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CHINA'S THREAT TO U.S. INFLUENCE THROUGH SPACE AND CYBER

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SCOPE NOTE

This National Intelligence Estimate (NIE) will assess the geopolitical and socioeconomic challenges that stem from China's use of space and cyber. With the rise of China's military capabilities and technological advancements, the United States finds itself in a battle for global influence. China's rise as an economic and military power can be seen through their exploration and expansion of space and cyber capabilities. These efforts have the capacity to extend to susceptible nations that will develop positive outlooks on their relationship with China. If China is able to gain favorable relationships, it can use them to act without repercussions and with the support of those nations. This document will attempt to propose a clear estimation of these challenges and predict the adverse affects of continuous progression of Chinese space and cyber endeavors. This clash poses the greatest foreign policy challenge this century for the United States, threatens the strategic and global competitiveness the U.S. has maintained, and challenges the democratic principles the U.S. and allies champion.

Through this estimate we will focus on how China is using partnerships with other nations to strengthen its own space program. We will focus on both the occupation and militarization in space and celestial bodies in order to understand how this affects their standing in the international community. In this estimate we will also focus on China's cyber capabilities through their use of cyber attacks, 5G infrastructure and artificial intelligence (AI) powered weapons. We will analyze the manufacturing capabilities of these technologies to predict the future growth and use of these measures. Through these two lenses we will dissect China's two-pronged approach in undermining the United States' military and soft power.

In this estimate we hope to provide key insight on the following elements:

- ▶ Democratic metrics of nations before and after entering into space or technology partnerships with China.
- ▶ China's use of space as a way to weaponize the frontier and the challenges that stem from their testing of new technologies.
- ▶ China's use of space for scientific purposes and whether that leads to partnerships with other nations.
- ▶ China's use of cyberattacks to target key countries and whether these attacks shed light on China's intentions to disrupt surrounding democracies.
- ▶ China's use of 5G infrastructure to build the network of the future. We will examine which countries have adopted the technology from Chinese companies such as Huawei and look at their favorability rating of China.
- ▶ China's modernization of weaponry including the use of AI powered machines and what this means for regional dominance.

This Estimate incorporates intelligence reporting available as of 14 May 2021.

EXECUTIVE SUMMARY

This paper does not intend to depict China as an existential threat to the United States. We do not believe that China and the U.S. will engage in a traditional war as the understanding of mutually assured destruction is well known to both governments. Rather, this paper highlights two avenues out of many that show how China is developing a positive image in the international community, targeting countries that have seen few benefits from the democratic principles of the “free world”. What we know is that China does not practice the political freedoms that democracies do and therefore understands that their ideology is being framed as detrimental to society. So, to be able to act unhindered in the face of a “free world”, China has to develop enough relationships and spread enough influence to act without regard for the United States and any other democracy. To combat their negative portrayal, China looks to benefit other nations by developing infrastructure and providing aid, all in an effort to gain favorability over democracies and assert their dominance as a global hegemony.

With the increase in environmental damage and the rapid progression of global warming, the democratic nations around the world face a serious threat with the rise of autocratic systems of governance, led by China. The world is better off when it is led by the United States and allies’ vision of democratic principles of governance as it fosters collaboration and ensures the adherence to international guidelines. With the rise of China and other autocracies, the world faces potential pushback in its efforts to bring down global carbon emissions and implement measures that contribute to a safer, cleaner, and free society. This is why it is important to understand how China is using different avenues to spread its influence, giving them international credibility when discussing matters of international security. The threat to democracy means a disregard of measures implemented globally, allowing China to act how it sees fit without extensive repercussions. Since there are numerous ways that China is pursuing influence, we have focused on just two of those ways. By approaching diplomacy through tech and space capabilities, China is creating a positive image for itself in many of the countries that the United States has not pursued and establishing themselves as a military superpower, giving them both soft and hard power.

KEY JUDGEMENTS

We assess with a high degree of certainty that China’s advancement in space and cyber will advance China’s influence in the international community and advance their military capabilities.

- ▶ We assess with a high degree of certainty that China will use its partnership with Russia on the Lunar Base to advance its influence in space and on Earth.
- ▶ We assess with a high degree of certainty that this will risk the United States’ leadership role in the international community, especially in setting the precedent in space.

We judge with a low degree of confidence that China's expansion in space will risk the democratic governance of space activities.

- ▶ We judge with a high degree of certainty that China's actions in space directly affects their actions on Earth. Yet, by advancing their space program and space interests, China can take the lead in space governance which can lead to the restriction of democratic principles in space.

We assess with a moderate degree of certainty that China will soon close the gap with the United States in the number of rocket launches and deliveries within the next 10 years.

- ▶ We assess with a low degree of certainty that China will take the leadership role once it is able to match the United States' number of launches and deliverable payloads per year.

We assess with a high degree of certainty that China will continue its unsafe practice of testing new technologies such as rockets and anti-satellite weapons.

- ▶ With the recent uncontrolled reentry of the Long March 5B rocket and the destructive anti-satellite tests conducted in 2007, we assess with a moderate degree of certainty that continued practice of unsafe testing will result in an international accident.

We assess with a high degree of certainty that China's use of its 5G infrastructure will help China establish new partnerships with other nations and certify China as a beneficial partner to other countries.

- ▶ By extending the offer to develop 5G infrastructure in other countries, China looks to gain a positive image in these countries. This leads to more international support and the tolerance of autocratic ideologies.

We assess with a high degree of certainty that China will continue its pursuit of modernizing its military through the use of AI powered weapons.

- ▶ We assess with a high degree of certainty that China is pursuing these means to establish military supremacy in the region.
- ▶ We assess with a moderate degree of certainty that China will use these military capabilities to pursue an aggressive presence in disputed territories in the South China Sea and in Taiwan.

We judge with a moderate degree of confidence that China will increase the number of cyberattacks against key targets to disrupt the infrastructure of democracies.

- ▶ We assess that China's trajectory of cyberattacks will lead the country to increase its hacking activities in disruption and intellectual theft operations.

We assess with a high degree of certainty that China is pursuing influence through these channels in an effort to undermine the liberal world order and gain enough clout to challenge the United States as the world leader.

- ▶ With plans to be the global leader by 2049, China has vocalized its plans to be the most powerful nation on the planet.

ANALYSIS

Before we move on to our analysis, it is critical to understand the mindset the CCP (Chinese Communist Party) is engaging the world with. Although the conversation is usually framed as China overtaking the United States, it is not seen that way by the CCP. For them, it is about a return to greatness. We must understand that the CCP relies on maintaining domestic political order and sovereignty along with domestic economic growth in order to maintain credibility and authority over the Chinese people. It is the platform that Xi Jinping was elected on in 2012; an effort for Chinese national rejuvenation, the fulfillment of Chinese exceptionalism and a call to citizens to make sacrifices for the greater national good¹. China's concern is not with the United States, it is with becoming a global hegemony that does not have to seek approval from the U.S. or international community in pursuing their endeavors. It is what has led to their increased military presence in the South China Sea and the Taiwan Strait and increased collaboration with other nations, all in an effort to undermine democratic authority. Yet, it is this mindset that should concern the United States. China's violations of basic human rights against Uyghur Muslims, Tibetans, Honk Kong protestors and others indicates that China will continue in its quest to assert allegiance to the CCP alone. If the CCP is able to gain favorability from the international community, then these violations will continue to grow and threaten the rights of democratic peoples.

Furthermore, it is important to understand the background of Chinese development of cyber and space. Over the past 40 years we have seen an exponential growth in these fields, along with the socioeconomic status of the Chinese people. It is a growth rate that the CCP proudly boasts and is a testament to the efficiency of the CCP and its ability to coordinate national efforts. It has led to the creation of financial hubs that provide the economical means for the nation to subsist on and the development of manufacturing sites that provide the world with cheap goods. Yet, in addition to raising the social welfare within the state, these actions have led to their rise in the global arena. When looking at their space capabilities, China has seen an exponential growth in their space program in the last decade alone. China lagged behind the United States in sending a man to the moon by 40 years and now only lagged a few months behind in sending a rover to Mars. In their cyber capabilities we have seen an increase in cyber attacks and manufacturing of 5G technology, computer chips and other hardware. The rate of production has made them the number one manufacturer of integrated circuits and has allowed them to control the supply chain of hardware, which is later used in U.S. technologies². Given the trajectory that China is on, they can achieve Xi Jinping's vision of global dominance in all markets by 2049, threatening the international order of governance and the ability of other nations to take a stand against the autocratic regime.

¹ Denton, K. (n.d.). *China Dreams and the Road to Revival*. Origins. <https://origins.osu.edu/article/china-dreams-and-road-revival>.

² (ITC), I. T. C. (n.d.). *Trade statistics for international business development*. Trade Map - List of exporters for the selected product (All products). https://www.trademap.org/Country_SelProduct_TS.aspx?nvpm=1%7C%7C%7C%7C%7CTOTAL%7C%7C%7C2%7C1%7C1%7C2%7C2%7C1%7C2%7C1%7C%7C1.

KEY FINDINGS

Democratic Standings

To understand the effects of the rise of China, we analyzed democratic metrics from Freedom House and the V-Dem Institute. We looked at the numbers of the international community as a whole and key countries that China has engaged with.

The International Community:

- A 2020 report from Varieties of Democracy found that 2020 was the first time since 2001 where the world had more autocratic institutions than democratic ones.³
- Autocracy is now the home to 68 percent of the world's population, up from 48 percent in 2010, if we include India as an electoral autocracy. (Prime Minister Modi has refuted this claim and has decided to create his own democratic index to rate countries. This report does not consider his views).
- The V-Dem Institute has also shed light on the threats to freedom of expression. Although China practices media censorship, the spread of their influence can determine whether other susceptible nations (such as those that heavily rely on foreign aid) will follow suit in censoring free speech. V-Dem has reported that 32 countries are declining rapidly in their freedoms of expression, compared to 19 countries in 2018. They have also reported that freedom of civil liberties have seen substantial deterioration in 50 countries over the past 10 years.⁴ As the CCP continues to violate human rights of minorities within China, it has relied on the ability to control what the media reports on. By engaging with fellow nations that practice media censorship, the CCP will view those relationships as beneficial to its global image. It can engage with these nations with little pushback from the citizens of those nations, as they will have little access to defamatory information about the CCP.
- What we have learned from these numbers is that the international community is facing an unprecedented wave of autocratic ideology. Of the top 10 countries that are turning into autocracies, seven transitioned from an electoral democracy to an electoral autocracy, two transitioned from liberal democracies to electoral democracies, and one transitioned from an electoral autocracy to a closed autocracy (that nation being Thailand).⁵ This indicates that countries are more susceptible today to autocratic influence since the Post-Cold War era. The CCP's efforts to approach countries with its many programs such as the Belt and Road Initiative or its space program has better odds at influencing those nations to adopt the CCP as a benefactor. This opens the door for China to exert its influence and gain popularity with nations that can sympathize with the CCP's autocratic ideology.

Key Countries China Has Engaged:

- In the continent of Africa, China has pursued nearly every nation for its Belt and Road Initiative (BRI) except a handful. Of the nations in which China has already included in its BRI, we focused on countries in which China has implemented its 5G infrastructure through Huawei. Of these are: Morocco, Namibia, South Africa and Mozambique. In

³ V-Dem Institute. (2021). (rep.). *Democracy Report 2021* (p. 13).

⁴ V-Dem Institute. (2021). (rep.). *Democracy Report 2021* (p. 7).

⁵ V-Dem Institute. (2021). (rep.). *Democracy Report 2021* (p. 19).

2016, Freedom House gave the following scores to these countries: Morocco at 41, Mozambique at 56, Namibia at 77, and South Africa at 79.⁶ After attaining 5G capabilities and further development of other BRI projects, these same countries ranked at the following in 2021: Morocco at 37, Mozambique at 43, Namibia at 77, and South Africa at 79.⁷ We see a backsliding in democratic metrics in two of these countries after the implantation of 5G networks and further collaboration with the CCP. We also noticed that the countries that are open to accept 5G infrastructure are usually countries that have better economical means than those that didn't but are still part of the BRI. This leads us to conclude that countries that require more foreign aid are the ones most vulnerable to accepting help from China and either tolerating or partially welcoming autocratic tendencies.

- What seems to be more concerning are the countries in the same region as China. We took a look at countries that are part of the BRI and that have adopted Huawei's 5G networks. In 2016, Freedom House designated the following ratings: Cambodia at 32, Indonesia at 65, Nepal at 51, the Philippines at 65, Sri Lanka at 56, and Thailand at 32. In the same manner as our previous bullet point, we compared those metrics to their numbers in 2021 which Freedom House ranked as the following: Cambodia at 24, Indonesia at 59, Nepal at 56, the Philippines at 56, Sri Lanka at 56, and Thailand at 30. The backsliding on democratic metrics in these countries are far more concerning since the CCP is able to exert more influence in their own region than on other continents. In addition, the amount that the democratic metrics fell by are significantly more than any country in Africa that accepted both the invitation to join the BRI and use Huawei's 5G network. These countries in the Southeast Asian region are more dependent on China due to proximity and the ease of transporting goods and materials.
- With the overall trends of Chinese influence affecting the democratic ratings of many countries, we believe that Chinese influence is a real threat to the nations that the United States has not engaged with. This can lead to China creating its own bloc in the region, solidifying its regional hegemonic status and developing strategic positioning to combat any adversarial threats.

China's Space Program

China launched its first satellite into orbit in 1970, nearly 12 years after the United States. Since then they have pursued an aggressive advancement in their space endeavors. As their presence increases, so does the likelihood of the CCP dictating the terms of international space policy. We have analyzed the space capabilities of China from a variety of sources and have identified key areas of investment that will lead to the attainment of a positive image in the global community. We have also identified areas of concern in regard to the testing of new space technologies.

- In 2018, China launched the most rockets in the world with a total of 38, and in 2019 they launched more rockets than the United States with a total of 32.⁸ Although their number of

⁶ *Countries and Territories*. Freedom House. (n.d.). <https://freedomhouse.org/countries/freedom-world/scores?sort=asc&order=Total+Score+and+Status>.

⁷ Puddington, A., & Roylance, T. (2016). (rep.). *Freedom In The World*.

⁸ *How is China Advancing its Space Launch Capabilities?* ChinaPower Project. (2020, August 25). <https://chinapower.csis.org/china-space-launch/>.

launches was higher, the number of payloads delivered was significantly lower. This leads us to believe that China will not close the gap on our presence in space for at least another decade.

- In 2018, China spent the second most money on their space program at 5.8 billion dollars, an increase of 348 percent over 15 years.⁹ This shows a commitment to develop their space program, and continued efforts of expanding space operations will lead to the development of further partnerships with nations that lack the capability to perform their own launches. The increase in funding will also lead to improved rocketry which can serve military purposes, such as advanced ballistic missiles.
- As of March 2020, there were 2,666 known satellites orbiting Earth, of which Chinese entities own 13.6 percent or 363. This pales in comparison to the U.S., which owns roughly half of all satellites at 1,327.¹⁰
- Out of the 363 satellites in space, 35 of them are part of the BeiDou Navigation Satellite System (an alternative to the US Global Positioning System).¹¹ This has contributed to their Belt and Road Initiative (BRI) as it provides logistical and navigation services to roughly 30 developing countries in the BRI, including Laos, Pakistan and Indonesia.¹² This commitment to serve these nations leads to a favorable reception to Chinese influence. This proves that China's use of space capabilities is directly correlated to their attempt at spreading influence on Earth.
- On March 9, 2021 China announced a partnership with Russia to build a lunar research outpost on the moon. The memorandum included a statement that will, "...facilitate cooperation between all interested countries and international partners", in a bid to strengthen scientific research.¹³ Although scientific in nature, this program gives China the opportunity to involve itself more in international space efforts. If China's lunar program is successful, China could become the de facto leader in future internationally coordinated endeavors in space. China and Russia have stated an ambitious effort to complete the lunar base by 2031 compared with NASA's plans for a lunar base by 2024.¹⁴ The race to be the first to establish a lunar base could determine the governance on the moon.
- In another effort to assert space dominance, China launched the first module of its new space station, the Tiangong, and plans to have the new station operational by 2022.¹⁵ Having been banned from the International Space Station (ISS), China has decided to pursue

⁹ Rapp, N., & O'Keefe, B. (2019, August 5). *50 Years After the Moon Landing, Money Races Into Space*. Fortune. <https://fortune.com/longform/space-program-spending-by-country/>.

¹⁰ ChinaPower Project. (2020, August 25)

¹¹ *China's Beidou navigation satellite system*. The State Council of The People's Republic of China. (2016, June 17). http://english.www.gov.cn/archive/white_paper/2016/06/17/content_281475373666770.htm.

¹² Jakhar, P. (2018, September 20). *How China's GPS 'rival' Beidou is plotting to go global*. BBC News. <https://www.bbc.com/news/technology-45471959>.

¹³ Rovira, L. (n.d.). *China and Russia Will Be Building A Moon Base Together*. EarthSky. <https://earthsky.org/space/china-russia-will-be-building-moon-base-together-march9-21>.

¹⁴ Shekhtman, S. (2021, January 26). *NASA's Artemis Base Camp on the Moon Will Need Light, Water, Elevation*. NASA. <https://www.nasa.gov/feature/goddard/2021/nasa-s-artemis-base-camp-on-the-moon-will-need-light-water-elevation>.

¹⁵ McDonell, S. (2021, April 29). *China launches first module of new space station*. BBC News. <https://www.bbc.com/news/world-asia-china-56924370>.

building its own. This comes as a concern since the ISS is due to be retired by 2024, which could leave the Tiangong as the only operational space station in orbit. Having the only space station can contribute further to China's space diplomacy in pursuing other nations to join its program on their terms.

- With the increase of space capabilities comes the testing of new technologies to determine their viability in launches. China has consistently demonstrated a disregard for safety measures and protocols when performing tests on their new developments. In October 1994, China launched a rocket carrying a satellite engineered by Americans. The rocket launch was a failure and crash landed on a village in Xichang.¹⁶ In 2007, China launched an anti-satellite weapon to destroy one of its own satellites, which left hundreds of pieces of space debris that could pose a risk to other satellites in orbit, as well as the ISS. Most recently, China launched their Long March 5B rocket which made an uncontrolled reentry into the Earth's atmosphere. The rocket ended up landing in the Indian Ocean, just west of the Maldives.¹⁷ This proves that China has shown a disregard to safely testing and deploying their rockets and anti-satellite weapons. This can lead to problematic tests in the future, especially if China sees little retaliation from their past tests.
- In addition to dangerous testing, China is also increasing the number of its spy satellites in orbit. On March 12 of this year, China launched three new Yaogan satellites that will be used for what they call electromagnetic environment surveys and other related technology tests. Yet, from our understanding, these satellites are actually for military and intelligence use. The Yaogan series has been notoriously used for military reasons, typically carrying high-resolution optical, radar, and signals intelligence.¹⁸ These technologies are typically used in satellites meant to monitor activities on Earth and indicate that China has avoided disclosing its true intentions on these launches. This also gives China better intelligence gathering capabilities, strengthening its oversight especially in the Southeast Asian region.
- China is also pursuing further anti-satellite capabilities despite government officials indicating public support for the demilitarization of space. The U.S. Department of Defense released a report indicating several technologies that China may be pursuing. Some of these include kinetic-kill missiles, ground based lasers, orbiting space robots, satellite jammers, and directed-energy weapons.¹⁹ All in an effort to gain space supremacy and insurance against any nation that threatens its status in space. Combining these capabilities with their launch capabilities, their space station Tiangong, and their lunar base will give China the ability determine a significant portion of space traffic.

¹⁶ Zak, A. (2013, February 1). *Disaster at Xichang*. Air & Space Magazine. <https://www.airspacemag.com/history-of-flight/disaster-at-xichang-2873673/>.

¹⁷ Rovira, L. (n.d.). *The fiery fate of China's Long March 5B rocket*. EarthSky. <https://earthsky.org/todays-image/china-uncontrollable-long-march-5b-core-stage-hurls-towards-earth>.

¹⁸ Jones, A. (2021, April 7). *China launches trio of Yaogan-31 ocean reconnaissance satellites*. SpaceNews. <https://spacenews.com/china-launches-trio-of-yaogan-31-ocean-reconnaissance-satellites/>.

¹⁹ Erwin, S. (2020, September 1). *Pentagon report: China amassing arsenal of anti-satellite weapons*. SpaceNews. <https://spacenews.com/pentagon-report-china-amassing-arsenal-of-anti-satellite-weapons/>.

- Having set a clear timeline of milestones to achieve in space, China predicts that it will be the leader in all activities related to space by 2045.²⁰ If this holds true, the race to establish a moon base and space station is even more critical to establishing the rules of governance in space.

China's Cyber Efforts and Techno-Diplomacy

China's use of cyber has resulted in a wide variety of attacks against the United States and other countries, targeting governments, private companies and critical infrastructure. These efforts have led to the theft of intellectual property, the theft of American identities, the disruption of internet services in democracies and many other concerning domains. China has also used its manufacturing capabilities to deliver majority of the world's integrated circuits, which are crucial to the development of most technologies and its 5G infrastructure as a means to establish ties with other countries. China will use these efforts to promote its status as the global leader in all things technology and as the provider of integral infrastructure to the nations that lack it.

- China has increased its development of integrated circuits to become the largest integrated chip market in the world, leading at 60.5 percent. Their state council has projected China to be the global leader in all sectors of the semiconductor industry by 2030.²¹ If China becomes the leader in all facets of the semiconductor industry, then China will be in control of the supply chain of many technologies. This can lead to the tampering and corruption of hardware that is implemented in many of the smartphones and computers that are used around the world. With the increase in awareness around cyberattacks, this level of control over hardware can make any progress on cyber defense irrelevant. By manufacturing hardware with components such as key loggers, China can circumvent cyber defenses with relative ease.
- In addition to curbing cyber defenses, becoming the dominant player in semiconductor chips can lead China to extend surpluses to nations in need. As we currently see a shortage of computer chips, China's ability to manufacture the most chips plays even more critically. Once China is able to manufacture at higher rates, future shortages will ensure that China controls the global market for many technologies. This will contribute to China gaining more clout with its partners which again contributes to their efforts to lead the international community.
- Although the United States has banned the export of technologies to China's largest semiconductor manufacturer, SMIC, placing them on the Entity List, China is still able to use technologies that other countries send them.²² By utilizing the technologies of U.S. allies, China can curb security measures that compromise communication and collaboration ef-

²⁰ 代艳. (n.d.). *China aims to be world-leading space power by 2045*. China. http://www.chinadaily.com.cn/china/2017-11/17/content_34653486.htm.

²¹ Allison. (n.d.). *China's semiconductor industry: 60% of global consumption: Analysis*. Daxue Consulting – Market Research China. <https://daxueconsulting.com/chinas-semiconductor-industry/>.

²² Kharpal, A. (2021, March 2). *China's most important chipmaker SMIC could be a big winner from the global semiconductor shortage*. CNBC. <https://www.cnbc.com/2021/03/02/china-semiconductor-maker-smic-could-be-a-winner-from-global-chip-shortage.html>.

forts between the U.S. and its allies. Although this is highly unlikely due to the complexity of implementing design changes in integrated chips, it is worth noting.

- With the rise in cyber attacks in recent years, we have analyzed several hacking groups that computer security researchers believe stem from China. Of these groups, we have identified six notable Chinese state-sponsored groups that have targeted the U.S. and countries in the Southeast Asian region:
 - *BlackTech*: This group has targeted the technology, finance and government sectors of the United States, Taiwan, Japan and Hong Kong. They typically compromise legitimate software in a bid to implant malware that affects end users that download updates.²³
 - *APT41*: Considered one of the most prolific cyber threats from China, this group has targeted multiple countries, including the U.S., Japan, India, Australia, South Korea and the U.K. They have exploited remote access protocols and have corrupted legitimate software to directly affect end users.²⁴
 - *APT40*: This group has focused its efforts on countries tied to the South China Sea, including Malaysia, Cambodia, Taiwan and the U.S. They have specialized in espionage attacks against the government sector of Malaysia and utilize highly targeted spearphishing attacks to hone in on governmental officials.²⁵
 - *Mustang Panda*: Another state sponsored group that targets NGOs along with religious and political organizations. This group has focused on Southeast Asian countries, including Mongolia, Hong Kong, Vietnam, Burma, India, and Pakistan.²⁶ We believe these efforts will lead China to understand the sensitivities of different religions and minorities to better use psychological means of fostering a positive image of China despite violating their human rights.
 - *TA410*: This group has focused primarily on the United States and the electric utility companies that services critical segments of U.S. infrastructure. They have utilized targeted spearphishing campaigns, impersonating professional organizations to deliver malware.²⁷
 - *APT10*: Known as one of the longest operating actors within China, this group has targeted key infrastructure sites of the United States, Europe and Japan. They have focused on the telecommunication, defense, engineering and government sectors utilizing a wide array of attacks from spearphishing to remote access tools.²⁸

²³ Cherepanov, A. (2019, June 19). *Plead malware distributed via MitM attacks at router level, misusing ASUS WebStorage*. WeLiveSecurity. <https://www.welivesecurity.com/2019/05/14/plead-malware-mitm-asus-webstorage/>.

²⁴ Fraser, N. (2019, August 7). *APT41: A Dual Espionage and Cyber Crime Operation*. FireEye. <https://www.fireeye.com/blog/threat-research/2019/08/apt41-dual-espionage-and-cyber-crime-operation.html>.

²⁵ Hlavek, A. (2021, January 11). *China cyber attacks: the current threat landscape*. Security Boulevard. <https://securityboulevard.com/2020/12/china-cyber-attacks-the-current-threat-landscape/>.

²⁶ Hlavek, A. (2021, January 11). *China cyber attacks: the current threat landscape*.

²⁷ Schwarz, D., Raggi, M., & Georgi Mladenov. (2020, June 8). *TA410: The Group Behind LookBack Attacks Against U.S. Utilities Sector Returns with New Malware: Proofpoint US*. Proofpoint. <https://www.proofpoint.com/us/blog/threat-insight/ta410-group-behind-lookback-attacks-against-us-utilities-sector-returns-new>.

²⁸ Threat Hunter. (n.d.). *Japan-Linked Organizations Targeted in Long-Running and Sophisticated Attack Campaign*. Symantec Blogs. <https://symantec-enterprise-blogs.security.com/blogs/threat-intelligence/cicada-apt10-japan-espionage>.

- To avoid direct confrontation and risk being outed by the international community, China has utilized these threat actors to carry out their operations. They have focused on the disruption of key infrastructure sites around the globe, but mainly focusing on democracies and neighboring countries. Many of these hacks contribute to China's growing database of key officials in neighboring countries that can open opportunities of targeted negotiations to lead to favorable outcomes for the CCP. Others have caused disruption in utility services that have amounted to headaches and discoveries of glaring security gaps. Although China's cyberthreat capabilities are increasing in sophistication, it is their neighboring countries that remain the most vulnerable to attacks, as the regime continues to plan its approach to the South China Sea, Hong Kong, Taiwan and other neighboring countries.
- As the new era of technology sets in, the implementation of 5G networks is critical to the development of faster internet connections. China's Huawei has taken over as the world's leading provider of 5G capabilities, having signed 91 commercial contracts.²⁹ They have built 70 percent of Africa's 4G network and is the only company with an official 5G contract in the continent, having signed a deal with a South African company.³⁰ Additionally, China has the most 5G contracts in Europe totaling at 47, an additional 27 from Asia and 17 from other regions including U.S. allies in the Middle East such as Saudi Arabia, and many South American countries.³¹ Despite the warnings from the United States about the security vulnerabilities these networks present, only eight other nations have placed permanent bans on Huawei. Given that the CCP enacted the National Intelligence Law in 2017, companies such as Huawei are obligated to conduct intelligence operations on behalf of the government. This can lead to the control of network traffic, espionage campaigns against members of government, the potential for disrupting internet access in strategic locations, and other malpractices that can impede social order. The adoption of Huawei's infrastructure by countries in their region presents the opportunity for the CCP to engage in further human rights violations. The control of networks allows the CCP to monitor critics and religious groups to better target against them in information campaigns.
- In addition to its traditional cyber capabilities, the CCP has begun an aggressive implementation of AI powered weapons that will advance their missions in space, cyber and on Earth. The goal for the Peoples Liberation Army (PLA) is to advance autonomous and AI powered weapons to increase the speed, reach, precision, and lethality of missions.³² We took a look at these efforts to better understand how it can contribute to China spreading its influence in the region. With the development of AI powered weapons, China can use them to automatically detect any encroachment in what it deems is its territory. AI has the capability of reducing decisions to fractions of a second and executing faster than a hu-

²⁹ 李雪晴. (n.d.). *Huawei secures most 5G contracts around world*. Chinadaily.com.cn. <https://www.chinadaily.com.cn/a/202002/22/WS5e50491ea3101282172796b9.html>.

³⁰ Sacks, D. (2021, March 19). *China's Huawei Is Winning the 5G Race. Here's What the United States Should Do To Respond*. Council on Foreign Relations. <https://www.cfr.org/blog/china-huawei-5g>.

³¹ 李雪晴. (n.d.). *Huawei secures most 5G contracts around world*.

³² Kania, E. (2020). (rep.). "AI Weapons" in *China's Military Innovation*.

man can think. If China is able to implement these systems to the scale of their army, it can transform China into the world's most powerful military.

- Another concern with China's development of AI powered weapons comes from the sales of these weapons to other nations. This can be utilized as another means of advancing diplomatic ties and spreading even more influence. Former Secretary of Defense, Mark Esper, accused China of selling the Blowfish A3 drone to countries in the Middle East. We already know that many countries in the Middle East have adopted China's 5G infrastructure and have accepted to be apart of the BRI. The purchasing of Chinese military weaponry is just another sign that indicates China's presence in the region. The company that makes the drone, Ziyang, has stated that the Blowfish A3 is a helicopter drone with a machine gun attached to it. Ziyang states that the drone can do the following, "autonomously perform more complex combat missions, including fixed-point timing detection, fixed range reconnaissance, and targeted precision strikes."³³
- In another use of AI, China has created a surveillance infrastructure that allows the monitoring of the South China Sea. Through the use of the Chinese Floating Integrated Information Platform (IIFP), the CCP designed a floating structure that is equipped with infrared sensor turrets, high frequency radio communications, solar panels, radar and cellular communication. With this new addition, China has extended its surveillance of the South China Sea from Hainan to the Paracel and Spratly Islands.³⁴ We believe that China is implementing these new monitoring measures in light of disputes over the "nine-dash line", giving them the ability to pinpoint other nations that traverse on its "claimed" waters. Although, it is worthy to note that China has also deployed IIFP in international waters that it has no claim over.
- In addition to above sea monitoring in the South China Sea, the CCP has also implemented what it calls the Underwater Great Wall. This is a network of sonar arrays laid on the sea floor, some as deep as 2,000 meters below sea level. This will increase its monitoring capabilities and enable them to catch any vessel that tries to avert detection from the visible platforms above sea level.³⁵
- With these AI advancements in military capabilities, China will be able to approach warfare in a much more sophisticated capacity. This will lead to autonomous surveillance of Chinese territory and international waters. China is placing military equipment in strategic locations to better safeguard against attacks and monitor activities around the region. This will play crucial to the surveillance of vast uninhabited territories along its Western border where less than 10 percent of the population lives, along with aerial and sub-marine surveillance. Additionally, these surveillance measures will ensure that China is able to pinpoint actors that trespass on its territory and, depending on levels of hostility, engage in combat. As the CCP attempts to claim sovereignty over many of the islands in the South China Sea, deploying physical hardware in these areas will lead to China asserting more aggressive claims to the territory. Much like China has created islands from scratch, the

³³ Tucker, P. (2021, April 13). *SecDef: China Is Exporting Killer Robots to the Mideast*. Defense One. <https://www.defenseone.com/technology/2019/11/secdef-china-exporting-killer-robots-mideast/161100/>.

³⁴ Sutton, H. (2020, August 5). *China Builds Surveillance Network In South China Sea*. Forbes. <https://www.forbes.com/sites/hisutton/2020/08/05/china-builds-surveillance-network-in-international-waters-of-south-china-sea/?sh=62582af974f3>.

³⁵ Sutton, H. (n.d.). *HI Sutton - Covert Shores*. Covert Shores. http://www.hisutton.com/Cn_Underwater_Great_Wall.html.

purpose of deploying these pieces of hardware is critical to growing its presence in the region. With these developments, China is asserting itself as the regional hegemony, capable of thwarting any attack and strengthening its position to lay claim over disputed territories, including Taiwan, Hong Kong, and the Senkaku/Diaoyudao islands.