established entire labs in China whose sole role is to work with the information provided by the Chinese diaspora working abroad to allow the Chinese diaspora to help with the great rejuvenation of China by helping to improve China's industrial base without needing to return to the PRC.⁵⁷ As such, Diamond and Schell report that the PRC apparatus relies "on a web of activities, including open-source research, exchanges, cooperation, and professional organizations,

⁵² Zwetsloot, 4–5.

⁵³ Zwetsloot, 5.

⁵⁴ Lili Yang and Giulio Marini, "Research Productivity of Chinese Young Thousand Talents," *International Higher Education*, no. 97 (2019): 17, <https://doi.org/10.6017/ihe.2019.97.10944>.

⁵⁵ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 16.

⁵⁶ Spear, "Serve the Mother Land While Working Overseas," 22.

⁵⁷ Diamond and Schell, *China's Influence & American Interests*, 140.

direct funding of research, strategic acquisition, and cyber espionage” to allow members of the Chinese diaspora to engage in technology transfer.⁵⁸ The wide range of options this apparatus provides gives the PRC many opportunities to leverage the diaspora for technology transfer.

For organizations utilized by the PRC, Ryan Fedasiuk and Emily Weinstein discuss how while many of these organizations are simply a networking mechanism, many are not and serve as access points.⁵⁹ Fedasiuk and Weinstein report that of a sample of 208 organizations, 61% report engaging in some sort of Chinese technology transfer.⁶⁰ Of the organizations reviewed, approximately one-third were located in the United States, and the rest spanned 21 different countries, including key allies of the United States, showing the broad reach of PRC support for the diaspora.⁶¹ Diamond and Schell have noted that sometimes organizations that engage in technology transfer can sometimes have thousands of members.⁶² These organizations allow the PRC to access technology while also leaving members of its diaspora in place for other influence operations.

Scholars, however, are careful to note that there are many reasons why someone might want to join one of these organizations.⁶³ They state that these groups help the diaspora overcome unique disadvantages, including limits on promotion and other opportunities at work, sometimes referred to as the “bamboo ceiling,” and provide networking opportunities.⁶⁴ Thus, the PRC’s overseas support again provides another method for the Chinese diaspora to support China’s rejuvenation. However, unlike

⁵⁸ Diamond and Schell, 143.

⁵⁹ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 2.

⁶⁰ Fedasiuk and Weinstein, 2.

⁶¹ Fedasiuk and Weinstein, 2.

⁶² Diamond and Schell, *China’s Influence & American Interests*, 143.

⁶³ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 3; Remco Zwetsloot and Zachary Arnold, “Chinese Students Are Not a Fifth Column,” *Foreign Affairs*, April 23, 2021, <https://www.foreignaffairs.com/articles/united-states/2021-04-23/chinese-students-are-not-fifth-column>.

⁶⁴ Zhang, “The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared,” 136–37; Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 3.

domestic support, it also provides a motivation factor to partake in technology transfer due to the sense of camaraderie these organizations build.⁶⁵ Given how widespread these institutions are and their strong roots to the PRC, scholars argue that these organizations are a strong factor in enabling PRC technology transfer.

4. Financial Motivations

The PRC has devoted a lot of capital to enticing the Chinese diaspora to return and support the PRC. Many of their methods involve some financial motivation to help convince members of the Chinese Diaspora to engage in illicit technology transfer. Scholars have highlighted several mechanisms, including scholarships, technology entrepreneurship competitions, foreign direct investment, and personal financial enticements.⁶⁶ Furthermore, these efforts are not aimed only at the United States but are used worldwide.

Scholarships are one of the key ways the PRC helps to encourage technology transfer and loyalty to the CCP. According to Imbrie and Fedasiuk, one of the scholarships provided is the National Outstanding Self-Funded International Student Scholarship which is offered to Chinese diaspora students who otherwise would not receive any funding from the Chinese government in an attempt to convince them to return to China or support China with their research.⁶⁷ Looking at these scholarships, most were awarded to the Chinese diaspora in the United States, with 33.6% awarded in the United States from 2014–2018.⁶⁸ The second-place country was Australia, with 9.2% of the scholarships awarded from 2014–2018, showing the Chinese government’s prioritization of the United States and Australia.

⁶⁵ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 3.

⁶⁶ Imbrie and Fedasiuk, *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer*, 1; Hamilton, *Silent Invasion*, 112; Spear, “Serve the Mother Land While Working Overseas,” 27–32; Peter L. Mattis and Matthew J. Brazil, *Chinese Communist Espionage: An Intelligence Primer* (Annapolis, Maryland: Naval Institute Press, 2019), 145.

⁶⁷ Imbrie and Fedasiuk, *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer*, 2.

⁶⁸ Imbrie and Fedasiuk, 3.

In addition to providing scholarships, one of the other methods the PRC uses is technology entrepreneurship competitions. Technology entrepreneurship competitions vary in size, but generally, 39% come from the United States, while the rest come from Canada, Australia, and Western Europe.⁶⁹ Another example of a PRC-driven competition is the Chunhui Cup which aims to relocate overseas start-ups back to China.⁷⁰ Looking at the 2019 Chunhui Cup of the finalists, the most came from the United States with 80, the United Kingdom came in second with 42, and Australia came in third with 28.⁷¹

Regarding investing in foreign technology companies, Imbrie and Fedasiuk report that approximately 37.7% of Chinese foreign direct investment goes to the United States as the primary source, while only a marginal amount goes to Australia.⁷² However, the PRC still invests a lot of capital into Australia though just not in foreign technology companies.⁷³ However, the literature at this point suggests that the Chinese diaspora is not specifically targeted by the PRC when investment decisions are made, and instead, the end goal of what the PRC is trying to acquire plays more of a role.⁷⁴ Rosalie Tung and Henry Chung discuss how for the Chinese diaspora in Australia, being a member of the Chinese diaspora helps encourage and improve technology transfer and facilitates trade between Australia and the PRC.⁷⁵ They argue that the connection with the Chinese mainland that members of the Chinese diaspora often maintain allows both the members of the diaspora and the companies they work for to monetarily profit since the company can expand and tap into the lucrative Chinese market.

Outside of companies, the role of financial motivations with individuals was also identified. When Mattis Brazil reviewed 107 economic espionage cases involving

⁶⁹ Imbrie and Fedasiuk, *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer*, 4.

⁷⁰ Spear, “Serve the Mother Land While Working Overseas,” 29.

⁷¹ Spear, 31.

⁷² Imbrie and Fedasiuk, *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer*, 8.

⁷³ Hamilton, *Silent Invasion*, 111.

⁷⁴ Hamilton, 112.

⁷⁵ Tung and Chung, “Diaspora and Trade Facilitation,” 1.

members of the Chinese Diaspora from 1997 to 2017, 85 involved a lucrative job or payout for the person engaging in technology transfer.⁷⁶ Furthermore, the lack of apparent financial incentive does not mean that no financial incentive was present on some unknown level. These cases often did not have a known motive due to a lack of publicly available information regarding the case. Thus, financial motivations could still remain a strong motivator for legal and illegal technology transfer.

5. Three Main Mechanisms for PRC Technology Transfer

Based on this literature review, while four main sections were discussed in the review, three main mechanisms for PRC technology transfer were identified. They are the domestic incentives for returning scientists, the support the PRC provides to overseas organizations, and the coercive methods used against diaspora members. Within each of these mechanisms, the vast majority of all PRC actions to entice diaspora members to engage in technology transfer can fit. Furthermore, each of these mechanisms is unique enough to be reviewed on its own to determine an underlying factor enabling the mechanism. The fourth section reviewed in the literature review, financial incentives, was not unique enough in and of itself for it to be highlighted as its own mechanism but was rather part of all the other mechanisms. While not its own mechanism, it does account for one of the potential hypotheses discussed below as it is involved in each of the main mechanisms.

D. POTENTIAL HYPOTHESES

This section presents potential answers to the initial research posed based on the literature review to determine which factor enables the PRC to use its diaspora for technology transfer.

Hypothesis One: The PRC's ability to provide opportunities to engage in technology transfer through overseas organizations and use these same organizations to extend its reach allows the PRC to most effectively use the diaspora to support PRC technology transfer objectives.

⁷⁶ Mattis and Brazil, *Chinese Communist Espionage*, 145–94.

The PRC has established various overseas support organizations for its diaspora. These organizations provide a sense of belonging and help them overcome common challenges faced in Australia and the United States with the “bamboo ceiling.” Furthermore, these organizations often act as an extension of the PRC allowing the PRC to extend its reach even further. Through these organizations, the PRC has established a mechanism that allows for technology transfer, extends the reach of the PRC and helps provide a sense of camaraderie and support. Thus, by having organizations linked to the PRC that support technology transfer, even if someone is not an ardent supporter of the PRC, they could be more willing to engage in technology transfer for the other benefits that these organizations supply. Furthermore, the scholars in these organizations do not need to return to China. They can keep their job and still get fiscal and social support. If this hypothesis holds true, we should expect to see a large percentage of Chinese technology transfer come through these organizations or have these organizations play an underlying role in how the other mechanisms function.

Hypothesis Two: The PRC’s domestic incentives and the bureaucracy that supports them provide a pull factor enticing members of the Diaspora to return to the PRC by making returning to the PRC lucrative and more competitive with Western nations.

Through programs such as the TTP, the investments in PRC educational and research facilities and reforms to the Chinese educational model make the PRC potentially as competitive as other Western countries. This coupled with the scholarships and research grants the PRC offers through these programs then draws diaspora members to return to the PRC instead of staying in their original country. Furthermore, these programs provide the researchers who take part with a huge boost in salary and prestige that they might not have been able to achieve in the West. If this hypothesis were true, we would expect to see the majority of scientists engaged in technology transfer to return back to China to further their research under these programs and leave their position in the United States or Australia.

Hypothesis Three: The coercive and control measures leveraged by the PRC to maintain control of the diaspora keep the diaspora in line and allows the diaspora to be leveraged to support the PRC even if they do not desire to do so willingly.

The PRC has increasingly used tactics to monitor and control their diaspora while they are still abroad. Additionally, Chinese diaspora members are conditioned to ensure they remain loyal to the party and continue to toe the party line before they depart overseas. This control and influence allow the PRC to keep tabs on their diaspora while continuing to engage with them and asking for support. It also encourages diaspora members to police other members to ensure all Chinese diaspora members support the PRC. These tactics allow the CCP to maintain control over their diaspora while they are still abroad and have leverage over them if they are not abiding by the CCP's wishes. Thus, if members of the Chinese diaspora have access to pieces of technology the PRC wants, the PRC can use these mechanisms to compel diaspora members to transfer the technology to them even if they do not want to. If this hypothesis is true, we would expect to see diaspora members primarily engage in technology transfer when they were being forced to do so by some leverage the CCP had over them, including but not limited to family in China, debts, or blackmail.

Hypothesis Four: The financial incentives provided by the PRC motivate diaspora members to engage in technology transfer since the PRC offers them a way to improve their standard of living and advance economically.

The PRC routinely uses financial incentives to help encourage diaspora members to engage in technology transfer. These incentives range from the TTP to Dream Gardens, to providing start-up capital for new businesses. Through these incentives, diaspora members can fund their research as well as greatly improve their standard of living. Furthermore, these financial incentives provide another source for diaspora members to get funding to start their own businesses or advance in their respective fields if they feel they cannot advance any further. These incentives could therefore provide strong incentives for diaspora members to engage in technology transfer even if they would not be initially be willing to do so. If this hypothesis holds true, then we would expect to see financial motivations at the core of the main mechanisms when diaspora members engage in technology transfer by diaspora members taking advantage of these incentives.

E. THESIS OUTLINE AND METHODOLOGY

This thesis compares technology transfer in the United States and Australia conducted by the Chinese diaspora to determine which factor is most influential. Chapter I provides the research question and the significance of the question, reviews the existing literature, and lays out potential hypotheses and the methodology for assessing them.

Chapter II examines the United States and discusses all three mechanisms as they pertain directly to the Chinese Diaspora in the United States. For each mechanism, current PRC methods that allow for technology transfer using that mechanism are discussed. Case studies of specific members of the Chinese diaspora and examples of specific CCP-backed organizations are then used to show examples of how those mechanisms have worked. Finally, the effectiveness of those mechanisms is judged using the case studies provided based on the frequency the mechanism is used and if other mechanisms were also involved in the transfer to determine which hypothesis is correct. The data for this section is primarily case studies conducted by the U.S. government and think tanks looking at members of the Chinese diaspora and CCP-backed organizations and reviewing the motives and the method for engaging in technology transfer found. Additionally, declassified investigations run by the FBI and other United States Law Enforcement Agencies supplement the case studies.

Chapter III looks at Australia and discusses all three mechanisms as they pertain directly to the Chinese diaspora in Australia. However, a smaller case sample is used due to a lack of publicly available case-specific information when looking at the effectiveness of these mechanisms in Australia. This sample size focuses more on CCP-backed organizations and Chinese diaspora-supported companies and looks to other mechanisms the PRC has in place that could lead to technology transfer. As no Chinese diaspora member has been convicted of industrial espionage as of the time of writing, illicit technology transfers are not discussed.⁷⁷ The examples used therefore are exclusively legal and extra-legal examples. The mechanisms' effectiveness is evaluated using the same criteria in Chapter II. The data for this section is primarily comprised of case studies

⁷⁷ Hamilton, *Silent Invasion*, 181.

conducted by think tanks as well as academic research that looks at members of the Chinese diaspora and CCP-backed organizations that reviews their motives as well as the method for engaging in technology transfer. Investigations conducted by Australian Law Enforcement were unavailable most likely due to the lack of prosecutions, so news articles and academic sources are used for case-specific information.

Chapter IV compares the findings from Chapter II and Chapter III to determine if there is a main factor enabling the PRC to use its diaspora or technology transfer. How the Australian government and the United States have responded thus far to technology transfer is also briefly discussed. Based on the findings of the two cases and the approach the Australian Government and the United States Government have used for this problem, policy recommendations for helping to reduce Chinese technology transfer are recommended. The policy recommendations provided aim to help create more effective policies that target the source of the issue rather than an overreaction that hurts beneficial members of the Chinese diaspora that are helping the United States and Australia.

II. DIASPORA IN THE UNITED STATES

A. INTRODUCTION

The People's Republic of China (PRC) has rapidly developed into the world's second-largest economy and many worry it will soon overtake that of the United States. One of the key aspects that has helped China's rise is the Chinese diaspora. Through legal and illegal activities, the PRC uses the Chinese diaspora to collect technology to grow its economy while simultaneously undermining the economy of the United States.⁷⁸ As tensions between the United States and the PRC rise, the United States must ensure it maintains its technological edge to effectively compete with China. According to the FBI, "a new counterintelligence investigation into China is opened every 10 hours" and the PRC is estimated to steal between 225 and 600 billion USD annually with approximately 60% of all trade theft cases involving some nexus to China.⁷⁹ The PRC's high level of theft is a threat that must be addressed.⁸⁰ As such, the United States must examine its current policies in dealing with Chinese technology transfer.

This chapter examines which factors enable the PRC to use its diaspora to conduct technology transfer in the United States. Three factors in the United States contributing to PRC technology transfer, that were determined through the literature review, are PRC domestic incentives provided to returning scientists, overseas organizations set up by the PRC to help facilitate technology transfer, and the Chinese Communist Party's (CCP) ability to control and coerce the Chinese diaspora. Through reviewing U.S. Government documents, law enforcement reports, think tank papers, journal articles, and books, this

⁷⁸ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 3.

⁷⁹ Merchant, "U.S. Needs to Reform Efforts to Stop Enemy Spies, Report Says"; Federal Bureau of Investigation, *China: The Risk to Academia*, 1; Department of Justice, "Information About the Department of Justice's China Initiative and a Compilation of China-Related Prosecutions Since 2018."

⁸⁰ Amy B. Zegart, "Counterintelligence: To Catch a Spy," in *Spies, Lies, and Algorithms*, The History and Future of American Intelligence (Princeton University Press, 2022), 147, <https://doi.org/10.2307/j.ctv1t8q8tp.11>.

chapter finds that the CCP's financial incentives are the key factor enabling PRC technology transfer.⁸¹

At the core of PRC mechanisms in the United States are strong financial incentive-based programs designed to help encourage scientists and academics to choose the PRC over the United States. The PRC provides domestic incentives to returning scientists that are often financial and provide a strong reason for diaspora members to engage in technology transfer. These incentives help boost the quality of life for scientists by allowing them to improve their standard of living either in the United States or in the PRC.

When reviewing overseas organizations, the PRC provides substantial funding for these organizations in exchange for their help running their technology transfer hubs. Furthermore, these organizations help set up their members with lucrative job opportunities or grants in the PRC helping to further PRC technology transfer. While these organizations are critical to technology transfer as explored further in Chapter III, for the United States, financial incentives are more intertwined with the mechanisms than the overseas organizations themselves.

Finally, when looking at coercion, the PRC seldom if ever uses this method for technology transfer when targeting the diaspora. While the PRC has the mechanisms in place to theoretically force diaspora members to engage in technology transfer, they chose instead to use positive financial incentives. Thus, the financial motivations the PRC employs are powerful enough that the PRC does not need to use this mechanism since it can get what it needs primarily from motivating its targets financially.

This chapter will dive deeper into each of these mechanisms and be broken up into each mechanism. First, each mechanism is described by looking at how the different aspects of the mechanisms come together. Next, examples of how that mechanism is

⁸¹ When specific cases are referenced for being reviewed, the cases are pulled from three main sources. First, the Department of Justice's "China Initiative Page" which lists all investigations connected with the initiative. Second, appendix one in the book *Chinese Industrial Espionage: Technology Acquisition and Military Modernisation* by William Hannas, James Mulvenon, and Anna Puglsis is used as it contains examples of illegal Chinese technology transfer from 2007 until 2011 provided by the FBI. Third and finally, Chapter 4 of the book *Chinese Communist Espionage: An Intelligence Primer* by Peter Mattis and Matthew Brazil is used as the entire chapter is dedicated to examples of illegal technology transfer from 1997 to 2017.

applied both legally and illegally in the United States are reviewed to show how the mechanisms work to determine the common thread between each of the mechanisms.

B. DOMESTIC INCENTIVES TO RETURNING SCIENTISTS

The goal of the PRC's work with overseas diaspora scholars is three-fold. First, it is to convince them to return to the PRC to work, second, to have them return to start businesses, and third to continue to serve the interests of the PRC.⁸² To achieve these goals, the PRC has enacted several initiatives to provide domestic incentives to encourage diaspora members to return. These incentives often involve a strong financial component encouraging companies and diaspora members to return to the PRC and engage in technology transfer.

One of the PRC's key initiatives to accomplish the first goal is improving its domestic academic capability to be more competitive with the United States. Initially, many scientists did not want to return to the PRC since the facilities provided were not as good as the labs and options inside the United States which are some of the best in the world.⁸³ However, the PRC has improved its domestic research centers and universities and has become one of the world's most productive science systems.⁸⁴ These improvements have made China more competitive with the United States and therefore have helped make returning to China a more tempting choice.

In addition to improving the domestic academic system, the PRC has also established impressive incentive programs to entice academics to return. The Thousand Talents Plan (TTP) is one of the most well-known programs the CCP uses to help incentivize the diaspora to return to the PRC.⁸⁵ Under the TTP, the PRC has constructed numerous "Research Parks" or "Dream Gardens," which provide housing and advanced labs to returning scientists under the TTP all in one location making it much more

⁸² Spear, "Serve the Mother Land While Working Overseas," 23.

⁸³ Zhang, "The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared," 143.

⁸⁴ Cong Cao et al., "Returning Scientists and the Emergence of China's Science System," *Science and Public Policy* 47, no. 2 (April 1, 2020): 2, <https://doi.org/10.1093/scipol/scz056>.

⁸⁵ Stoff, "China's Talent Programs," 39.

convenient for returning scientists.⁸⁶ Furthermore, the CCP supports returning scientists settling in the PRC including providing childcare, helping with immigration services, and helping with settlement in a more suitable location.⁸⁷ These improvements make settling in the PRC easier and more appealing to diaspora members. Instead of starting from scratch after uprooting their life, these programs make it easier to immigrate back to the PRC and provide these scientists with many perks and a higher quality of life than they would not have achieved if they had stayed in the United States.⁸⁸ Additionally, all of these incentives come with grant money and typically impressive salaries all while also moving to a country with a significantly lower cost of living than the United States allowing the salary to be stretched even further.⁸⁹ Therefore, the financial incentives the PRC provides through programs such as the TTP to improve and recharge the financial well-being of diaspora scientists is a driving factor leading them to engage in technology transfer.

The PRC additionally helps draw businesses and diaspora members from the United States back to the PRC by offering large amounts of start-up funding to help start businesses in key areas where the PRC wants to improve or by holding various start-up competitions.⁹⁰ Some examples of the laws for corporations that transfer technology enacted by the PRC involve laws governing tax deductions of between 150% and 175% and providing state-sponsored cash grants.⁹¹ Another example of the laws enacted to encourage foreign businesses to come to the PRC is the PRC's automotive industry. The CCP has established strong tariffs for entering the PRC however, if the cars are

⁸⁶ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 8.

⁸⁷ Fedasiuk and Weinstein, 16; Zwetsloot, *China's Approach to Tech Talent Competition: Policies, Results, and the Developing Global Response*, 4.

⁸⁸ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 3.

⁸⁹ Mattis and Brazil, *Chinese Communist Espionage*, 157; Department of Justice, "Central District of California | Chinese National Who Stole Trade Secrets While Working for Medical Device Companies Sentenced to Federal Prison | United States Department of Justice," January 28, 2019, <https://www.justice.gov/usao-cdca/pr/chinese-national-who-stole-trade-secrets-while-working-medical-device-companies>.

⁹⁰ Spear, "Serve the Mother Land While Working Overseas," 29.

⁹¹ Karen Sutter, "Foreign Technology Transfer Through Commerce," in *China's Quest For Foreign Technology*, ed. William C. Hannas and Didi Kirsten Tatlow, Asian Security Studies (Taylor and Francis, 2020), 59;60;62.

manufactured in the PRC then these tariffs are avoided making foreign direct investment in the form of automotive factories more appealing.⁹² In addition to companies, the PRC also conducts competitions to bring start-up businesses back to the PRC to help encourage diaspora members to leave the United States. Two potential reasons why diaspora members might decide to engage in this are if they feel their career has stagnated in the United States or if believe they have a greater chance for financial success in the PRC.⁹³ Additionally, many of the TTP benefits also extend to these programs in that many of the start-ups are also placed in the research parks with impressive living quarters as well as facilities to grow their companies. Therefore, in addition to talent programs, the PRC's financial incentives regarding business creation are also a driving factor leading diaspora members to return with new technology to improve their financial position.

C. DOMESTIC INCENTIVES EXAMPLES

The following section looks at how this mechanism is applied by looking at examples of both illegal and legal examples of technology transfer. The cases reviewed for these examples are provided from publicly accessible FBI files as well as reviews of cases done by academics published in books.

1. Illegal Transfer Examples

When reviewing cases of illegal technology transfer, the pulls of Chinese business funding, as well as business markets, were a common theme. When looking at individuals who engaged in illegal technology transfer, Peter Mattis and Matthew Brazil provided descriptions of 107 economic espionage cases involving members of the Chinese Diaspora from 1997 to 2017.⁹⁴ After reviewing the cases Mattis and Brazil provided, 85 involved some form of known financial incentive.⁹⁵ Furthermore, 23 of these 85 involved the

⁹² William C. Hannas, James Mulvenon, and Anna B. Puglisi, *Chinese Industrial Espionage: Technology Acquisition and Military Modernisation*, Asian Security Studies (London: Routledge, 2013), 63, <https://doi.org/10.4324/9780203630174>.

⁹³ Ryan Fedasiuk and Emily Weinstein, "Overseas Professionals and Technology Transfer to China" (Center for Security and Emerging Technology, July 2020), 3, <https://doi.org/10.51593/20190038>.

⁹⁴ Mattis and Brazil, *Chinese Communist Espionage*, 145–94.

⁹⁵ Mattis and Brazil, 145–94.

individual in question moving back to the PRC to start their own company with the stolen information. The types of businesses the diaspora members planned on starting included irrigation technology, analog to digital converters, telecommunications, and hybrid vehicles to cite a few examples.⁹⁶

For example, Jin Hanjuan worked at Motorola for nine years before being arrested after attempting to leave the United States with a one-way ticket for the PRC.⁹⁷ The investigation revealed that she had planned to go to the PRC to start her own telecommunications company with support from the PLA and under PLA guidance.⁹⁸ In another example, Cheng Yongqing planned to steal software from a U.S. company's server.⁹⁹ Cheng and his partners were offered between \$500,000 and \$1.2 million USD in start-up funding from the PRC.¹⁰⁰ Cheng initially looked for this start-up funding in the United States but after failing to secure it, went to the PRC where he was able to secure it to start his company. Thanks to the domestic incentives put in place by the PRC, these diaspora members were more willing to attempt to transfer technology back to the PRC thanks to the guidance and financial support provided by the PRC. The financial lure extends from being able to start their own business to conducting research as well.¹⁰¹

The Chinese Talent Programs are one of the most well-known sources for convincing diaspora members to transfer technology back to the PRC from the United States. Often, one of the reasons for this is that programs like the TTP help provide substantial living space and financial compensation for those willing to engage in the program. These incentives were the case for Wenfung Lu who was convicted of stealing proprietary technology from multiple medical device manufacturing companies.¹⁰²

⁹⁶ Mattis and Brazil, 146–53.

⁹⁷ Mattis and Brazil, 160.

⁹⁸ Mattis and Brazil, 161.

⁹⁹ Mattis and Brazil, 150.

¹⁰⁰ Mattis and Brazil, 150.

¹⁰¹ Hannas, Mulvenon, and Puglisi, *Chinese Industrial Espionage*, 136.

¹⁰² Department of Justice, “Central District of California | Chinese National Who Stole Trade Secrets While Working for Medical Device Companies Sentenced to Federal Prison | United States Department of Justice.”

According to the U.S. Attorney’s office in Central California who tried the case, Lu was “not content with a substantial salary, a comfortable life in Irvine, California, and the opportunity to develop meaningful products that save people’s lives.”¹⁰³ As a result, Lu was part of a PRC Talent Program and agreed to steal information on medical devices to help with heart issues and then develop it in the PRC for a fraction of the cost. In exchange, the PRC offered Lu 2 million RMB and a free three-year stay in an apartment in a technology park in Nanjing.¹⁰⁴ The situation with Lu is a classic example of the TTP in action with a United States scientist. The PRC was able to find an unhappy scientist and offer him a substantial quality-of-life improvement. The financial incentive was then enough to convince the scientists to transfer technology to the PRC.

2. Legal and Extralegal Transfer Examples

Not all methods used by the PRC to target technology transfer in the United States are illegal. One legal or “Extralegal” method used by the PRC is technology entrepreneurship competitions. The largest PRC-driven technology competition is the Chunhui Cup which aims to relocate overseas start-ups back to China initially started by diaspora members and is typically only open to diaspora members.¹⁰⁵ Technology entrepreneurship competitions vary in size, but generally, at least 39% of participants originate in the United States.¹⁰⁶ For example, when looking at the 2019 Chunhui Cup finalists, a majority of them, 80 in total, were from the United States.¹⁰⁷ When viewing winners of the competitions, most of the services highlighted were related to high-tech fields and digital information.¹⁰⁸ Through this domestic program run by the Ministry of Education (MOE) and Ministry of Science and Technology (MOST), the PRC offered start-

¹⁰³ Department of Justice.

¹⁰⁴ Department of Justice.

¹⁰⁵ Spear, “Serve the Mother Land While Working Overseas,” 29.

¹⁰⁶ Imbrie and Fedasiuk, *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer*, 4.

¹⁰⁷ Spear, “Serve the Mother Land While Working Overseas,” 31.

¹⁰⁸ Spear, 30.

up funding to bring needed technology back to the PRC.¹⁰⁹ Between 2006 and 2016 over 448 companies returned to the PRC through this program and about half received further awards in the form of grants after returning.¹¹⁰ Thus, through funding competitions, like the Chunhui Cup, the PRC can use the diaspora to attract new business ideas from around the world instead of only relying on the start-up culture in the PRC. While not everyone will be interested in applying for such an opportunity, this program allows the PRC to expand its reach much further than just its shores and pull back more talent. Thus, the financial opportunities competitions like this provide a strong pull for legal technology transfer in addition to illegal.

D. INTERNATIONAL OUTREACH THROUGH OVERSEAS ORGANIZATIONS

In addition to the domestic incentives the PRC provides to convince scientists to return, the second mechanism the CCP uses with diaspora scientists to help them transfer technology is its use of overseas organizations. Outside of the PRC, the CCP has set up and supported many overseas organizations inside the United States that cater directly to members of the Chinese diaspora. While many of these organizations are simply networking mechanisms, many also serve as access points for technology transfer for the CCP.¹¹¹ Of a sample of 208 professional organizations, 61% reported engaging in some sort of Chinese technology transfer.¹¹² In the United States, these organizations often are courted by PRC consulate officials and then further vetted at exchange programs in the PRC.¹¹³ These organizations appeal to many Chinese overseas students since they help provide a way for students to find other like-minded individuals with similar backgrounds. Furthermore, these organizations are a great help in putting on events and aiding in networking with other diaspora members. Therefore, these organizations are a prime target

¹⁰⁹ Imbrie and Fedasiuk, *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer*, 4.

¹¹⁰ Spear, “Serve the Mother Land While Working Overseas,” 30.

¹¹¹ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 2.

¹¹² Fedasiuk and Weinstein, 2.

¹¹³ William Hannas and Huey-Meei Chang, *China’s Access to Foreign AI Technology* (Washington, D.C.: Center for Security and Emerging Technology, 2019), 19, <https://doi.org/10.51593/20190053>.

for the CCP to target potential diaspora members to aid in technology transfer given their proximity to academia and close working relationship with universities. Most importantly these organizations help provide financial incentives through finding the organization members jobs and research opportunities for those who need them, providing a powerful incentive.¹¹⁴

The CCP accomplishes targeting these organizations through a vast array of 600 talent recruitment centers worldwide with 146 in the United States, the most in any country.¹¹⁵ These organizations look for and recruit different scientists working on technology that would benefit the PRC based on CCP technological priorities. Often, they are contracted out to other organizations to contact the scientists and attempt to recruit them as a part of the TTP.¹¹⁶ These overseas organizations are a critical part of the CCP's TTP initiative by providing on-the-ground scouts in the United States to allow the PRC to find scientists that will help them the most. In exchange for acting as scouts and helping with the day-to-day operations, the PRC provides the labs directly with much-needed funding typically in the form of grants.¹¹⁷ As many universities and laboratories across the United States currently struggle with funding, the additional funding provided by the PRC is often hard to turn down as it helps provide much-needed resources to keep the university running. Thus, through these overseas organizations, the CCP can pitch its incentives to prospective scientists more effectively. Therefore, the funding the PRC provides for accepting the organizations means that the universities and laboratories are more likely to accept the PRC organizations. Furthermore, this extra funding means that the organizations that had already been established are more likely to accept contracts to get the additional funding.

To manage these organizations and relationships, the PRC has set up various PRC ministries. One of the main ministries charged with managing the relationship between the

¹¹⁴ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 4.

¹¹⁵ Alex Joske, *Hunting the Phoenix* (Australian Strategic Policy Institute, 2020), 6, <http://www.jstor.org/stable/resrep26119.1>.

¹¹⁶ Joske, 6.

¹¹⁷ Anna B. Puglisi, "Chinese Students, Scholarship, and U.S. Innovation," in *China's Quest for Foreign Technology: Beyond Espionage*, Asian Security Studies (Milton: Taylor and Francis, 2020), 280–81.

PRC and overseas organizations is the Ministry of Human Resources and Social Security (MOHRSS).¹¹⁸ The MOHRSS manages several PRC programs designed to work with overseas organizations to help the diaspora continue to support the PRC while still abroad. This engagement is typically accomplished through various programs established by the MOHRSS or MOE. These programs then invite various professional organizations to join and provide them with funding in exchange for engaging in technology transfer. To accomplish these goals, the MOHRSS often works and interacts with U.S.-based diaspora science and technology organizations. This engagement then helps encourage scientists to return to the PRC through its various programs.

While the ministries charged with overseas talent engagement typically work with overseas organizations using various programs like the TTP, the PRC has also established entire labs in China dedicated to transferred technology.¹¹⁹ The sole role of these labs is to work with the information provided by the Chinese diaspora working abroad to allow China's industrial base to continue thanks to overseas Chinese diaspora members who have not returned to the PRC.¹²⁰ Through these programs and overseas-focused labs, the PRC can extend its reach outside of the PRC, and through the funding to various institutions the PRC attaches with these programs, the PRC can help convince members of the diaspora to transfer technology back to the PRC.

E. OVERSEAS ORGANIZATION EXAMPLES

The following section looks at how this mechanism is applied by looking at examples of both illegal and legal examples of technology transfer. The cases reviewed for these examples are provided from reviews of cases done by academics published in books and think tank reports.

¹¹⁸ Spear, "Serve the Mother Land While Working Overseas," 21.

¹¹⁹ Diamond and Schell, *China's Influence & American Interests*, 140.

¹²⁰ Diamond and Schell, 140.

1. Illegal Transfer Examples

While many overseas organizations help Chinese diaspora scientists connect, some are heavily connected with the CCP and serve as talent recruitment centers for technology transfer. These organizations do not always conduct technology transfer legally and have faced scrutiny for their roles in technology transfer. One example is the Association of Wenzhou PhDs USA, which was founded by four PhDs who all hailed from Wenzhou, China.¹²¹ This organization has extensive ties with the CCP and more specifically the United Front Work Department (UFWD). The UFWD referred to the organization as “highly significant” during a trip to the United States and provided the organization with a list of U.S.-based PhDs who were later recruited to the organization.¹²²

The concerns of connection to the CCP were highlighted when Tesla sued Cao Guangzhi, one of the founding members of the group for engaging in technology theft.¹²³ In March 2019, Tesla alleged Cao “stole source code for its Autopilot features before taking it to a rival start-up, China’s Xiaopeng Motors”.¹²⁴ Immediately after allegedly stealing the code, Cao started at Xiaopeng Motors where he was listed as the “head of perception” as of 2019. While Xiaopeng Motors publicly denies any knowledge of the theft, given that this is a typical tactic of diaspora members returning to work in the PRC, they were likely aware of the theft and Cao used the technology to help move into his senior position.¹²⁵ Cao eventually settled with Tesla over the dispute for an undisclosed amount in 2021.¹²⁶ Thus, through the overseas organization, Association of Wenzhou PhDs USA, the PRC was able to convince a scientist to engage in illegal technology transfer thanks to a lucrative job option. Hence, financial motivations resurface as an underlying factor in the PRC’s technology transfer strategy.

¹²¹ Joske, *Hunting the Phoenix*, 22.

¹²² Joske, 22.

¹²³ Joske, 22.

¹²⁴ Joske, 22.

¹²⁵ Federal Bureau of Investigation, *China: Risk to Corporate America* (Quantico, VA, 2019).

¹²⁶ Tim Levin, “Tesla Settles Lawsuit with Former Employee Accused of Stealing Autopilot Trade Secrets,” Business Insider, accessed August 19, 2023, <https://www.businessinsider.com/tesla-settles-autopilot-trade-secrets-lawsuit-2021-4>.

2. Legal and Extralegal Transfer Examples

One program that the MOHRSS manages that is highly successful is the Help Our Motherland through Elite Intellectual Resources from Overseas (HOME) program. As of 2017, of the 96 overseas organizations worldwide that interact with the HOME Program 47 were based in the United States.¹²⁷ These programs are all science and technology-based programs and actively engage in technology transfer to the PRC through this program. Under the HOME program, these organizations have established 1,099 signed cooperation agreements and relocated 1,267 start-up programs back to the PRC in 2017 alone.¹²⁸ This impressive accomplishment was made possible thanks to the Offshore Entrepreneurial bases supported by overseas organizations set up by the HOME program.¹²⁹ Under these entrepreneurial bases, the HOME program significantly improved efficiency by enabling direct collaboration with scientists directly in the United States allowing them to continue to transfer technology to the PRC while not having to return.

In the case of the San Diego-based center, two key overseas organizations have helped with this transfer, the Sino-America Biotechnology and Pharmaceutical Professional Association (SABPA) and a subsidiary of Guangzhou Improve Medical Instruments based in California that “specializes in commercial collaborations and R&D Laboratory support”.¹³⁰ Through these organizations, the PRC can effectively run this aspect of the HOME program allowing them to efficiently transfer technology back to the PRC. These programs provide the primary support system and are who the center works through to find and recruit scientists to transfer technology back to the PRC. The MOHRSS is authorized and encouraged by its charter to provide financial incentives for providing this support.¹³¹ These incentives are to help “fully exploit overseas talent resources and encourage overseas scholars to serve the motherland through various methods whether they

¹²⁷ Spear, “Serve the Mother Land While Working Overseas,” 27.

¹²⁸ Spear, 27.

¹²⁹ Spear, 28.

¹³⁰ Spear, 28.

¹³¹ Spear, 25.

are studying or working overseas.”¹³² Therefore, for supporting PRC technology transfer, these organizations are receiving financial support allowing them to continue to operate showing the powerful attractiveness of PRC financial motives and their utility in enabling technology transfer.

F. COERCIVE EFFORTS

The third mechanism of coercive efforts looks at the negative pressures the PRC applies to its diaspora to force them to engage in technology transfer unlike the first two which were positive incentives. One of the defining aspects of how the CCP engages with its diaspora is its attempts to continue to monitor and control them after they leave the PRC. The CCP has established a wide range of methods from extensive databases to overseas police stations to achieve this monitoring. One of the increasing concerns for PRC control over its diaspora is the use of a growing number of overseas PRC police stations.¹³³ While the stated goal of these centers is to help with administrative tasks, they also have been accused of being used to “harass, threaten, intimidate and force targets to return to China for persecution.”¹³⁴ Recently, in the fall of 2022, the FBI arrested Chinese diaspora members for conducting influence operations targeting Chinese dissidents.¹³⁵ These overseas police stations are just now being studied, and there are still a lot of unanswered questions about all the different types of activities they conduct. These organizations have already been reported to have “‘persuaded’ 230,000 claimed fugitives to return to China ‘voluntarily’ between April 2021 and July 2022”.¹³⁶ In addition to these stations, the PRC, thanks to its database set up by the UFWD, also tracks scientists who maintain familial

¹³² Spear, 25.

¹³³ Orr, “China Allegedly Had Two Secret Police Stations in Australia. What Do We Know About Them?”; Valle, Perez, and Del, “FBI Arrests Two Alleged Chinese Agents and Charges Dozens with Working Inside U.S. to Silence Dissidents.”

¹³⁴ Orr, “China Allegedly Had Two Secret Police Stations in Australia. What Do We Know About Them?”

¹³⁵ Valle, Perez, and Del, “FBI Arrests Two Alleged Chinese Agents and Charges Dozens with Working Inside U.S. to Silence Dissidents.”

¹³⁶ Orr, “China Allegedly Had Two Secret Police Stations in Australia. What Do We Know About Them?”

connections to the mainland.¹³⁷ However, while all these mechanisms are concerns regarding PRC control of the diaspora, there is very little evidence showing that the PRC uses these tools against the diaspora for technology transfer.

After reviewing over 200 case descriptions covering from the 1950s until the present in *Chinese Communist Espionage*, *Chinese Industrial Espionage*, and FBI files, the instances of the PRC using coercion for the instance of technology transfer were essentially nonexistent.¹³⁸ After reviewing the literature, it seems clear the PRC is willing to use coercion against diaspora members in some cases, usually in the case of intelligence collection, but rarely if ever in technology transfer. Furthermore, the PRC is also more than willing and routinely engages in coercion against dissidents, but the end goal is to silence their criticisms or get them to return to the PRC for criminal processing for charges related to criticizing the party.¹³⁹ While there very well could be unpublicized cases of the PRC using coercion for technology transfer, these cases would be a very small minority of the cases. Thus, the PRC does not appear to use coercion against its diaspora as a mechanism for engaging in technology transfer.

The reason why the PRC does not engage in coercion for technology transfer is that it simply does not need to. As discussed in Chapter I of this thesis, the PRC is collecting intellectual property from the United States on a massive scale and is advancing in several critical technology areas.¹⁴⁰ As such, the PRC does not need to use coercion since it is achieving its goals of growing its economy and advancing its domestic industries through positive incentives alone.¹⁴¹ The PRC has the mechanisms in place to use coercion to force scientists to transfer technology if needed since many of the mechanisms in place for

¹³⁷ Alex Joske, *The Party Speaks for You* (Australian Strategic Policy Institute, 2020), 28, <http://www.jstor.org/stable/resrep25132.1>.

¹³⁸ Mattis and Brazil, *Chinese Communist Espionage*, 145–94; Hannas, Mulvenon, and Puglisi, *Chinese Industrial Espionage*, 256–71; Department of Justice, “Information About the Department of Justice’s China Initiative and a Compilation of China-Related Prosecutions Since 2018.”

¹³⁹ Sebastian Rotella Berg Kirsten, “Operation Fox Hunt: How China Exports Repression Using a Network of Spies Hidden in Plain Sight,” ProPublica, July 22, 2021, <https://www.propublica.org/article/operation-fox-hunt-how-china-exports-repression-using-a-network-of-spies-hidden-in-plain-sight>.

¹⁴⁰ Allison et al., *The Great Tech Rivalry: China vs. the U.S.*, 3.

¹⁴¹ Tan, “China’s Diaspora Engagement Policy and Its Powerful Effect Outside Its Borders,” 4.

silencing dissidents could also be applied to technology transfer. For example, the PRC maintains databases that track both scientists and dissidents and their familial connections to be used for potential exploitation.¹⁴² Additionally, the agents the CCP dispatches to silence dissidents could simply shift their focus to scientists if the PRC decided to change tactics. However, despite having mechanisms in place to coerce scientists, the PRC chooses not to engage these mechanisms since the financial incentives are strong enough. Thus, the financial incentives provided are a powerful force that, when combined with the PRC's overall technology transfer web, lead the PRC to not need to coerce scientists to engage in technology transfer.¹⁴³

G. COERCION EXAMPLE

As discussed, the PRC does not prefer to use coercion against diaspora scientists and instead sticks to using positive financial incentives. However, there is some circumstantial evidence that they could use financial incentives to help trap scientists once they have agreed to partake in technology transfer. One instance of this is in the case of Arthur Gau, a diaspora engineer working for General Electric (GE).¹⁴⁴ As part of the PRC's quest to improve its aviation technology, the PRC targeted GE diaspora engineers to try and gain access to GE's advanced aviation technology. Gau was initially approached while being offered to give talks on aeronautics at the Nanjing University of Aeronautics and Astronautics.¹⁴⁵ When Gau arrived, like most scientists the PRC courts, he did not pay for anything and was given a lavish trip. Gau eventually stopped talking to his point of contact in the PRC but several years later Gau was contacted again and agreed to meet in China. While in the PRC, Gau gave talks on sensitive technology but this time, when Gau was done, he was given an envelope with \$3,000 in cash and according to Gau when he

¹⁴² Audrye Wong, *The Diaspora and China's Foreign Influence Activities* (Washington, D.C.: Wilson Center, 2022), 616, <https://www.wilsoncenter.org/publication/diaspora-and-chinas-foreign-influence-activities>; Joske, *The Party Speaks for You*, 28.

¹⁴³ Diamond and Schell, *China's Influence & American Interests*, 140;143.

¹⁴⁴ Jordan Robertson and Drake Bennett, "A Chinese Spy Wanted GE's Secrets, But the U.S. Got China's Instead," Bloomberg.com, September 15, 2022, <https://www.bloomberg.com/news/features/2022-09-15/china-wanted-ge-s-secrets-but-then-their-spy-got-caught>.

¹⁴⁵ Robertson and Bennett, "A Chinese Spy Wanted GE's Secrets, But the U.S. Got China's Instead."

initially declined to take it, it was insisted he take it.¹⁴⁶ When Gau was eventually arrested for violating export controls, he testified that once he received the money, he believed he no longer had the option to say no and continued to provide whatever technology his handler asked him to.¹⁴⁷

The case of Gau shows the power of money and how the PRC can use it to coerce someone even if they do not have any debts. Gau claimed he did not want to take the money and after he was essentially forced to, he then felt he could no longer back out and the PRC was able to use this to keep getting Gau to transfer technology.¹⁴⁸ However, while this is the story that Gau claimed, it is highly circumstantial and suspect. Gau had been working with the PRC heavily before this point and while receiving the initial \$3,000 was an escalation from what he received previously, Gau was still provided another \$6,200 and a second lavish trip after taking the initial \$3,000.¹⁴⁹ Thus, Gau's claim that he felt he could not say no was most likely a ploy to make himself look better to the judge after he was caught. Once again, the strong financial incentives the PRC offers show up and while they were most likely not used to coerce Gau, regardless, they played a key role in Gau's attempt to transfer technology.

H. CONCLUSION

The PRC uses a wide range of mechanisms to galvanize its diaspora to aid in technology transfer from the United States. At the core of these mechanisms are strong financial incentives and motivations that allow the PRC to help convince its scientists to engage in technology transfer. Thanks to these incentives, diaspora members are more likely to take the risks involved in technology transfer. When looking at domestic incentives for returning scientists, the financial incentives are powerful in helping convince diaspora scientists to return to the PRC to conduct their research. Thanks to the impressive living arrangements as well as the strong backing of the CCP to engage in research, many

¹⁴⁶ Robertson and Bennett.

¹⁴⁷ Robertson and Bennett.

¹⁴⁸ Robertson and Bennett.

¹⁴⁹ Robertson and Bennett.

diaspora scientists decide to return to the PRC instead of staying in the United States. As some diaspora members feel they have hit the “bamboo ceiling” the draw of renewed financial and professional advancement is a strong pull to convince diaspora members to engage in technology transfer both legally and illegally.¹⁵⁰

When looking at overseas organizations, the additional funding the PRC provides to the organizations as well as the opportunities they set up are also strong motivations for technology transfer. As a part of the PRC’s vast technology transfer apparatus, the PRC has established several overseas centers to aid in technology transfer, as well as find and recruit talent. For day-to-day operations, the PRC turns to these organizations and provides them with substantial funding for doing so. Furthermore, these organizations help set up lucrative deals for their members to engage in technology transfer through large grants or lucrative job offers. Thus, once again, financial motivations play a significant role in helping the PRC target and use diaspora members for technology transfer.

When looking at coercion, the PRC appears to avoid using coercion when targeting diaspora members. While many of the same mechanisms the PRC uses for coercion against dissidents could theoretically be applied to technology transfer, the PRC chose not to use this mechanism. Instead, the financial incentives the PRC offers through domestic incentives to returning scientists as well as overseas organizations, are a strong enough force so that the PRC does not need to use coercion. Thus, the power of financial incentives can also be seen in the lack of use of the coercion mechanism since the other two mechanisms are very strong.

Considering the strength of the financial incentives, Chinese diaspora scientists are only more at risk for engaging in technology transfer because that is who the PRC prefers to target with their financial incentives. Several non-diaspora scientists have also fallen to these incentives as well such as the disgraced former Chair of Harvard University’s Chemistry and Chemical Biology program Charles Lieber who engaged in the TTP

¹⁵⁰ Zhang, “The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared,” 136–37; Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 3.

unlawfully.¹⁵¹ Thus, the idea that Chinese diaspora scientists are more at risk due solely to PRC influence or residual connections to the PRC is false, and non-diaspora scientists are just as vulnerable. Chinese diaspora scientists are similar to most scientists in that if they are offered more money, and a better research opportunity to continue their work, they will take it not out of any residual CCP loyalties, but because of self-interest.

The United States must respond to these incentives to maintain its technological lead over the PRC. By effectively responding to incentives, the United States can help secure its innovation base from the PRC. Thus, through a more thorough understanding of the role of financial motivations in the mechanisms the PRC uses to target the diaspora, the United States can better secure its research innovation base and continue to attract and keep the world's top talent. However, the United States is not alone in dealing with this issue. Other countries around the world also deal with the threat posed by PRC technology transfer targeting the diaspora. One such country is Australia and the next chapter will explore PRC methods for targeting the Chinese diaspora for technology transfer.

¹⁵¹ Department of Justice, "Information About the Department of Justice's China Initiative and a Compilation of China-Related Prosecutions Since 2018."

III. CHINESE DIASPORA IN AUSTRALIA

A. INTRODUCTION

Since Chairman Mao, every Chairman of the CCP has called on overseas Chinese to help advance China.¹⁵² As such, the PRC has established a vast network of programs and support to help entice overseas Chinese to return to China or enable them to stay in their current country while still supporting China. Due to its geographic location and advanced educational opportunities, Australia is a favored choice among Chinese diaspora members, who either settle there permanently or pursue their education abroad. Australia is estimated to have the world's seventh-largest Chinese diaspora, with just under 1.5 million members as of 2021.¹⁵³ Members of the Chinese diaspora in Australia are highly mobile and routinely work with counterparts in China for both academic and business ventures. Academics who received their undergraduate degree in China or those who still have contacts routinely attend guest lectures at various universities in China.¹⁵⁴ As China's education system has improved, these exchanges are occurring more regularly. Furthermore, as Australia and the PRC conduct more business and additional Australian businesses are looking to expand their markets in China, members of the Chinese diaspora are playing an increased role by working in key decision-making positions for Australian companies.¹⁵⁵

Australia has one of the most powerful economies in the region and has a strong research and development base. Australia's research institutions place among the top 1% of 15 key research fields, including computer science and physics.¹⁵⁶ Furthermore, they are among the top spenders for research and development and are number one in

¹⁵² William C. Hannas and Didi Kirsten Tatlow, eds., *China's Quest for Foreign Technology: Beyond Espionage*, Asian Security Studies (Milton: Taylor and Francis, 2020), 12–13, <https://doi.org/10.4324/9781003035084>.

¹⁵³ Statista, "China."

¹⁵⁴ Zhang, "The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared," 159.

¹⁵⁵ Tung and Chung, "Diaspora and Trade Facilitation," 388.

¹⁵⁶ Australian Government, *Australia Is A Top 20 Country All Topics*, 3.

government research and development allocation growth. Australia also has the world's 12th-largest GDP and is a common destination for Chinese scholars.¹⁵⁷ China is Australia's number one trading partner and routinely receives approximately 30% of Chinese exports, and Australia exports 26% of its goods to China.¹⁵⁸ Thus, they are a prime target for technology transfer, especially considering the close pre-existing ties the Australian Chinese diaspora has with the PRC.¹⁵⁹ However, it is important to note that there have been no prosecutions of diaspora members in Australia for commercial or economic espionage as of 2018, and an open-source search for cases involving diaspora members since 2018 has yielded no findings.¹⁶⁰ Thus, Australia is unique in that so far, the CCP has stuck to using legal and extralegal methods for conducting technology transfer. Extralegal is defined as technology that is not actively monitored by a regulatory body so the full extent of whether it is legal or illegal cannot be ascertained.¹⁶¹ These differences starkly contrast with countries like the United States, where the PRC routinely faces criticism regarding economic espionage. However, some in Australia have increasingly called for stricter export control laws to curb PRC technology transfer.¹⁶²

This chapter specifically examines how the PRC uses its diaspora in Australia by examining three key factors; the PRC's domestic incentives provided to returning scientists referred to henceforth as domestic pulls, the role of international outreach through CCP-founded Chinese Student Scholar Associations (CSSAs), and the CCP's coercion and control of the diaspora. Through reviewing Australian Government documents, think tank reports, journal articles, and books on the subject, this chapter finds that at the core of all of these mechanisms, the CCP's overseas organizations are the most salient factor for conducting technology transfer from Australia to the PRC.

¹⁵⁷ Australian Government, 1.

¹⁵⁸ Uren, "Australia's Trade Diversification Away from China Picks up Pace."

¹⁵⁹ Tung and Chung, "Diaspora and Trade Facilitation," 372.

¹⁶⁰ Hamilton, *Silent Invasion*, 181.

¹⁶¹ Hannas and Chang, *China's Access to Foreign AI Technology*, 4.

¹⁶² Alex Joske, "Australia Should Look to Us Bill to Stop the Transfer of Sensitive Technology to the Chinese Military," *The Strategist*, May 15, 2019, <https://www.aspistrategist.org.au/australia-should-look-to-us-bill-to-stop-the-transfer-of-sensitive-technology-to-the-chinese-military/>.

Overseas organizations set up in Australia are at the core of all the mechanisms reviewed and discussed. For domestic pulls, overseas organizations are critical in helping the PRC efficiently recruit talent for the Thousand Talents Plan (TTP) and other commercial enterprises. Thanks to these organizations, the process is much smoother for recruiting scientists back to the PRC. The process is smoother since the PRC can now have a pool of scientists they can vet and choose from instead of having to go out and find the scientists themselves.¹⁶³ The importance of overseas organizations was further highlighted due to the prevalence of international outreach by CSSAs throughout all aspects of the other mechanisms reviewed. When reviewing controlling the diaspora, overseas organizations help extend the influence and control further than the embassy could.¹⁶⁴ Furthermore, thanks to these organizations, the PRC can more easily keep tabs on diaspora members farther from the embassy. The organizations help with this by dramatically expanding the information the CCP can collect on diaspora members since the CCP gets current information from these organizations.¹⁶⁵ Thus, the overseas organizational systems set up and run by the CCP are critical in the PRC's utilization of the diaspora in technology transfer.

Compared with the previous chapter about the United States, the data is not as complete regarding the issue of PRC technology transfer in Australia. There are multiple potential reasons for this discrepancy. First, as discussed previously, unlike the United States, Australia has no prosecutions of economic espionage, meaning that, unlike the United States, Australia has no data looking at how the PRC conducts illegal technology transfer in Australia.¹⁶⁶ As a result, the extensive examples of PRC illegal technology transfer provided by the FBI for the United States have no counterpart for Australia leading to a large gap in the available research. Furthermore, no public examples of the PRC using coercive tactics on diaspora members to engage in technology transfer in Australia were found. Due to this, a hypothetical situation citing other examples of coercive tactics used

¹⁶³ Joske, *Hunting the Phoenix*, 18.

¹⁶⁴ Hamilton, *Silent Invasion*, 29–30.

¹⁶⁵ Hamilton, *Silent Invasion*, 29–30.

¹⁶⁶ Hamilton, 181.

by the PRC against diaspora members in Australia was used to illustrate how the PRC might use coercion against diaspora members for technology transfer in the future. Additionally, Australia is only recently becoming aware of this issue so available research looking at extralegal cases is slim as many people are only recently becoming aware of the dangers of PRC influence and meddling in this arena. Thus, this chapter relies primarily on legal technology transfer to determine how the PRC conducts technology transfer in Australia, as that is where the majority of existing scholarship lies.

B. PRC DOMESTIC INCENTIVES TO RETURNING SCIENTISTS

One of the PRC's key initiatives is improving the domestic academic capability of the PRC to be more competitive with Western Countries such as Australia.¹⁶⁷ Initially, many diaspora scientists did not want to return to the PRC to study or continue their research since the facilities they were provided in the PRC were not as good as those in Australia.¹⁶⁸ However, the PRC has improved both its research centers and academic structure.¹⁶⁹ These improvements have made PRC universities more competitive with Australian universities and labs, which has helped make returning to China a more competitive option for diaspora members. When asked, diaspora researchers in Australia discussed how these improvements were one of the factors that made them more willing to return to China.¹⁷⁰ Before the improvements, the scientists discussed how they did not want to work in subpar conditions and, as such, did not wish to return to the PRC. In conjunction with this, the PRC has developed an impressive incentives program to help entice people to return in addition to upgrading their facilities and procedures.

The TTP is one of the PRC's most well-known programs to help provide incentives to return to the PRC. Under the TTP, the PRC has constructed numerous "Research Parks"

¹⁶⁷ Zhang, "The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared," 169.

¹⁶⁸ Zhang, "The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared," 143.

¹⁶⁹ Cao et al., "Returning Scientists and the Emergence of China's Science System," 1.

¹⁷⁰ Lyn Courtney and Neil Anderson, "Knowledge Transfer between Australia and China," ed. Tony Dickson, *Journal of Knowledge-Based Innovation in China* 1, no. 3 (September 25, 2009): 215, <https://doi.org/10.1108/17561410910990584>.

or “Dream Gardens,” providing housing and advanced labs to returning scientists.¹⁷¹ These research parks provide a strong incentive for scientists to return since they can easily continue their research in China while also receiving large salaries and grants sometimes dramatically improving their quality of life.¹⁷² Furthermore, these “dream gardens” additionally have PRC support in helping overseas returning scientists resettle in the PRC by making it easier for scientists who return and allowing them to not have to completely start over after leaving Australia.¹⁷³ Beyond improving infrastructure and providing support, once the scientists are back in the PRC, the TTP and similar programs also provide a large amount of funding through grants and scholarships allowing academics who return to monetarily profit. While the PRC is increasingly expanding beyond using only the Chinese diaspora for its targets for such ventures, the PRC still has a strong history of targeting diaspora members. Over 90% of TTP recipients have been diaspora members, showing that this trend is far from over.¹⁷⁴

The incentive apparatus created through these programs allows the PRC to create a wide web of potential collection points including exchange venues to allow for technology transfer.¹⁷⁵ During the exchanges, members are paid to travel to China to partake in venues where the PRC seeks specific information to help further PRC technological goals.¹⁷⁶ These exchanges are often set up or facilitated by overseas organizations that advertise them to overseas scientists and help serve as an intermediary between the PRC and Australia.¹⁷⁷ Thus, overseas organizations play a key role in one of the key domestic pulls by providing administrative and advertisement support from the foreign country, making the process smoother for diaspora scientists and easier for the PRC.

¹⁷¹ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 8.

¹⁷² Zwetsloot, *China’s Approach to Tech Talent Competition: Policies, Results, and the Developing Global Response*, 4.

¹⁷³ Fedasiuk and Weinstein, *Overseas Professionals and Technology Transfer to China*, 2020, 16.

¹⁷⁴ Tan, “China’s Diaspora Engagement Policy and Its Powerful Effect Outside Its Borders,” 4; Diamond and Schell, *China’s Influence & American Interests*, 142.

¹⁷⁵ Diamond and Schell, *China’s Influence & American Interests*, 143.

¹⁷⁶ Diamond and Schell, *China’s Influence & American Interests*, 143.

¹⁷⁷ Joske, *Hunting the Phoenix*, 18.

To aid in recruiting scientists, the PRC has established 57 talent recruitment sites in Australia which is second only to the United States which has 146.¹⁷⁸ These talent recruitment sites are often run by or heavily connected with overseas organizations. Thanks to these overseas organizations, the talent recruitment sites have access to existing diaspora networks to plug into to find potential recruits allowing the PRC to more extensively vet prospective scientists. Therefore, by coopting overseas organizations that are already in place or setting up their own organizations, the PRC can efficiently find potential recruits for the TTP and avoid pitfalls such as wasting time and resources on scientists not interested in returning to the PRC. By focusing on scientists that overseas organizations have already spotted, the PRC can put their time and resources into scientists who are more likely to agree to join the TTP, allowing the TTP to be more successful. These overseas organizations, therefore, are a vital part of the domestic pulls that help pull diaspora members back to China as they serve as a conduit for the CCP to recruit potential diaspora members. Furthermore, these organizations help advertise the programs to diaspora members.

It is important to note that not all technology transfer benefits the PRC to the detriment of Australia. Many Australian companies effectively use members of the Chinese diaspora to expand their markets into China. Australian businesses that do expand into China often find that having a member of the Chinese diaspora in key decision roles they are more successful.¹⁷⁹ Furthermore, as Australia and China conduct a great deal of trade, part of the natural process is the exchange of scientists.¹⁸⁰ Programs like TTP allow scientists to accomplish this process quickly and since TTP deals are often made with individuals rather than companies being able to target members of the diaspora becomes easier.¹⁸¹ However, while collaborating is not an issue on its face, TTP deals often conflict with university policy calling the practice into question.

¹⁷⁸ Joske, *Hunting the Phoenix* 11.

¹⁷⁹ Tung and Chung, "Diaspora and Trade Facilitation," 1.

¹⁸⁰ Alex Joske, "Turning the Spotlight on China's Global Effort to Recruit Scientists," *The Strategist*, August 20, 2020, <https://www.aspistrategist.org.au/turning-the-spotlight-on-chinas-global-effort-to-recruit-scientists/>.

¹⁸¹ Joske, "Turning the Spotlight on China's Global Effort to Recruit Scientists."

C. EXAMPLES OF DOMESTIC INCENTIVES

There are several examples of how PRC domestic pulls have helped allow the PRC to engage in technology transfer successfully. This section will highlight two such instances, the emergence of the Chinese photovoltaic industry and an example from the TTP.

1. Photovoltaic Industry

The PRC has become one of the world leaders in the photovoltaic industry, supplanting Australia largely thanks to the Chinese diaspora.¹⁸² Chinese improvement in the photovoltaic sector was largely possible because members of the Chinese diaspora initially studied in Australia and then took the skills they learned back to China where they received domestic support to help their companies grow.¹⁸³ Support from the PRC was mainly provided in vast amounts of start-up money and bail-out money if the companies they initially invested in started to fail.¹⁸⁴ The PRC furthermore offered significant tax incentives and tariffs to protect these new organizations allowing them to grow rapidly.¹⁸⁵ Furthermore, party officials would also help tilt the scales in favor of these new companies by helping to achieve loans from banks to expand production as needed.¹⁸⁶ This combination allowed the PRC to become a world leader in the industry in roughly four years. In 2003, the PRC's production share of the photovoltaic industry was 1.6%; by 2009, it was the world leader with 27%.¹⁸⁷

¹⁸² Arnaud de la Tour, Matthieu Glachant, and Yann Ménière, "Innovation and International Technology Transfer: The Case of the Chinese Photovoltaic Industry," *Energy Policy*, Special Section on Offshore wind power planning, economics and environment, 39, no. 2 (February 1, 2011): 761, <https://doi.org/10.1016/j.enpol.2010.10.050>.

¹⁸³ de la Tour, Glachant, and Ménière, 767.

¹⁸⁴ Charlie Zhu and Bill Powell, "The Rise and Fall of China's Sun King," Reuters, May 20, 2013, <https://www.reuters.com/article/us-suntech-shi-specialreport-idUSBRE94I00220130520>.

¹⁸⁵ Fang Zhang and Kelly Sims Gallagher, "Innovation and Technology Transfer through Global Value Chains: Evidence from China's PV Industry," *Energy Policy* 94 (July 1, 2016): 199, <https://doi.org/10.1016/j.enpol.2016.04.014>.

¹⁸⁶ Zhu and Powell, "The Rise and Fall of China's Sun King."

¹⁸⁷ de la Tour, Glachant, and Ménière, "Innovation and International Technology Transfer," 762.

Several of the most prominent photovoltaic companies in the PRC had previous ties to Australia before they returned to the PRC, thanks to domestic pulls. The CEO of Suntech, Shi Zhengrong, is one such example. Shi studied abroad in Australia along with key board members and worked for an Australian photovoltaic company before returning to the PRC.¹⁸⁸ Shi brought his skills back to the PRC and then proceeded to found what was then the largest photovoltaic company in the PRC. The CCP was aware of Shi, thanks to their information apparatus due to overseas organizations, and would routinely invite him to celebrations at the embassy for the Lunar New Year and other festivals.¹⁸⁹ However, Shi was not interested in returning to the PRC until government officials from the city of Wuxi offered him startup funding.¹⁹⁰ When interviewed by Forbes Magazine, Shi stated that he “wasn’t really thinking seriously of leaving” but that it was the deal offered to him by CCP officials that eventually pulled him back to the PRC to start his own company.¹⁹¹ Shi was still not completely sold and was mainly concerned because he did not believe the PRC was advanced enough to support such a company and feared his company would not be profitable.¹⁹² However, after a government-sponsored trip, Shi felt at ease and was willing to start the company the PRC desired. The case of Shi shows two of the leading domestic incentives in action. First, the PRC provided strong financial backing to support a move to the PRC. Second, the PRC showcased their improvements at home to help seal the deal and put Shi at ease. The initial information provided by overseas organizations already established in Australia helped these incentives work as intended. These organizations helped relay information to the Wuxi government officials about a potential lead to bring back to the PRC. Thanks to this information, the Wuxi government officials could act and entice a leading diaspora member to return to the CCP. Suntech is not an abnormality as several other large photovoltaic companies, including Yingli, Jinaao, and Solarfun, also have foreign direct investment links to Australia or vital members of

¹⁸⁸ de la Tour, Glachant, and Ménéire, 765.

¹⁸⁹ “Arise the Sun King,” Sydney Morning Herald, September 12, 2006, <https://www.smh.com.au/national/arise-the-sun-king-20060912-gdoddr.html>.

¹⁹⁰ “Arise the Sun King.”

¹⁹¹ Zhu and Powell, “The Rise and Fall of China’s Sun King.”

¹⁹² “Arise the Sun King.”

their management teams who have studied in Australia.¹⁹³ Furthermore, these companies realize the importance of attracting the diaspora as shown by Suntech's special program for bringing overseas Chinese back and Trina Solar's "international staffing teams" to help recruit diaspora members. That the companies have set up organizations to interface with the CCP-founded and supported overseas organizations set up in Australia and around the world shows the priority they place on leveraging such organizations to help find such talent.

Pulling diaspora members back to the PRC allowed the PRC to take some of the leading knowledge in photovoltaics and use it to further the PRC's domestic industry. Then, thanks to PRC support for the domestic industry by providing start-up capital, tax incentives, and tariffs protecting these new organizations, they could take these skills and start their own photovoltaic companies, which now rival Australia's.¹⁹⁴ These companies can then continue to improve their technology by recruiting overseas talent. Thus, the case of the photovoltaic industry provides a key example of how the combination of domestic pulls for returning scientists and PRC-provided support helped an industry emerge and become one of the best in the world.

2. Thousand Talents Plan

One of the main issues with the TTP is that professors violate their university agreements by not truthfully disclosing ties to Chinese funding sources. One example is a Chinese professor, Heng Tao Shen, a leading professor at the University of Queensland, whom the TTP selected through a talent recruitment center connected to an overseas organization. As a result of his selection, Shen received funding and a promotion to the University of Electronic Science and Technology of China (UESTC), where he was provided with his own research team.¹⁹⁵ Shen then used these resources and those at the University of Queensland to start his own AI company, Koala, valued at over 200 million

¹⁹³ de la Tour, Glachant, and Ménière, "Innovation and International Technology Transfer," 765.

¹⁹⁴ Zhang and Gallagher, "Innovation and Technology Transfer through Global Value Chains," 199.

¹⁹⁵ Alex Joske, "The Company with Aussie Roots That's Helping Build China's Surveillance State," *The Strategist*, August 25, 2019, <https://www.aspistrategist.org.au/the-company-with-aussie-roots-thats-helping-build-chinas-surveillance-state/>.

USD as of 2019.¹⁹⁶ Joske further elaborates that Shen used his connections to the TTP and his connections in Australia in the form of former colleagues and students to hire other scientists from Australian universities to fill out his team using PRC-provided TTP funds. Shen never disclosed that he was working for a Chinese university while working at the University of Queensland in violation of his university agreement.¹⁹⁷ While he did eventually end his employment at the University of Queensland, it was only after he misused university funding and resources.¹⁹⁸ This example shows the utility of a talent recruitment center since thanks to the recruitment center, the PRC was able to find leading scientists due to the access a talent center directly tied to a university provides.

Koala is a prime example of how the TTP program uses domestic incentives to encourage scientists to return to the PRC and bring their scientific know-how. The TTP program found a leading scientist in a key area of PRC interest, AI, and then used grants and lucrative job opportunities to entice him to return.¹⁹⁹ The researcher then used his previous connections in the form of colleagues and former students from his time in Australia to continue the cycle and pull more foreign-educated scientific talent back to the PRC, thanks to further funding through the TTP. As discussed previously, Shen already had these contacts from working and collaborating with them, which allowed the TTP to find quality researchers open more efficiently to returning to the PRC. Therefore, due to the domestic pull of the TTP, the PRC was able to gain a top scientist in Australia, improve its economy by generating a new company and improve its knowledge of AI. Without the domestic incentives, Shen would have had less reason to return to China and engage in technology transfer since he was one of the youngest scientists to be promoted to professor at the University of Queensland and could have continued his trajectory in Australia.²⁰⁰

¹⁹⁶ Joske, “The Company with Aussie Roots That’s Helping Build China’s Surveillance State.”

¹⁹⁷ Joske, “Turning the Spotlight on China’s Global Effort to Recruit Scientists.”

¹⁹⁸ Joske, “Turning the Spotlight on China’s Global Effort to Recruit Scientists.”

¹⁹⁹ Joske, “The Company with Aussie Roots That’s Helping Build China’s Surveillance State.”

²⁰⁰ Joske, “Turning the Spotlight on China’s Global Effort to Recruit Scientists.”

D. INTERNATIONAL OUTREACH THROUGH CHINESE STUDENT SCHOLAR ASSOCIATIONS

Overseas organizations provide a critical opportunity for the CCP to continue to interface with the diaspora while they are abroad and vice versa. One of the agencies critical to this outreach, especially in Australia, are CSSAs.²⁰¹ The CSSAs help the CCP continue to engage with the diaspora by providing the PRC with a large pool of potential applicants to leverage for technology transfer. Furthermore, all these organizations in Australia were, at minimum, founded by the CCP.²⁰²

CSSAs often serve a positive role in many cases by helping diaspora scientists network though their ties to the CCP call them into question. Additionally, these organizations set up competitions for TTP-linked organizations, the PLA, and Chinese defense companies.²⁰³ Furthermore, these organizations help introduce Australian Chinese scientists to partner universities in the PRC to help make contacts and sign agreements between the two entities.²⁰⁴

Often working with CSSAs is the United Front Work Department (UFWD). As one of the CCP's primary arms for influencing and monitoring the diaspora, the UFWD is heavily involved and is typically the organization that works as an intermediary between the CCP and the CSSAs. The UFWD provides the CSSAs with monetary support and potential research contracts.²⁰⁵ In exchange, the CSSAs help the UFWD build their databases by providing the names of the scientists in their organization. As of 2020, UFWD was estimated to have data on over 2.2 million Chinese scientists to potentially leverage to gain access to technology, mainly thanks to these overseas organizations.²⁰⁶ This data set is then used to help with coercive methods and help the PRC more effectively use its

²⁰¹ Hamilton, *Silent Invasion*, 184.

²⁰² Clive Hamilton and Alex Joske, "Submission to the Parliamentary Joint Committee on Intelligence and Security," Inquiry into the National Security Legislation Amendment (Espionage and Foreign Interference) Bill 2017, n.d., 36.

²⁰³ Joske, *Hunting the Phoenix*, 18.

²⁰⁴ Joske, *Hunting the Phoenix*, 17.

²⁰⁵ Joske, *The Party Speaks for You*, 28.

²⁰⁶ Joske, *The Party Speaks for You*, 29.

domestic pulls to attract academics back to the PRC. One of the key ways these scientists and scholars are leveraged is through the TTP.

While one facet of the TTP is to help encourage scientists to return to China, the other is to allow academics to sign research grants to work for both the PRC and their home university. Working with diaspora scientists abroad is done through TTP centers set up abroad. These centers are often run by CSSAs in Australia specifically to support the TTP initiatives.²⁰⁷ These organizations find and recruit different scientists working on technology that would benefit China. Often, they are contracted out to CSSAs or individuals who then contact prospective scientists and attempt to recruit them as a part of the TTP initiatives.²⁰⁸ Thus, these CSSAs are a critical part of the CCP's TTP initiative by providing on-the-ground scouts like with what happened with the AI company Koala. These organizations help the TTP initiative be more successful since they help provide on-the-ground information regarding promising scientists, showing the utility of CSSAs towards PRC technology transfer.

E. EXAMPLES OF CSSAS

There are multiple examples of how CSSAs have helped allow the PRC to successfully engage in technology transfer. This section will highlight some examples of the CSSAs providing technology as well as how they have helped in the PRC's quest for AI.

1. Chinese Student Scholar Associations

As of 2017, there were over 37 CSSAs at nearly all of Australia's major universities with varying levels of connection to the CCP, though all, at a minimum, were established by the CCP and had connections with the PRC embassy.²⁰⁹ These organizations have been heavily involved in technology transfer in large part due to their close connection to

²⁰⁷ Joske, *Hunting the Phoenix*, 12.

²⁰⁸ Joske, *Hunting the Phoenix*, 6.

²⁰⁹ Hamilton and Joske, "Submission to the Parliamentary Joint Committee on Intelligence and Security," 36.

universities. One of the key ways organizations are involved is through programs such as the TTP.²¹⁰ MOE has lauded these organizations for helping expand the CCP's ability to receive advanced technology and improve the diaspora's ability to support the PRC while abroad.²¹¹ Furthermore, these organizations play a crucial role in influencing the research direction of diaspora scientists who are still abroad, allowing the CCP to use these scientists.

While one of the goals of the TTP was to recruit scientists back to the PRC, by utilizing these overseas organizations as a conduit, the CCP makes the TTP more effective. A Submission to the Australian Parliament found that due to 15 CSSAs in Australia, the CCP has advanced in key areas thanks to these organizations.²¹² The Chinese Academy of Science Overseas Innovators team is one such example. Under this organization, Max Lu, former Vice President of Research at the University of Queensland, was credited with advancing the PRC's knowledge in energy catalysis, energy storage, and hydrogen storage.²¹³ In another example, the President of the Federation of Chinese Scholars in Australia (FOCASA), Professor Ye Lin, has helped expand the PRC's knowledge of nanotechnology through his access at the University of Sydney. The organization's vice president, Yu Xinghuo, also helped contribute information on photonics and advanced manufacturing through his placement at the Royal Melbourne Institute of Technology (RMIT) in Melbourne, Australia.²¹⁴

These organizations have also helped create ties between Australian Universities and Chinese Defense Universities.²¹⁵ Thanks to the CSSAs, several Chinese defense universities have established joint research and training opportunities at multiple Australian Universities, including Monash University, University of Technology Sydney,

²¹⁰ Hamilton and Joske, "Submission to the Parliamentary Joint Committee on Intelligence and Security," 44.

²¹¹ Hamilton and Joske, "Submission to the Parliamentary Joint Committee on Intelligence and Security," 44.

²¹² Hamilton and Joske, 43–47.

²¹³ Hamilton and Joske, 45.

²¹⁴ Hamilton and Joske, 46.

²¹⁵ Hamilton, *Silent Invasion*, 189.

and TU Graz.²¹⁶ These ventures have helped China’s nuclear program by expanding their knowledge of missiles, rocket carriers, hypersonic missiles, and heat-resistant aerospace materials.²¹⁷ This technology transfer is done primarily through the exchange of scientists thanks to the programs set up through CSSAs.²¹⁸ In addition, these joint labs between the PLA and CSSAs at Australian Universities have helped expand the CCP’s knowledge of AI, quantum information, 3D printing material, and electronics to include fiber optic technology, jamming technology, and signal processing information.²¹⁹ These organizations also help provide a more direct route for the CCP to engage in technology transfer since the CCP has direct access allowing them to gain access to advanced technology more efficiently.

2. The Diaspora’s Role in Artificial Intelligence

One specific area where CSSAs are involved is in the PRC’s quest for AI. These organizations seek out Chinese researchers studying abroad and have helped set up conferences to help the PRC’s push toward developing more robust AI.²²⁰ The PRC has used bilateral associations comprised of individuals from China and diaspora members of Australia to “transcend” national politics to develop more cooperative sharing between the two countries.²²¹ The result is that approximately 1/3 of all the AI papers written in Australia are coauthored by Chinese authors.²²² Due to CSSAs, the PRC has leveraged organizations in Australia to help them expand their knowledge using resources besides those inside the PRC. Using these organizations to help with technology transfer goes beyond just sharing research. In one example, a CSSA listed on its website that it had

²¹⁶ Alex Joske, *The China Defence Universities Tracker*, 23 (Canberra, Australia: Australian Strategic Policy Institute, 2019), 16.

²¹⁷ Joske, “The China Defence Universities Tracker,” 16.

²¹⁸ Joske, “The China Defence Universities Tracker,” 17.

²¹⁹ Joske, “The China Defence Universities Tracker,” 12.

²²⁰ William Hannas and Huey-Meei Chang, “Foreign Support, Alliances, and Technology Transfer,” in *Chinese Power and Artificial Intelligence* (Routledge, 2022), 46–47.

²²¹ Hannas and Chang, “Foreign Support, Alliances, and Technology Transfer,” 46.

²²² James Laurenceson and Michael Zhou, *Cross-Border Neural Networks*: (Sydney, Australia: Australia-China Relations Institute, 2019), 3.

engaged in over 6,570 instances of technology transfer globally throughout its lifetime, including an AI deep learning algorithm from the Australian National University.²²³ With the help of these diaspora organizations, the PRC has heavily improved its knowledge of AI, making it far more competitive.

F. CONTROL OF THE DIASPORA

While the PRC has established programs to help entice the diaspora to return and motivate them to assist the PRC even while abroad, the CCP has also developed sophisticated control mechanisms to maintain control while the diaspora is abroad. Han and Tong state that the Chinese diaspora has been “inoculated against Western values and ideas by a lifetime of ideological and political education.”²²⁴ Thus, before they even depart from the PRC, they are already used to the idea that it is their duty to support the Chinese mainland by aiding in the economic rejuvenation of China. The Chinese diaspora that leaves for undergraduate or graduate education has already had a lifetime of inoculation, potentially making them more willing to support the PRC with technology transfer.²²⁵ This tactic does help as many diaspora members still consider themselves Chinese despite being abroad, and it increases their desire to help advance the PRC.²²⁶ Furthermore, the Ministry of State Security (MSS) and the People’s Liberation Army (PLA) identify potential agents before they leave the PRC for Australia.²²⁷ These agents are not always directly sent to target a specific piece of technology but are sent and only activated if they gain access to information of technological or military value.²²⁸

Once abroad, the CCP still maintains control of its Australian diaspora through various organizations including the Embassy, the United Front Work Department

²²³ Hannas and Chang, *China’s Access to Foreign AI Technology*, 11.

²²⁴ Han and Tong, “Students at the Nexus Between the Chinese Diaspora and Internationalisation of Higher Education,” 587.

²²⁵ Han and Tong, 587–88.

²²⁶ Zhang, “The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared,” 6.

²²⁷ Hamilton, *Silent Invasion*, 183.

²²⁸ Hamilton, *Silent Invasion*, 183.

(UFWD), and overseas organizations based in Australia. These overseas organizations heavily supplement and allow the CCP to expand their influence to control a larger part of the diaspora and are typically the instruments the UFWD uses to monitor and control the diaspora in Australia.²²⁹ The combination of the UFWD and the overseas organizations allows the CCP to expand its control beyond just the embassy and allows them to be far more effective at controlling and observing the diaspora.²³⁰ Wong discusses how the PRC embassy is typically the intermediary between the diaspora and the CCP; however, thanks to the UFWD working through overseas organizations, the embassies can expand their reach and maintain some deniability when interacting with and controlling the diaspora.²³¹ These organizations meet with embassy and Ministry of Education (MOE) officials regularly to find ways to ensure the members of the diaspora are still following the party lines.²³² Members of these organizations are further encouraged to “maintain close contact with other Chinese Students” regardless of whether they are part of the organizations.²³³ CSSA’s further mobilize students against issues that are sensitive to the CCP. One example is when the CCP used a CSSA to incite a protest of a newspaper run by the Falun Gong, showing how the CCP can utilize such organizations to influence the diaspora.²³⁴

One of the core missions of the UFWD is to monitor diaspora populations for any hint of dissidence.²³⁵ If it detects any, it uses a wide range of tactics such as using overseas organizations to target families remaining in the PRC.²³⁶ The UFWD is highly established in Australia and its operations are more pervasive than in other countries like the United

²²⁹ Hamilton, *Silent Invasion*, 29–30.

²³⁰ Ryan Fedasiuk, “How China’s United Front System Works Overseas,” *The Strategist*, April 13, 2022, <https://www.aspistrategist.org.au/how-chinas-united-front-system-works-overseas/>.

²³¹ Wong, *The Diaspora and China’s Foreign Influence Activities*, 616; Joske, *The Party Speaks for You*, 20.

²³² Hamilton and Joske, “Submission to the Parliamentary Joint Committee on Intelligence and Security,” 36.

²³³ Hamilton and Joske, “Submission to the Parliamentary Joint Committee on Intelligence and Security,” 10.

²³⁴ Hamilton and Joske, “Submission to the Parliamentary Joint Committee on Intelligence and Security,” 38.

²³⁵ Joske, *The Party Speaks for You*, 7.

²³⁶ Wong, *The Diaspora and China’s Foreign Influence Activities*, 616.

States.²³⁷ Hamilton further elaborates that as the UFDW is more established in Australia, it is a powerful force of coercion that can be utilized against the diaspora should the need arise. Tactics used against potential dissidents by the UFDW include denying visas, adding their names and photographs to CCP databases, and threats by officials.²³⁸ Due to the UFDW's in-depth operations and close ties to overseas Chinese professional organizations, they have access to large amounts of information, allowing them to have the information needed to conduct these types of operations.²³⁹ Through these methods, the CCP can keep the diaspora members in line and ensure they continue to support the PRC.

G. HYPOTHETICAL EXAMPLE OF PRC CONTROL OF THE DIASPORA

Unlike most countries, the PRC is unique in still working diligently to maintain control over its diaspora. However, no unclassified examples of the PRC using coercion to convince a diaspora member to engage in technology transfer were discovered in Australia. As such, this section will look at how the PRC has used coercion against diaspora professors who oppose the CCP and universities for other goals to determine how this mechanism could hypothetically be used for technology transfer if the PRC determines there is a need for it. As there was no direct evidence of this occurring in publicly available material, this hypothetical situation is used to explain how this might occur.

One example of the PRC using coercion against an Australian University professor critical of the CCP is the case of Chongyi Feng, a professor of Chinese Studies at the University of Technology Sydney.²⁴⁰ In this example, Professor Feng was visiting the PRC but was denied the ability to leave based on some critical articles he had written about the CCP.²⁴¹ After two weeks of interrogation, he was finally allowed to leave and return to Australia.²⁴² This case shows a typical case of Chinese coercion in Australia as the CCP

²³⁷ Hamilton, *Silent Invasion*, 177.

²³⁸ Hamilton, *Silent Invasion*, 36;183.

²³⁹ Hamilton, *Silent Invasion*, 29–30.

²⁴⁰ “Chongyi Feng Profile | University of Technology Sydney,” accessed May 27, 2023, <https://profiles.uts.edu.au/Chongyi.Feng>; Hamilton, *Silent Invasion*, 48–49.

²⁴¹ “Chongyi Feng Profile | University of Technology Sydney”; Hamilton, *Silent Invasion*, 48–49.

²⁴² Hamilton, *Silent Invasion*, 48–49.

used its ties to China against a diaspora member to help silence its critics. Feng's case is far from an outlier and occurs regularly with critics of the CCP in Australia.²⁴³ The example of Professor Feng shows that the CCP is willing to target diaspora professors and employ coercion tactics to achieve their desired end goal.

Another use of coercion by the PRC was when, in 2019, the PRC stole data using a cyber-attack from the Australian National University in a hack to groom future assets for the PRC.²⁴⁴ While this hack most likely targeted future Australian Government bureaucrats, the information collected was on professors and students, providing the PRC and organizations such as the UFWD with more information to coerce prospective targets.

The example of Professor Feng and the example of the Australian National University both show that the CCP is willing to use coercive tactics against academic institutions and their personnel. These examples further highlight the mechanisms the PRC has in place to deliver such coercion. In the case of technology transfer, these mechanisms could easily be transferable to get the desired information. If a professor had technology that the CCP desired and was initially unwilling to provide it, as professors are increasingly making trips back to China to see family members, attend conferences, or guest speak, the professor could be stopped and held. They would then only be released when they agreed to provide the requested information to the CCP. In the case of the Australian National University hack, the CCP could mount a similar cyber-attack against a university doing defense research or other sensitive research and use the information to coerce a professor to provide them with the information. The information provided would then allow the UFWD to coerce the scientists to support the CCP more effectively.

H. CONCLUSION

The CCP has called upon the Chinese diaspora to aid in the great rejuvenation of China through technology transfer. As it is one of the critical areas for members of the

²⁴³ Wong, *The Diaspora and China's Foreign Influence Activities*, 626.

²⁴⁴ David Wroe, "China 'Behind' Huge ANU Hack Amid Fears Government Employees Could Be Compromised," *Sydney Morning Herald*, June 5, 2019, <https://www.smh.com.au/politics/federal/china-behind-huge-anu-hack-amid-fears-government-employees-could-be-compromised-20190605-p51uro.html>.

Chinese diaspora, understanding how the CCP targets the Chinese diaspora for technology transfer is vital for the United States and Australia. As Australia increasingly becomes a critical part of the Indo-Pacific strategy of the United States, ensuring Australia maintains its technological edge is vital. The CCP leverages its diaspora for technology transfer in three ways. First, it encourages its diaspora to return through domestic incentives. Second, it engages in international outreach through organizations such as CSSAs. Third and finally, they use coercion and controlling the diaspora. After reviewing all three mechanisms, the CCP's extensive overseas organizations can be found at the core of these factors and are central to their success. Therefore, overseas organizations are the glue that helps hold PRC technology transfer together.

For domestic institutions, overseas organizations help recruit scientists for domestic programs such as the TTP. Additionally, overseas organizations often work with their members and the diaspora writ large to help advertise the conferences.²⁴⁵ Furthermore, these organizations also send leading scientists to them, expanding the PRC's potential talent and technology pool. Therefore, overseas organizations, help the CCP more efficiently find and recruit overseas diaspora talent for its domestic institutions. As the overseas organizations have people at each of the major universities in Australia, they can help direct the CCP to promising talent to attempt to attract back, like with Suntech and Koala.

Outreach through overseas organizations such as CSSAs, which are set up and supported by the CCP, also provides a highly effective way for the PRC to leverage its diaspora for technology transfer. Through CSSAs, the CCP can leverage diaspora scientists across Australia's universities and labs thanks to their widespread presence and ability to attract diaspora scientists to join them. This access gives the CCP a wide selection of scientists to help them advance technologically. They can then use domestic incentives to attract these scientists back or leverage them to help the CCP while remaining in Australia. Furthermore, CSSAs are critical to the coercion and control of the diaspora since they help provide information on the diaspora. Through this information, the CCP can coerce

²⁴⁵ Joske, *Hunting the Phoenix*, 18.

diaspora scientists if they decide it is necessary to do their job. Therefore, CSSAs are a prime example of how such overseas organizations help form the glue that helps hold PRC technology transfer together and helps it run efficiently.

For coercion and maintaining PRC control over its diaspora, the overseas organizations often act as an extension of the CCP and help them gather information on diaspora scientists whom the CCP may eventually wish to coerce to help their technology transfer efforts.²⁴⁶ Furthermore, overseas organizations also help keep diaspora members in line and ensure they continue to support the party line.²⁴⁷ These organizations, therefore, help the CCP more effectively coerce or control its diaspora since the CCP is not forced to rely only on its embassy and consulates to monitor the diaspora. The CCP can therefore expand its reach regarding the diaspora even further by having overseas organizations with close ties to the CCP. However, as the research showed, only a theoretical use of coercion against diaspora members for technology transfer was established. Therefore, coercion and control are not something the CCP currently uses to engage in technology transfer, showing they prefer the carrot to the stick when using the diaspora for technology transfer.

CCP-created and backed overseas organizations are the most salient factor allowing the CCP to engage in technology transfer in Australia. Now that the key role of these organizations is determined, Australia should develop effective policies to limit unwanted influence by the CCP through these organizations. Which policies and how they should be implemented will be expounded upon in the following chapter. The chapter will also discuss policy recommendations for the United States in dealing with the threat posed by PRC-driven technology transfer.

²⁴⁶ Hamilton, *Silent Invasion*, 29–30.

²⁴⁷ Wong, *The Diaspora and China's Foreign Influence Activities*, 616.

IV. CONCLUSION

A. INTRODUCTION

The purpose of this chapter is to discuss the thesis findings and provide policy recommendations. The PRC calls upon the Chinese diaspora from wherever they are to help with the great rejuvenation of the PRC.²⁴⁸ As a result, the PRC has developed several mechanisms to allow the diaspora to answer this call, especially regarding technology transfer. The PRC has developed and improved the mechanisms of providing domestic incentives to returning scientists, supporting overseas organizations, and coercing diaspora members to allow diaspora members to transfer technology back to the PRC. Due to these factors, this thesis set out to answer the question of which factors enable the PRC to use its diaspora to conduct technology transfer in the United States and Australia most effectively? After reviewing the factors and the mechanisms, this thesis found different results for the United States and Australia.

B. FINDINGS FOR THE CHINESE DIASPORA IN THE UNITED STATES

Analysis determined that the financial incentives provided by the PRC are the driving factor allowing the PRC to use the diaspora for technology transfer. When looking at the mechanisms, financial incentives were a driving force behind both the domestic incentives as well as support for overseas organizations. After looking at multiple legal and illegal technology transfer cases involving the diaspora, a close examination of domestic incentives revealed that the upgrade in the quality of life and the income boosts offered by the PRC was a key factor for diaspora members engaging in technology transfer.²⁴⁹ When looking at the support the PRC provides to overseas organizations in the United States, the financial support again was identified as critical. Many diaspora organizations support the PRC technology transfer initiatives to get funding since the PRC provides grants to these

²⁴⁸ Chinese Communist Party, *20th Party Congress Work Report*, 34.

²⁴⁹ Mattis and Brazil, *Chinese Communist Espionage*, 145–94; Hannas, Mulvenon, and Puglisi, *Chinese Industrial Espionage*, 256–71; Department of Justice, “Information About the Department of Justice’s China Initiative and a Compilation of China-Related Prosecutions Since 2018.”

organizations for supporting PRC tech transfer initiatives and these organizations need funding to remain active.²⁵⁰ Additionally, the PRC uses these diaspora organizations to help set up lucrative financial deals for their members to engage in technology transfer using the organizations as vessels for their financial incentives. Finally, when looking at coercive methods, the positive financial incentives previously discussed are strong enough that the PRC has refrained from engaging in coercive measures despite having the ability to do so. As the PRC can achieve its technology-transfer goals through positive financial incentives, the cases of PRC engagement in coercion for technology transfer were essentially nonexistent showing the strength of the financial incentives. Thus, financial incentives are the thread connecting all the key mechanisms the PRC uses to engage with the Chinese diaspora for technology transfer.

C. FINDINGS FOR THE CHINESE DIASPORA IN AUSTRALIA

In Australia, the importance of overseas organizations was identified as the key component for allowing the PRC to use the diaspora most effectively for technology transfer. Regarding domestic institutions, overseas organizations help recruit scientists for domestic programs.²⁵¹ Furthermore, these organizations also send leading scientists to the PRC, expanding the PRC's potential talent and technology pool. Therefore, thanks to overseas organizations, the PRC can more efficiently recruit talent back to the PRC. When looking at outreach through overseas organizations such as CSSAs, these organizations provide the PRC an option to leverage its diaspora for technology transfer while keeping them in Australia. Through CSSAs, the CCP can leverage diaspora scientists across Australia's universities and labs thanks to their widespread presence and ability to attract diaspora scientists to join them giving the CCP a wide selection of scientists. Therefore, CSSAs are a prime example of how such overseas organizations help form the glue that helps hold PRC technology transfer together and helps it run efficiently. When looking at coercion and maintaining PRC control over its diaspora, overseas organizations often act

²⁵⁰ Spear, "Serve the Mother Land While Working Overseas," 25.

²⁵¹ Joske, *Hunting the Phoenix*, 18.

as an extension of the CCP and help them gather information on diaspora scientists.²⁵² However, the research again showed that only a theoretical use of coercion against diaspora members for technology transfer could be established. Thus, for Australia, the overseas organizations were pivotal for two out of the three mechanisms used to galvanize the Chinese diaspora for technology transfer. For the third mechanism, coercion, there was not enough data to determine how key overseas organizations are for this mechanism. However, a theoretical application showed how overseas organizations would be instrumental should the PRC choose to engage in this method of technology transfer.

D. COMPARISON OF FINDINGS

When looking at the mechanisms between Australia and the United States, the mechanisms were very similar. The PRC used heavy recruitment through programs such as the TTP to return to the PRC in both countries. Furthermore, the PRC used government incentives to help convince diaspora members to return to the PRC to start new businesses to improve the PRC's domestic industries and their economy overall. Additionally, the PRC supported overseas organizations in both countries and took part in directing them. Lastly, coercion was seldom if ever used by the PRC in both countries as a mechanism. However, despite these similarities, the underlying factor driving diaspora technology transfer was different.

One explanation for the differences in the findings can be attributed to the data set available. For the United States, thanks to the information compiled and provided by the FBI as well as multiple books looking specifically at case studies, a large amount of data regarding specific technology transfer cases were available for study. Thanks to these cases, a closer review of PRC technology transfer aspects and what enabled the PRC to use its diaspora for technology transfer could be determined. For Australia, this data was lacking. The level of data available for specific technology transfer cases was far more limited compared to that of the United States. Thus, the issue was unable to be studied at a lower level and a broader look was taken looking at the mechanisms. Had more specific

²⁵² Hamilton, *Silent Invasion*, 29–30.

data been available for Australia, then it is highly likely that the financial incentives would have emerged as the stronger factor. Financial incentives were present in many of the Australian examples that were available though there was not enough data for the results to overtake the role of overseas organizations which was identified more prevalently.

Outside of data issues, the use of illegal technology transfer methods by the PRC was another key difference that emerged as a possible explanation for why the difference between Australia and the United States occurred. In the United States, the PRC is routinely investigated for illegal technology transfer practices by the FBI as well as several other U.S. agencies.²⁵³ However, in Australia, illegal technology transfer by the PRC has yet to be identified as an issue. As of writing, there have been no cases of economic espionage against a PRC diaspora member.²⁵⁴ While some argue the lack of criminal convictions is because the laws need to be strengthened to protect Australian technology, the fact remains that as of now, the PRC has kept technology transfer from Australia within the legal realm when engaging with the Chinese diaspora.²⁵⁵ An additional explanation is that Australia is not the same powerhouse for new technology as the United States. While Australia does have a tech sector that is growing, it still lags behind the United States. According to the United Nations Frontier Technologies Readiness Index, the United States placed first while Australia placed twelfth.²⁵⁶ Thus, since the United States has more cutting-edge technology compared to Australia, the PRC is more willing to use risky illegal methods against the United States.

When accounting for the illegal cases in the United States, the support the overseas organizations provided, while still present, was not enough of a driving factor leading diaspora members to engage in illegal technology transfer. While the organizations were present in some cases, it was not as prevalent throughout the cases as the financial

²⁵³ “Information About the Department of Justice’s China Initiative and a Compilation of China-Related Prosecutions Since 2018.”

²⁵⁴ Hamilton, *Silent Invasion*, 181.

²⁵⁵ Joske, “Australia Should Look to Us Bill to Stop the Transfer of Sensitive Technology to the Chinese Military.”

²⁵⁶ “Technology and Innovation Report 2023 | UNCTAD,” accessed September 25, 2023, <https://unctad.org/tir2023>.

incentives. As a result, the mechanisms allowing a scientist to transfer technology legally could be different than the factors driving a scientist to transfer technology illegally leading to different results and warrant further investigation.

E. POLICY RECOMMENDATIONS

The PRC uses the Chinese diaspora to engage in technology transfer. While not all technology theft is associated with the Chinese diaspora, they are a facet used by the CCP due to their vast size in both the United States and Australia.²⁵⁷ Through a better understanding of the factors the CCP uses to galvanize its diaspora to conduct technology transfer, the United States and Australia can develop effective policies that target PRC assets rather than upstanding members of the diaspora. As such, this thesis recommends the following policy recommendations for the United States and Australia.

1. U.S. Policy Recommendation

Due to the mechanisms discussed above, the United States needs effective policies that do not harm helpful diaspora members but instead target bad actors. While there are many potential policies the United States should enact this thesis will provide one such recommendation. The United States should increase the funding and support it provides to scientists and research labs. While many areas require financial commitments from the United States Government, by increasing the funding the United States provides to these individuals and organizations, the United States gets multiple things in return. First, the United States grows its economy and keeps its technological edge by providing support to areas where modernization is needed especially in STEM fields. Second, the United States can provide an option for the organizations and scientists who are choosing the PRC for pragmatic reasons with a way to be financially stable without PRC support. While there will always be people who chase money in search of gaining more, the United States can attract those who are undecided about which side to work for or are contemplating working on both sides by providing more financial support. Through attracting this middle group,

²⁵⁷ Li Tang et al., “Decoupling in Science and Education: A Collateral Damage beyond Deteriorating US–China Relations,” *Science and Public Policy* 48, no. 5 (October 1, 2021): 630–34, <https://doi.org/10.1093/scipol/scab035>.

the United States can deal a serious blow to PRC technology transfer efforts while bolstering its technological edge.

This policy recommendation does not come without potential issues. One potential issue is that the scientists who are applying for this aid are not the top scientists in the field and that is why they are going to the PRC. Thus, some may question why the United States should spend funding on sub-par scientists. This policy recommendation does not suggest that the United States stop funding the best and brightest scientists in favor of those who are diaspora members. Diaspora scientists should still have to compete for funding like always to help ensure the most qualified receive additional support. This policy recommendation is simply to help open more funding to allow qualified diaspora scientists who have hit the “bamboo ceiling” to help get through that and not be forced to return to the PRC to continue to advance. Additionally, this policy recommendation should not be the only policy enacted and additional policies should also be considered.

2. Australian Policy Recommendation

Although there are many potential policy applications for Australia that warrant further exploration this thesis will provide one such recommendation. To effectively combat technology transfer by the diaspora, Australia should develop policies to improve the existing databases and available information on Chinese technology transfer efforts specifically in the illegal realm. Furthermore, the Australian government should make this data available to the United States and other academic institutions researching this issue. Through a more thorough understanding of technology transfer in Australia, the United States as well as the Western world can overall have a better understanding of Chinese technology transfer efforts. By having a data set more similar in scope to the United States, a more accurate comparison of the two can be determined. A more complete data set would also help determine why Australian scientists have not engaged in illegal technology transfer efforts. This data set would also potentially shed light on new ways the United States can limit illegal technology transfer with its diaspora. Finally, by improving the data set available, Australia can better understand its problem and work with the United States more effectively to help solve this issue as a team.

F. CONCLUSION

There is no doubt that the PRC is stealing technology from the United States. However, this thesis found that the driving reasons for technology transfer were financial as well as CCP-backed and run organizations. While the CCP has typically used these methods to target diaspora members, the CCP has also used these methods to target non-diaspora scientists.²⁵⁸ Furthermore, while the CCP prefers to back and influence diaspora organizations, they are also involved in influencing non-diaspora organizations.²⁵⁹ While this topic exceeds the scope of this paper, the fact remains that the CCP does target non-diaspora organizations to achieve its goals, not just diaspora organizations. Thus, the factors driving the PRC to use its diaspora for technology transfer are not unique to the Chinese diaspora and can be applied to whomever the PRC chooses to target.

The United States therefore must be careful not to over-correct on this issue and target innocent members of the PRC who help boost its technological advantage and are proud Americans. Walking the fine line between PRC assets and Americans is an absolute must as failing to do so risks backfiring and further harming the American innovation machine. While sometimes challenging, the United States must not fall to fear and must continue to be a refuge for those who wish to escape authoritarian rule and build a better life for themselves. As competition between the United States and the PRC increases, the United States must balance protecting our innovation base while also welcoming those who help it no matter where they come from, maintaining our American values.

²⁵⁸ Department of Justice, “Information About the Department of Justice’s China Initiative and a Compilation of China-Related Prosecutions Since 2018.”

²⁵⁹ Puglisi, “Chinese Students, Scholarship, and U.S. Innovation,” 281.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- Allison, Graham, Kevin Klyman, Karina Barbesino, and Hugo Yen. *The Great Tech Rivalry: China vs. the U.S.* Cambridge, MA: Harvard Kennedy School, 2021.
- Australian Government. *Australia Is A Top 20 Country All Topics*. Canberra: Australian Government, 2022. <https://www.dfat.gov.au/sites/default/files/australia-is-a-top-20-country-all-topics.pdf>.
- Australian Government Department of Foreign Affairs and Trade. “Quad.” Australian Government Department of Foreign Affairs and Trade. Accessed May 18, 2023. <https://www.dfat.gov.au/international-relations/regional-architecture/quad>.
- Berg, Sebastian Rotella, Kirsten. “Operation Fox Hunt: How China Exports Repression Using a Network of Spies Hidden in Plain Sight.” ProPublica, July 22, 2021. <https://www.propublica.org/article/operation-fox-hunt-how-china-exports-repression-using-a-network-of-spies-hidden-in-plain-sight>.
- Berthelsen, John. “Chinese Academics in U.S. Increasingly Going Home Out of Fear.” Asia Sentinel, October 3, 2022. <https://www.asiasentinel.com/p/chinese-academics-us-going-home-fear>.
- Cao, Cong, Jeroen Baas, Caroline S Wagner, and Koen Jonkers. “Returning Scientists and the Emergence of China’s Science System.” *Science and Public Policy* 47, no. 2 (April 1, 2020): 172–83. <https://doi.org/10.1093/scipol/scz056>.
- Chen, Jie. “The Chinese Political Opposition in Exile: A Chequered Development.” *Europe-Asia Studies* 70, no. 1 (January 2, 2018): 108–29. <https://doi.org/10.1080/09668136.2017.1418297>.
- Chinese Communist Party. *20th Party Congress Work Report*. Beijing: Chinese Communist Party, 2022.
- “Chongyi Feng Profile | University of Technology Sydney.” Accessed May 27, 2023. <https://profiles.uts.edu.au/Chongyi.Feng>.
- Courtney, Lyn, and Neil Anderson. “Knowledge Transfer between Australia and China.” Edited by Tony Dickson. *Journal of Knowledge-Based Innovation in China* 1, no. 3 (September 25, 2009): 206–25. <https://doi.org/10.1108/17561410910990584>.
- Department of Justice. “Central District of California | Chinese National Who Stole Trade Secrets While Working for Medical Device Companies Sentenced to Federal Prison | United States Department of Justice,” January 28, 2019. <https://www.justice.gov/usao-cdca/pr/chinese-national-who-stole-trade-secrets-while-working-medical-device-companies>.

- . “Information About the Department of Justice’s China Initiative and a Compilation of China-Related Prosecutions Since 2018,” July 31, 2020. <https://www.justice.gov/archives/nsd/information-about-department-justice-s-china-initiative-and-compilation-china-related>.
- Diamond, Larry, and Orville Schell, eds. *China’s Influence & American Interests*. Stanford, California: Hoover Institution Press, 2019. <https://www.hoover.org/research/chinas-influence-american-interests-promoting-constructive-vigilance>.
- Ding, Sheng. “Chinese Diaspora’s New Roles in China’s Diplomacy.” In *Routledge International Handbook of Diaspora Diplomacy*, edited by Liam Kennedy, 61–72. Routledge, 2021.
- Fedasiuk, Ryan. “How China’s United Front System Works Overseas.” *The Strategist*, April 13, 2022. <https://www.aspistrategist.org.au/how-chinas-united-front-system-works-overseas/>.
- Fedasiuk, Ryan, and Emily Weinstein. *Overseas Professionals and Technology Transfer to China*. Washington, DC: Center for Security and Emerging Technology, 2020. <https://doi.org/10.51593/20190038>.
- . “Overseas Professionals and Technology Transfer to China.” Center for Security and Emerging Technology, July 2020. <https://doi.org/10.51593/20190038>.
- Federal Bureau of Investigation. *China: Risk to Corporate America*. Quantico, VA, 2019.
- . *China: The Risk to Academia*. Quantico, VA: Federal Bureau of Investigation, 2019. <https://www.fbi.gov/file-repository/china-risk-to-academia-2019.pdf/view>.
- Hama, Aldric. “Silent Invasion: China’s Influence in Australia.” *The Journal of Social, Political, and Economic Studies* 43, no. 3/4 (Fall /Winter 2019 2018): 325–33. <https://www.proquest.com/docview/2119859657/abstract/40C135D016454A98PQ/1>.
- Hamilton, Clive. *Silent Invasion: China’s Influence in Australia*. Richmond, Victoria: Hardie Grant Books, 2018.
- Hamilton, Clive, and Alex Joske. “Submission to the Parliamentary Joint Committee on Intelligence and Security,” Inquiry into the National Security Legislation Amendment (Espionage and Foreign Interference) Bill 2017, n.d.
- Han, Christine, and Yaobin Tong. “Students at the Nexus Between the Chinese Diaspora and Internationalisation of Higher Education: The Role of Overseas Students in China’s Strategy of Soft Power.” *British Journal of Educational Studies* 69, no. 5 (September 3, 2021): 579–98. <https://www.tandfonline.com/doi/full/10.1080/00071005.2021.1935446>.

- Hannas, William C., James Mulvenon, and Anna B. Puglisi. *Chinese Industrial Espionage: Technology Acquisition and Military Modernisation*. Asian Security Studies. London: Routledge, 2013. <https://doi.org/10.4324/9780203630174>.
- Hannas, William C., and Didi Kirsten Tatlow, eds. *China's Quest for Foreign Technology: Beyond Espionage*. Asian Security Studies. Milton: Taylor and Francis, 2020. <https://doi.org/10.4324/9781003035084>.
- Hannas, William, and Huey-Meei Chang. *China's Access to Foreign AI Technology*. Washington, D.C.: Center for Security and Emerging Technology, 2019. <https://doi.org/10.51593/20190053>.
- . “Chinese Technology Transfer.” In *China's Quest for Foreign Technology: Beyond Espionage*, edited by William C. Hannas and Didi Kirsten Tatlow, 3–20. Asian Security Studies. Milton: Taylor and Francis, 2020. <https://doi.org/10.4324/9781003035084>.
- . “Foreign Support, Alliances, and Technology Transfer.” In *Chinese Power and Artificial Intelligence*, 36–53. Routledge, 2022.
- Imbrie, Andrew, and Ryan Fedasiuk. *Untangling the Web: Why the U.S. Needs Allies to Defend Against Chinese Technology Transfer*. Washington, DC: Brookings, 2020. https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_chinese_technology_transfer_imbrie_fedasiuk.pdf.
- Joske, Alex. “Australia Should Look to US Bill to Stop the Transfer of Sensitive Technology to the Chinese Military.” *The Strategist*, May 15, 2019. <https://www.aspistrategist.org.au/australia-should-look-to-us-bill-to-stop-the-transfer-of-sensitive-technology-to-the-chinese-military/>.
- . *Hunting the Phoenix*. Australian Strategic Policy Institute, 2020. <http://www.jstor.org/stable/resrep26119.1>.
- . *The China Defence Universities Tracker*. 23. Canberra, Australia: Australian Strategic Policy Institute, 2019.
- . “The Company with Aussie Roots That’s Helping Build China’s Surveillance State.” *The Strategist*, August 25, 2019. <https://www.aspistrategist.org.au/the-company-with-aussie-roots-thats-helping-build-chinas-surveillance-state/>.
- . *The Party Speaks for You*. Australian Strategic Policy Institute, 2020. <http://www.jstor.org/stable/resrep25132.1>.
- . “Turning the Spotlight on China’s Global Effort to Recruit Scientists.” *The Strategist*, August 20, 2020. <https://www.aspistrategist.org.au/turning-the-spotlight-on-chinas-global-effort-to-recruit-scientists/>.

- Laurenceson, James, and Michael Zhou. *Cross-Border Neural Networks*: Sydney, Australia: Australia-China Relations Institute, 2019.
- Levin, Tim. “Tesla Settles Lawsuit with Former Employee Accused of Stealing Autopilot Trade Secrets.” *Business Insider*. Accessed August 19, 2023. <https://www.businessinsider.com/tesla-settles-autopilot-trade-secrets-lawsuit-2021-4>.
- Mattis, Peter L., and Matthew J. Brazil. *Chinese Communist Espionage: An Intelligence Primer*. Annapolis, Maryland: Naval Institute Press, 2019.
- Merchant, Nomaan. “U.S. Needs to Reform Efforts to Stop Enemy Spies, Report Says.” *AP News*, September 20, 2022. <https://apnews.com/article/china-congress-government-and-politics-eebc9ccb505f82c09d8e8e50400a127c>.
- Orr, Aleisha. “China Allegedly Had Two Secret Police Stations in Australia. What Do We Know About Them?” *SBS News*, December 11, 2022. <https://www.sbs.com.au/news/article/china-allegedly-has-two-secret-police-stations-in-australia-what-do-we-know-about-them/dz2lmxb13>.
- Puglisi, Anna B. “Chinese Students, Scholarship, and U.S. Innovation.” In *China’s Quest for Foreign Technology: Beyond Espionage*, 277–91. Asian Security Studies. Milton: Taylor and Francis, 2020.
- Robertson, Jordan, and Drake Bennett. “A Chinese Spy Wanted GE’s Secrets, But the U.S. Got China’s Instead.” *Bloomberg.com*, September 15, 2022. <https://www.bloomberg.com/news/features/2022-09-15/china-wanted-ge-s-secrets-but-then-their-spy-got-caught>.
- Spear, Andrew. “Serve the Mother Land While Working Overseas.” In *China’s Quest for Foreign Technology: Beyond Espionage*, edited by William C. Hannas and Didi Kirsten Tatlow, 21–37. Asian Security Studies. Milton: Taylor and Francis, 2020. <https://doi.org/10.4324/9781003035084>.
- Statista. “China: Countries with the Largest Number of Overseas Chinese 2021.” *Statista*. Accessed April 18, 2023. <https://www.statista.com/statistics/279530/countries-with-the-largest-number-of-overseas-chinese/>.
- Stoff, Jeffrey. “China’s Talent Programs.” In *China’s Quest for Foreign Technology: Beyond Espionage*, edited by William C. Hannas and Didi Kirsten Tatlow, 38–54. Asian Security Studies. Milton: Taylor and Francis, 2020. <https://doi.org/10.4324/9781003035084>.
- Sutter, Karen. “Foreign Technology Transfer Through Commerce.” In *China’s Quest For Foreign Technology*, edited by William C. Hannas and Didi Kirsten Tatlow, 57–73. Asian Security Studies. Taylor and Francis, 2020.

- Sydney Morning Herald. “Arise the Sun King,” September 12, 2006.
<https://www.smh.com.au/national/arise-the-sun-king-20060912-gdoddr.html>.
- Tan, Yan. “China’s Diaspora Engagement Policy and Its Powerful Effect Outside Its Borders.” *Melbourne Asia Review* 8 (November 2021). <https://doi.org/10.37839/MAR2652-550X8.9>.
- Tang, Li, Cong Cao, Zheng Wang, and Zhuo Zhou. “Decoupling in Science and Education: A Collateral Damage beyond Deteriorating US–China Relations.” *Science and Public Policy* 48, no. 5 (October 1, 2021): 630–34. <https://doi.org/10.1093/scipol/scab035>.
- . “Decoupling in Science and Education: A Collateral Damage beyond Deteriorating US–China Relations.” *Science and Public Policy* 48, no. 5 (October 9, 2021): 630–34. <https://doi.org/10.1093/scipol/scab035>.
- “Technology and Innovation Report 2023 | UNCTAD.” Accessed September 25, 2023.
<https://unctad.org/tir2023>.
- Tour, Arnaud de la, Matthieu Glachant, and Yann Ménière. “Innovation and International Technology Transfer: The Case of the Chinese Photovoltaic Industry.” *Energy Policy*, Special Section on Offshore wind power planning, economics and environment, 39, no. 2 (February 1, 2011): 761–70. <https://doi.org/10.1016/j.enpol.2010.10.050>.
- Tung, Rosalie L., and Henry F. L. Chung. “Diaspora and Trade Facilitation: The Case of Ethnic Chinese in Australia.” *Asia Pacific Journal of Management* 27, no. 3 (2009): 371–92. <https://doi.org/10.1007/s10490-009-9146-3>.
- Uren, David. “Australia’s Trade Diversification Away from China Picks up Pace.” *The Strategist*, October 13, 2022. <https://www.aspistrategist.org.au/australias-trade-diversification-away-from-china-picks-up-pace/>.
- Valle, Hannah Rabinowitz, Evan Perez, and Lauren Del. “FBI Arrests Two Alleged Chinese Agents and Charges Dozens with Working Inside U.S. to Silence Dissidents.” CNN, April 17, 2023. <https://www.cnn.com/2023/04/17/politics/fbi-chinese-agents/index.html>.
- White House. *National Security Strategy*. Washington, DC: White House, 2022.
<https://s3.documentcloud.org/documents/23130452/biden-harris-administrations-national-security-strategy.pdf>.
- Wong, Audrye. *The Diaspora and China’s Foreign Influence Activities*. Washington, D.C.: Wilson Center, 2022. <https://www.wilsoncenter.org/publication/diaspora-and-chinas-foreign-influence-activities>.

- World Bank. “The World Bank in China: Overview.” World Bank, September 29, 2022. <https://www.worldbank.org/en/country/china/overview>.
- Wroe, David. “China ‘Behind’ Huge ANU Hack Amid Fears Government Employees Could Be Compromised.” Sydney Morning Herald, June 5, 2019. <https://www.smh.com.au/politics/federal/china-behind-huge-anu-hack-amid-fears-government-employees-could-be-compromised-20190605-p51uro.html>.
- Yang, Lili, and Giulio Marini. “Research Productivity of Chinese Young Thousand Talents.” *International Higher Education*, no. 97 (2019): 17–18. <https://doi.org/10.6017/ihe.2019.97.10944>.
- Zegart, Amy B. “Counterintelligence: To Catch a Spy.” In *Spies, Lies, and Algorithms*, 143–68. The History and Future of American Intelligence. Princeton University Press, 2022. <https://doi.org/10.2307/j.ctv1t8q8tp.11>.
- Zhang, Fang, and Kelly Sims Gallagher. “Innovation and Technology Transfer through Global Value Chains: Evidence from China’s PV Industry.” *Energy Policy* 94 (July 1, 2016): 191–203. <https://doi.org/10.1016/j.enpol.2016.04.014>.
- Zhang, Zhen. “The Chinese Knowledge Diaspora and Diaspora Knowledge Network: Australia and Canada Compared.” Phd Diss, University of Sydney, 2014. <https://ses.library.usyd.edu.au/handle/2123/13945>.
- Zhu, Charlie, and Bill Powell. “The Rise and Fall of China’s Sun King.” Reuters, May 20, 2013. <https://www.reuters.com/article/us-suntech-shi-specialreport-idUSBRE94I00220130520>.
- Zwetsloot, Remco. *China’s Approach to Tech Talent Competition: Policies, Results, and the Developing Global Response*. Washington, DC: Brookings, 2020. <https://www.brookings.edu/research/chinas-approach-to-tech-talent-competition/>.
- Zwetsloot, Remco, and Zachary Arnold. “Chinese Students Are Not a Fifth Column.” *Foreign Affairs*, April 23, 2021. <https://www.foreignaffairs.com/articles/united-states/2021-04-23/chinese-students-are-not-fifth-column>.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Fort Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California



DUDLEY KNOX LIBRARY

NAVAL POSTGRADUATE SCHOOL

WWW.NPS.EDU

WHERE SCIENCE MEETS THE ART OF WARFARE