# Neg – Cyber 5G – BEJJ

This file should be supplemented with other Negative files put out thus far. The goal was to include links and solvency advocates for generics where possible.

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# Disadvantages

## Eurasia DA

### DA---1NC

#### Despite US pressure, EU-China telecommunications cooperation is expanding.

Ligang ’21 [Xiang; 12/28/2021; Director of the Information Consumption Alliance; "Huawei is not afraid of rules-based competition in Europe," https://www.globaltimes.cn/page/202112/1243599.shtml]

Although the US keeps ratcheting up pressure, only a handful of countries in Europe like the UK and Sweden have succumbed to the US pressure and imposed arbitrary bans on Huawei's 5G under a baseless "security" guise. In response to this political maneuver, Huawei has resolutely resorted to legal options to defend its legitimate rights and interests.

It's certain that Huawei's determination to expand operation in Europe will not be shaken by any political crackdown. The US suppression in the past months has fully reflected Huawei's resilience. Huawei generated 320.4 billion yuan ($49.7 billion) in revenue in the first half of the year, despite COVID-19 impacts and the US government assault. Huawei is not afraid of arbitrary political crackdown, let alone healthy competition based on defined rules.

For European countries, it is obvious that following the US' lead to impose political suppression on Huawei's 5G is just unaffordable. British operator Vodafone and British Telecom warned that it would cost billions of pounds to remove Huawei equipment from their networks, and the operation would drag on for up to five to seven years, according to media reports.

To make Huawei decision at the expense of its own economic interests, but serving the interests of the US government, the result is destined to be sad for the UK and Sweden -- delayed rollout of their 5G networks and higher cost of the taxpayers' money. When these countries lag in 5G development, they will realize their mistake.

Regarding the development of Huawei in the European market, another important issue is the reciprocal opening of the Chinese and European markets.

Even after Sweden imposed an arbitrary ban on Huawei's 5G, for Swedish company Ericsson and other European companies, the Chinese government has been following the rules of free trade and investment, fully protecting the legitimate rights of the development of European companies within the Chinese market.

Moreover, China keeps expanding its opening up and reducing its negative list of foreign investment access.

Huawei is the world's leading 5G technology provider. To allow it to participate in the construction of 5G networks in Europe is fully in the interest of European countries and the broad consumers. Europe should also abide by the principles of free trade and investment and protect the company's proper rights.

At the end of last year, the leaders of China and Europe completed negotiations on EU - China Comprehensive Agreement on Investment (CAI). Although there emerged some uncertainties this year, the deal is in the interests of enterprises of both sides like Huawei and Ericsson to promote reciprocal opening-up to one another, and now it's time for the ratification of the agreement.

#### Success on 5G cooperation broadens the scope of BRI coordination, investment, and trade.

Mogni ’20 [Dr. Andrea Mogni has more than three decades of experience of working in the European Commission in different roles covering a wide range of topics including trade, economic relations, international relations, development and third country funding. Axel Goethals is CEO of the European Institute for Asian Studies (EIAS), a leading Think Tank, focusing on EU-Asia relations. His current and past directorships and offices include mandates as CEO, in Luxembourg, Belgium and the European Union; "Perspectives on an EU Dialogue with China on Digitalization"; 06-xx-2020; https://www.eias.org/wp-content/uploads/2019/07/Policy-Brief-5G\_Mogni\_Goethals\_EU-CN-Dialogue-Digitalization.pdf]//AShah

The EU digital strategies and recovery plan shows a strong ambition for the EU to become one of the most advanced digitalized economies in the next 10-15 years by creating European digital "champions" and setting international standards and certification.

Key technologies, such as IoT, 5G, cloud, and AI, are a constant theme in the EU digital strategies, the EU recovery plan, and ongoing EU-China digital dialogue. Therefore, the EU and China should aim at creating synergies and strong complementarities in enabling conditions for a new EU-China digital dialogue and agreement. This should lead to a constructive cooperation in creating the necessary trust mechanisms. Harmonization of technical standards, certification and other international cyber norms will be crucial in order to achieve legal certainty, transparency and inter-operability of technical equipment.

This dialogue of mutual interest could support a more balanced trade and investment pattern, while it could also contribute to broaden the scope of the BRI to include digital services and technologies.

For the EU and China, their main objective should be to jointly accelerate transition towards a digital economy through sustained digital dialogue on policy and trust mechanisms for digital technologies in key industrial sectors such as transport, environment, aerospace, medical and health sector, bio-economy, and finance.

Over the next decade, in order to deliver a strong recovery from the COVID-19 crisis, European digital investment strategies should enable synergies and complementarities with the "Made in China 2025" strategy. In this context, it is clear that 5G technologies and software for ultra-fast data transmission and elaboration are expected to play a key role.

As digitalization technologies and processes will have a dual-use, especially in a geopolitical context, EU security and other strategic considerations need also to be taken into account in the overall selection and decision-making process.

On the other hand, it would be difficult to achieve a de-coupling of the European economy vis-à-vis the Chinese economy and its economic cycle, given consolidated and well-developed relations and partnerships in mutual interest in the field of trade, investment, manufacturing and regulatory matters.

As the transition to a digital economy is a strategic objective of both Europe and China, it is in the interest of both to put the emphasis on complementarities to establish an EUChina digital dialogue and advance agreement.

#### European influence shifts the BRI to an interest-based approach that lets them influence world politics.

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The rise of the Belt and Road Initiative is symptomatic of the broader inevitable rise of China as a player on the global stage. As such, it is fraught with both challenges and opportunities for the EU.

China’s Belt and Road Initiative has multifaceted aims that are both domestic and external in nature and that are inextricably linked to China’s bid for a global leadership role. It is often promoted as an economic initiative, and, of course, it aims to improve infrastructure and connectivity, redirect the drivers of Chinese growth from external to internal factors, and develop the inland areas of China that have been lagging behind the coastal areas. Nevertheless, the BRI is about much more than economics: it is inherently geopolitical in nature. The BRI serves to reassert China’s geopolitical influence in Eurasia and the Indian Ocean; to balance the US presence in these areas; to gain political leverage over partner countries; and to diversify China’s trade routes, thus shielding them from dependence on key vulnerable chokepoints. Thus, the BRI is at once economic and geopolitical and the key to the personal agenda advanced by Chinese leader Xi Jinping.

While those are the BRI’s goals, the initiative’s challenges are numerous. The first risk concerns the sustainability of a financial model dependent on Chinese stateowned banks, the finances of which are deeply affected by non-performing loans and which lack transparency. Another key problem is the sustainability of the debts incurred by partner countries: indeed, while the BRI has many successful achievements, it sports both “white elephant” projects that have not materialized and debt crises in countries that have, as a result, seen a growing backlash against Chinese interests. This highlights the fact that neither Chinese stateowned enterprises nor many BRI partner countries possess the expertise and management skills to implement projects of this scale. On an international level, meanwhile, the business model of the BRI has challenged the rule-based lending model advanced by Western development cooperation and thus weakened the leverage of Western donors and international organizations.

Meanwhile, the EU has adopted a complex and thoughtful approach to the territories to its east, seeking continuously to manage the inherent tension between the logic for greater engagement, on the one hand, and the growing enlargement fatigue within the union, on the other. The EU has divided Eurasia up according to its own main key parameter – the extent to which countries are considered to be candidates for EU accession in the near or distant future. In other words, trade has not been a major consideration for the EU in its categorization of Eurasian states. In fact, it could be said that trade played a more significant role in EU thinking in the early 1990s, whereas, subsequently, an array of other factors have gained prominence.

This creates the problem that the EU has not articulated concrete interests in its approach to these countries. It is not only trade that has been secondary to EU activity: to an even greater extent, the EU has ignored geopolitical interests in developing its relations with Eurasian states. This study finds that, given the changing nature of world politics away from the rule-based international order that the EU was designed to promote, the EU can no longer rely solely on the power of its normative values. It must act more as a power, not an integration project. The EU has begun to move in this direction with the launch of the Global Strategy and more specifically the Connectivity Strategy, but it will succeed only if a more interest-based approach that takes geopolitics firmly into account is adopted across the board in EU ties with countries involved in the BRI project.

This applies very directly to the EU’s approach to China’s role in Eurasia, where the EU must determine its course of action on the basis of hard interests. Thus, for example, the BRI supports an EU interest in weakening Russia’s dominance over the Eurasian continent and makes available resources that the EU itself cannot muster. Meanwhile, its implications for certain countries’ debt burden and its lack of transparency and implications for the rule of law oppose the EU’s interests in the stability and political development of these countries. Weighing these positive and negative implications against each other must be the guiding light for EU approaches to the BRI.

For future EU policies, this reality calls for engagement with China and the BRI that is driven by these interests. Writing from an American perspective, Job Henning called for a strategy of “disruptive collaboration” with China as regards the BRI. In essence, instead of a hostile policy towards Chinese initiatives, Henning recommended a policy that recognizes the common interests furthered by the BRI, seeking to encourage Chinese activities and take a role in the region that cooperates with specific Chinese initiatives. At the same time, he argued, the US should attempt to disrupt the possibility of collusion among American adversaries in Eurasia and simultaneously to influence the manner in which America’s allies frame their ties to Beijing.140 Such an approach would also make sense for the EU, which has a more structured and less conflictual relationship with China as it is while also having close to 20 Member States in the Asian Infrastructure Investment Bank. Such an approach would mean engaging China prominently in the BRI but, equally importantly, engaging the states in which the initiative is being implemented. The EU would tailor its own policies to the impact that Chinese activities might have – encouraging and supporting China in some cases while countering the possible downsides of Chinese investments in other cases.

Such an approach could mean close cooperation with Beijing and local states, where the EU could complement China’s focus on hard infrastructure with an emphasis on rule of law, capacity building, and institutional reforms. In fact, Chinese voices have indicated that they actually see such EU programmes to be in China’s long-term interest, not least because Chinese SOEs themselves incur risks based on the political risk derived from the absence of rule of law in many countries in which they seek to invest.

This approach could mean supporting European investment banks to promote infrastructural projects that are not in China’s interest but that are in the interest of the EU and the local state in question. It could also mean directly targeting Chinese companies for sanctions if, for example, they violate EU legislation in EU countries. Such an EU approach, ideally but not necessarily coordinated with the US, would send a clear signal to Beijing that the EU and China have common interests and that the EU is prepared to support China’s efforts to realize what is a key priority for Xi Jinping. However, it would also indicate that the EU is prepared to stand up for its own interests and that it is prepared to take steps to defend them against Chinese encroachments. Such an approach, if successfully implemented, could be in the long-term interest of the BRI, aiding it in avoiding the embarrassing type of failed large-scale projects known as “white elephants”. It would certainly be in the interest of countries across Eurasia that welcome China’s presence, but they are simultaneously wary of growing dependence on China. Additionally, it would be in the interest of the EU and its Member States, which would be able to promote a more secure and developed neighbourhood.

#### EU norm-setting prevents global conflict and transnational threats---extinction.

Balfour ’19 [Rosa; 2019; Senior Transatlantic Fellow at the German Marshall Fund of the United States; The Progressive Post, “The European Foreign Policy in a Hostile Environment,” https://progressivepost.eu/debates/next-economy/european-foreign-policy-hostile-environment]

In a brittle world without enduring strong international alliances, the debate on Europe’s ‘strategic autonomy’ has gained new resonance, but it should not shadow the EU’s unique key international assets in the global economy and multilateral order. Working with global networks to promote norms and public goods is key to push back on nationalism, the rise of geopolitics and transactionalism.

Strategic autonomy’ and ‘complementarity with NATO’ usually appear in the same sentence in the European debate – the latest doctrinal iteration to be found in the EU Global Strategy of June 2016. The ensemble reflects Europe’s need to rely on its transatlantic relationship for security and territorial defence, empowering it to carry out foreign policy too. The EU’s greatest foreign policy achievement of enlarging to Central Europe after the Cold War, pursued in tandem with NATO expansion, is testimony to this pairing.

Since the end of 2016, the US President’s international preferences undermine directly or indirectly Europe’s security. Whether it is the insistence on greater burden-sharing, US action in the Middle East, or trade disputes with China, current US policies put Europe’s security – already challenged by Russian action in Eastern Europe and the Middle East – at risk.

European leaders have started to question whether the transatlantic relationship needs to be preserved no matter what, or whether Europe should emancipate from it. The debate on ‘strategic autonomy’ is animating recent efforts in the field of security and defence. It refers to the ability to make and carry out decisions on defence, to conduct military operations autonomously, and to have the industrial capabilities to do so. Even if this level of strategic autonomy were agreed upon, it would take a generation for Europe to affect the world stage.

The focus on strategic autonomy speaks to present insecurities in European societies, but not to the EU’s international legitimacy where, possibly, the European Union has better opportunities to develop means of political autonomy which befit its history and international identity. The emerging debate on economic sovereignty is addressing for the first time the degree to which the EU can make political use of some of its economic and financial tools, such as the Euro as an international currency. After all, the EU and its Member States remain the world’s largest trade bloc and donor.

On the multilateral stage, Europe faces an increasingly hostile environment but remains the best hope to pursue universal principles, such as human rights and the rule of law, which underpin the resilience of that multilateral system. How to partner with other countries and actors around the globe to push back on attacks to international order is no longer a second order priority.

If the way ahead appears clear, achieving it is a tall order. The rationale for collective action for the EU seems obvious – the ‘politics of scale’, or to be stronger together rather than weaker apart – but historically difficult to achieve. The multiple threats and risks on Europe’s doorsteps have only minimally bridged the strategic divergence that continues to beset the continent, and the rise of the populist radical right is beginning to undermine existing European external policies, not to speak of a higher level of ambition.

Looking at global politics from a non-European perspective, how Europe’s friends and partners around the world will welcome a bid for greater autonomy – politically, economically, and strategically – still needs to be seen. The EU’s worldview that it has acted as a ‘force for good’ is not uncritically accepted. After all, that ethical stand was also possible thanks to the EU’s belonging to a stable and hegemonic West.

If Europe wants to engage with the world and simultaneously strengthen its strategic identity it needs to square some circles. Without giving into the facile critique that realism and geopolitics render multilateral principles obsolete and warrant hard-nosed politics, Europe should leverage its assets, which are irrevocably embedded in multilateralism and cooperation. Climate change, conflict prevention and mediation, and an open and fairer international trade system are among the assets that the EU can concretely work towards globally.

To do so it needs to engage flexibly with global actors, focusing more on multilevel networks including civil society rather than on the traditional partnerships between governments, some of which are no longer benign or useful. Both will require a dose of humility in listening to non-European world views and of pragmatism in seeking appropriate strategies and paths forward.

Last but not least, if Europe wants to imagine its own history of prosperity, democracy and peace as still relevant to the debates taking place in the rest of the world, it also needs to think about the global future sustainability of welfare, taking progressive politics outside national boundaries and engaging in a more global and open debate about public common goods.

### !---Central Asia

#### Europe is key to BRI effectiveness in Central Asia.

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China’s Belt and Road Initiative (BRI) is often seen as a rival to the European Union’s (EU) take on connectivity. This has to do with the fact that China’s approach to infrastructure lending and engagement in other countries does not have the EU political value component. Poorly governed and non-transparent projects are eligible as long as they subscribe to the narrative of BRI. The motives of China’s infrastructure lending are criticised as driven by the will to increase political and security influence, especially in its neighbouring Central Asia, and for such drivers good governance is not a requirement.

However, next to the strategic logic and security logic there is a component of the BRI that is under risk if the loan recipient is poorly governed – namely, the investment logic. As long as this logic does not directly clash with China’s “national interests”, China will not be prone to disrupt the involvement of actors that actually contribute to a better investment environment. This provides an opportunity for the EU to actively engage and shape China’s activities in Central Asia.

In order to achieve that, the EU needs to stress that good governance in Central Asia is key to China because it increases the chances of successful returns on investment. According to D.Dollar (2019), the Central Bank of China “is giving $50 million to the IMF as a grant for training officials in Belt and Road recipient countries on debt sustainability analysis.” This means that China is willing to learn from the West when it comes to money lending management because down the line, forgiving debts or obtaining assets of low liquidity can make China’s leadership look bad domestically. Therefore, China would not impede EU investments in good governance promotion in Central Asian countries. Admittedly, this argument does not automatically mean that China has an interest in combatting corruption in the region since certain levels of corruption are bad for society, but do not necessarily endanger investment.

This is a chance for the EU to work towards better governance in Central Asia by persuading China that the European experience in institution-building benefits not just the societies of the Central Asian countries, but also China’s chances for higher returns from long-term investment and, ultimately, from the broader Eurasian connectivity. The EU needs to lend its expertise to China through the implementation of existing programmes such as the Regional Cooperation Instrument which promote the rule of law and good governance in Central Asian countries. These programmes could be widened to include all sectors involved in BRI projects, starting from legal support with contract terms negotiation, to cost assessment, to institutional oversight. In order to avoid harsh reactions from China, the EU memberstates that have joined the BRI could be included in such exchanges. As the mounting external debt to China is causing worries in Kyrgyzstan and Tajikistan, it is likely that the Central Asian countries would agree to accept such expertise coming from the EU.

There is one problem, however. Securing China’s Western border has been named to be another leading motivation behind China’s engagement in Central Asia through the Belt and Road Initiative. This can be observed in China’s army drills in Kyrgyzstan and the reported Chinese military facility in Tajikistan, among others. Security logic becoming the main reason for China’s engagement in Central Asia would undermine the need for good governance, and the return on investment for BRI projects would become secondary.

To conclude one can say that the leading motive of EU’s engagement in Central Asia is to increase Eurasian connectivity and to build ties with the region. Furthermore, the EU aims to create a better operating environment for EU investors in the region and better conditions for the transit of goods. The motivation behind China’s involvement, on the other hand, more likely centres around strategic logic, security cooperation and investment protection. Still, common ground can be found between the EU and China in promoting good governance and financial responsibility in the region. China will support the EU’s engagement in Central Asia because it is a way to guarantee a smoother operating environment for the BRI. The EU, in turn, can benefit from China’s involvement in infrastructure building in Central Asia because, if managed properly, BRI could contribute to EU-Asia connectivity. As the involved countries come to terms with the risks brought about by the BRI, this is the right time for the EU to be proactive.

#### Central Asian instability goes nuclear.

Ivan Lizan 15. JD, National University Odesa Law Academy. “Three Fronts For Russia: How Washington Will Fan The Flames of Chaos In Central Asia.” Information Clearinghouse. February 23. <http://tinyurl.com/pn3kpgy>

The first way to destabilize Central Asia is to create problems on the borders, along with the threat that Mujahideen will penetrate the region. The testing of the neighbours has already started; problems have arisen in Turkmenistan, which has even had to ask Kabul to hold large-scale military operations in the border provinces. Tajikistan has forced the Taliban to negotiate the release of the border guards it abducted, and the Tajik border service reports that there is a large group of Mujahideen on its borders. In general, all the countries bordering Afghanistan have stepped up their border security. The second way is to send Islamists behind the lines. The process has already begun: the number of extremists in Tajikistan alone grew three-fold last year; however, even though they are being caught, it obviously will not be feasible to catch all of them. Furthermore, the situation is aggravated by the return of migrant workers from Russia, which will expand the recruiting base. If the stream of remittances from Russia dries up, the outcome may be popular discontent and managed riots. Kyrgyz expert Kadir Malikov reports that $70 million has been allocated to the IS military group Maverenahr, which includes representatives of all the Central Asian republics, to carry out acts of terrorism in the region. Special emphasis is placed on the Fergana Valley as the heart of Central Asia. Another point of vulnerability is Kyrgyzstan’s parliamentary elections, scheduled for this fall. The initiation of a new set of color revolutions will lead to chaos and the disintegration of countries. Self-supporting wars Waging war is expensive, so the destabilization of the region must be self-supporting or at least profitable for the U.S. military-industrial complex. And in this area Washington has had some success: it has given Uzbekistan 328 armored vehicles that Kiev had requested for its war with Novorossiya. At first glance, the deal isn’t profitable because the machines were a gift, but in reality Uzbekistan will be tied to U.S. spare parts and ammunition. Washington made a similar decision on the transfer of equipment and weapons to Islamabad. But the United States has not been successful in its attempts to impose its weapons systems on India: the Indians have not signed any contracts, and Obama was shown Russian military hardware when he attended a military parade. Thus the United States is drawing the countries in the region into war with its own protégés – the Taliban and Islamic State – and at the same time is supplying its enemies with weapons. So 2015 will be marked by preparations for widespread destabilization in Central Asia and the transformation of AfPak into an Islamic State subsidiary on the borders of Russia, India, China, and Iran. The start of full-scale war, which will inevitably follow once chaos engulfs the region, will lead to a bloodbath in the “Eurasian Balkans,” automatically involving more than a third of the world’s population and almost all the United States’ geopolitical rivals. It’s an opportunity Washington will find too good to miss. Russia’s response to this challenge has to be multifaceted: involving the region in the process of Eurasian integration, providing military, economic, and political assistance, working closely with its allies in the Shanghai Cooperation Organization and the BRICS, strengthening the Pakistani army, and of course assisting with the capture of the bearded servants of the Caliphate. But the most important response should be the accelerated modernization of its armed forces as well as those of its allies and efforts to strengthen the Collective Security Treaty Organization and give it the right to circumvent the highly inefficient United Nations. The region is extremely important: if Ukraine is a fuse of war, then Central Asia is a munitions depot. If it blows up, half the continent will be hit.

### !---CCP

#### BRI success secures Chinese stability.

Nordin and Weissmann, 18—Director of the Lancaster University China Centre, also writes good Baudrillard cards AND Associate Professor at the Swedish Defence University and a Senior Research Fellow at the Swedish Institute of International Affairs (Astrid and Mikael, “Will Trump make China great again? The belt and road initiative and international order,” International Affairs, Volume 94, Issue 2, 1 March 2018, Pages 231–249, dml) [BRI=Belt and Road Initiative, formerly “One Belt, One Road”]

This said, the biggest winner from BRI success would no doubt be the CCP. It is commonly understood that the legitimacy of party-state rule, or at least consent to it, relies on the combination of economic growth and nationalism.79 The party state has been relatively successful at convincing Chinese citizens that only the CCP has the will, strength and ability that are necessary to deliver improved living standards for the Chinese people and a territorially unified and culturally great Chinese nation. The election of Donald Trump as US president and the British decision to leave the EU on the basis of a popular referendum have both boosted the Chinese government's claim that liberal democracy leads to self-harm and bad outcomes. If the BRI enables the Chinese party state to position itself as the leader of a more stable, open and mutually beneficial international development than these western systems are perceived to offer, the CCP will further secure its rule through increased legitimacy or consent in the eyes of the domestic Chinese audience.

#### Instability causes Chinese lashout.

Tepperman ’18 [Jonathan; 10/15/18; editor at large at Foreign Policy; "China’s Great Leap Backward," https://foreignpolicy.com/2018/10/15/chinas-great-leap-backward-xi-jinping/]

On the domestic level, Beijing’s policymaking is already becoming less agile and adept. Examples of this more rigid approach, and its downsides, aren’t hard to find. Consider last winter, when the government decided to force an abrupt nationwide switch from the use of coal to gas in heating systems. It sounded like a smart move for a country as polluted as China. But the edict was enforced suddenly across the country, with no exceptions. Thus in China’s frigid north, many coal-burning furnaces were ripped out before new gas ones could be installed—leaving entire towns without heat and forcing villagers to burn corn cobs to survive.

If China continues down its current course, expect many more cases where even well-intentioned policies are implemented in a rash and clumsy way, leading to still more harmful consequences. Since personalized dictatorships are necessarily bad at admitting fault—for nothing can be permitted to damage the myth of the omnipotent leader—China will also likely become less adept at correcting mistakes once it makes them. Or at confronting the underlying problems that are dragging down its economy, such as an overreliance on bloated and inefficient state-owned enterprises (SOEs), which have only grown bigger and more powerful since Xi took office; dangerously high debt levels, especially among local governments; and a tendency to react to every downturn by pumping more cash into the system, especially for unnecessary infrastructure projects. In fact, China is not only unlikely to address any of these shortcomings; it’s likely to compound them. That is just what it did on Oct. 7, when the People’s Bank of China announced yet another costly stimulus program: a $175 billion plan to shore up small and medium-sized businesses.

With each new budget-busting move, and in the absence of reform, the odds that China will experience a seriously destabilizing economic crisis—which China bears such as Ruchir Sharma, the head of emerging markets at Morgan Stanley, have been predicting for years—keep rising. “The big question is whether one of the ticking time bombs—bad debt, overheated property markets, oversized SOEs—will explode,” Gabuev says. “Because of Xi’s concentration of power, no one will give him advance warning if one of these bombs is about to go off. And because he doesn’t actually understand macroeconomics very well, and everyone is afraid to contradict the emperor, there’s a huge risk that he’ll mismanage it when it does.” Indeed, the government’s response to any instability is likely to be ugly. As Schell explains, “Xi has really put China at enormous risk. And because his only tool is repression, if things go wrong we’re likely to see even more crackdowns.”

Such predictions should worry everyone. China is the world’s largest economy by some measures, so if it melts down, the entire planet will pay the price. But the history of other autocracies, such as Vladimir Putin’s Russia or Kim’s North Korea, suggests that Xi’s relentless power play could produce even worse consequences. Since taking power, Xi has charted a far more aggressive foreign policy than his predecessors, alienating virtually every neighbor and the United States by pushing China’s claims in the South China Sea, threatening Taiwan, and using the military to assert Beijing’s claims to disputed islands.

Should China’s economic problems worsen, Xi could try to ratchet up tensions on any of these fronts in order to distract his citizens from the crisis at home. That temptation will prove especially strong if U.S. President Donald Trump keeps poking China by intensifying the trade war and publicly denouncing it.

And things could get scarier still, Pei warns, if China’s economic problems spin out of control completely. In that case, the Chinese state could collapse—a typical occurrence among typical dictatorships when faced with economic shocks, external threats (especially a defeat in war), or popular unrest—but one that, given China’s size, could have cataclysmic consequences if it happened there.

### !---Growth

#### EU-China cooperation is key to Chinese market functionality and sustained foreign investment.

EC 18, European Commission, “Internal Market, Industry, Entrepreneurship and SMEs,” <https://ec.europa.eu/growth/industry/international-activities/cooperation-governments/eu-china-cooperation_en>, cy

EU – China cooperation

The Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs works to address issues encountered by EU industry when operating in, or exporting to China, through dialogues with the State Administration for Market Regulation and the Ministry of Industry and Information Technology. The EU and China also cooperate in a number of sectorial dialogues.

These dialogues help EU companies and policymakers better understand the Chinese legal and regulatory framework, while promoting the reforms needed to improve the business environment in China.

Dialogue with the State Administration for Market Regulation

The dialogue with the State Administration for Market Regulation (SAMR) contributes to the free and safe circulation of goods through the promotion of convergence of regulations and standardisation in China and the EU.

It also provides a framework for EU support of open and non-discriminatory markets covering all industrial products that are subject to EU technical regulations, conformity assessment (including certification and accreditation), and standardisation. Specific working groups cover these topics. The last plenary meeting of this dialogue took place in December 2018 in Brussels.

This directorate-general also has specific working groups with 2 administrations under SAMR: the National Medical Products Administration (NMPA) and the National Institutes for Food and Drug Control (NIFDC). The last dialogue took place in December 2018 in Brussels

Dialogue with the Ministry of Industry and Information Technology (MIIT)

The dialogue with MIIT was established in 2009 and covers industrial policy in general, with specific working groups on resource efficiency, SME (small and medium-sized enterprise) policy, automobiles, shipbuilding and raw materials. The last plenary took place in November 2018. During the meeting, both parties updated each other on the results of previous technical dialogues. Industry representatives also outlined what they considered key issues for the EU and China in industrial cooperation.

#### Absent continued growth, China will ignite global war.

Hal Brands 22, professor of global affairs at the Johns Hopkins School of Advanced International Studies, “The Dangers of China’s Decline,” <https://foreignpolicy.com/2022/04/14/china-decline-dangers/>, cy

Decline is a tricky concept. The term makes us think of a country that is falling like a rock—one whose power and capabilities are dropping across the board. But a country can be in relative decline vis-à-vis a fast-growing adversary even if its own power is still increasing. It can be surging forward in some areas, such as military might, even as its underlying economic strength starts to wither. And decline doesn’t always lead a country to scale back its objectives—the sense of urgency it creates can cause ambitious powers to grab what they can before the clock runs out.

Xi Jinping’s China is about to give the world an education in the nuances of decline. Since the onset of its economic reforms in the 1970s, China has long defied predictions that it would soon stumble or collapse. Its spectacular growth challenged prevailing views about the sources of national success in the modern world. In some ways, China is still soaring: Its military power grows more formidable every year. When Xi declares that “the East is rising and the West is declining,” he gives voice to this sense that China is a country on the make.

Yet military power is often a lagging indicator of a country’s trajectory: It takes time to turn money into military muscle, and massive buildups often persist even after a country’s economic fortunes begin to flag. And today, for reasons including demographic disaster and the lingering effects of the COVID-19 pandemic, China is facing the end of the stunning economic growth that made it possible for Xi to assert that the “great rejuvenation of the Chinese nation” was at hand. The China of the 2020s will be a country whose coercive capabilities are more intimidating than ever as its economic dynamism fades. That could be the worst possible combination for the world.

Any country that rises as impressively as China is bound to make fools of some prophets of decline along the way. In recent decades, Beijing has repeatedly confounded those who predicted it was about to hit the wall.

In the aftermath of Mao Zedong’s death, some Western observers were skeptical that China—a country that U.S. diplomat George Kennan once called a “vast poorhouse”—could put together the policies necessary for sustained growth. After the Tiananmen Square massacre in 1989, it was common to wonder whether the resulting political crackdown would stifle the country’s prosperity. Through the early 2000s, social scientists and U.S. officials predicted that China could be rich or autocratic—but not both. A few prominent analysts made careers for themselves by heralding China’s collapse.

It hasn’t happened—yet. From 1978 to the onset of the global financial crisis three decades later, China’s constant-dollar GDP grew by a factor of 17, without the Chinese Communist Party (CCP) losing control. That growth enabled the decades-long military buildup and sprawling economic influence that made China a force to be feared on the global stage.

As Tufts University’s Michael Beckley and I argue in our forthcoming book, Danger Zone: The Coming Conflict With China, this economic miracle required good luck and good policy. China seemed to have hit the demographic jackpot in the 1980s and 1990s; the unlikely combination of warfare and famine in the 1930s and 1940s, a regime-sponsored baby boom after the CCP took power, and then the institution of the one-child policy in 1980 left the country with a huge working-age population unencumbered by lots of young or old dependents. China was nearly self-sufficient in food, water, and other resources. And it had the fortuitous timing to start its reforms as globalization went into overdrive, making it easier to integrate the country into complex supply chains and thereby make China the workshop of the world.

Good policies were also crucial. Mao’s one-man rule and economic illiteracy had condemned China to serial, self-created disasters. Once he died, Deng Xiaoping and his successors moved toward a “socialist market economy.” They opened China to trade and investment, overhauled the tax and regulatory systems, shrank bloated state-owned enterprises, and encouraged private business. Accompanying political reforms limited the power of China’s rulers and enlarged the space for nonideological competence within the regime. The CCP relaxed its grip enough to permit economic spontaneity—and reaped the benefits in the form of prosperity that reinforced its political control.

China’s ascendance shook the world intellectually as well as geopolitically: It undermined post-Cold War Western beliefs that prosperity would lead inevitably to political liberalization, that democracies produced higher rates of growth than autocracies, and that tyranny was incompatible with sound economic management. As China became a global heavyweight, a new orthodoxy solidified—that a hegemonic transition was approaching as Beijing surpassed the United States.

One dissenter was the political scientist David Shambaugh. In 2015, Shambaugh argued that China was suffering from a deep internal malaise and that Xi’s increasingly repressive rule was a sign of insecurity, not confidence. “[F]or all the Western views of it as an unstoppable juggernaut,” he wrote, China’s economy “is stuck in a series of systemic traps from which there is no easy exit.”

Shambaugh struck a discordant note at a time when Beijing was tightening its control of the South China Sea and spreading its influence across multiple continents. He also happened to be right. Not least of the oddities surrounding contemporary China is that much of the world deemed its ascent inevitable just as its prospects started to dim.

This may sound absurd, given all the hype surrounding China’s rise. After all, that country is supposedly destined, as the Harvard University political scientist Graham Allison (channeling legendary Singaporean Prime Minister Lee Kuan Yew) has written, to become “the biggest player in the history of the world.”

It’s true that China does boast many apparent advantages. It has an enormous domestic market and is the leading trade partner of roughly 130 countries around the world. It is making concerted investments in artificial intelligence (AI), semiconductors, and other critical technologies. If the United States doesn’t up its game, a national commission chaired by former Google CEO Eric Schmidt warned in 2021, China could become the premier “AI superpower.” But look closer, and China’s trajectory starts to seem more tenuous.

For one thing, many of China’s technological achievements are narrower and less impressive than they first appear. For example, Beijing has made great strides in AI applications focused on surveillance (no surprise there), but the United States still leads significantly across the wider expanse of AI subfields and uses. Despite vast state subsidies, China’s Semiconductor Manufacturing International Corp. is years behind in the creation of cutting-edge semiconductors that make up the foundation of advanced economies in the information age.

Just this year, Peking University published a candid assessment—which the CCP then predictably censored—of China’s progress in science and technology. The verdict was that China is “following [the United States] in most fields, running side by side in a few, and leading in very few.” And while China’s other strengths are not illusory, neither can they hide a reality that Beckley and I discussed last year: The magic that made China’s economic miracle is unmistakably fizzling.

While China’s other strengths are not illusory, neither can they hide reality: The magic that made China’s economic miracle is unmistakably fizzling.

The country’s resource abundance is old news: Overuse devastated much of China’s arable land; industrialization and pollution left the country with severe water scarcity. More damaging still, China’s abundance of human resources is also a thing of the past.

The one-child policy was a devil’s bargain that is now causing demographic implosion. China’s total population is set to peak by 2028 (or perhaps as soon as this year, by some estimates) and then plummet by as much as half by century’s end. Its working population crested in 2015; it will fall by 70 million between 2020 and 2035 and even faster after that. China will soon combine an enormous geriatric population with a rapidly shrinking workforce. It will experience one of the worst peacetime demographic crunches on record, a formula for stagnation at best and catastrophic economic contraction at worst.

Making matters worse, the era of enlightened economic policy is over. The reform agenda has been stalled for more than a decade because further liberalization—necessary to make the leap to a more innovative, knowledge-based economy—would threaten the privileges of entrenched elites. If anything, Xi has thrown the country into reverse. Politically, he is taking China into neototalitarianism through pervasive repression and indoctrination. And economically, his policies have a decidedly retrograde feel.

Xi’s agenda has featured a preference for state-owned enterprises at the expense of the more vibrant private sector; the imposition of severe, politically motivated restrictions on wide swaths of the economy; attacks on the autonomy of relatively technocratic institutions such as the central bank; and the empowerment of political minders in companies of nearly all sizes. China’s leaders may talk about the need to transition to a high-tech, services-based economy, but Xi’s policies are stifling the competence, creativity, and spontaneity necessary to make that shift. It all constitutes a “great leap backward”—a reversion to pre-Deng-era policies that condemned China to stagnation.

There is also the question of what Xi’s consolidation of power means for the country’s long-term resilience. As the political theorist Francis Fukuyama has written, for nearly 40 years after Mao’s death China avoided the “bad emperor” problem—the worst pathologies that accompany authoritarian rule—by imposing term limits on its rulers and making them more accountable to other CCP elites. Yet Xi has systematically disassembled this system by purging rivals, sidelining potential successors, and entrenching himself in power. By doing so, he is enabling China to move faster and more decisively. But he is also leaving the country vulnerable to impulsive or unwise decision-making—a perpetual problem of one-man rule—and creating the potential for terrible instability when his reign finally ends. Xi’s centralization of authority, while seemingly impressive, is setting the country up for a fall.

Finally, it doesn’t help that a more assertive China is now facing more international resistance. Trade barriers against Chinese companies and products proliferated in the decade after the global financial crisis. Washington has waged a technological cold war against Huawei, seeking to deprive that Chinese firm of high-end semiconductors and keep it out of the world’s 5G networks. Dozens of countries are more carefully scrutinizing their economic, financial, and technological ties with Beijing; the Japanese government is offering to pay companies to reduce their China exposure. China is still central to the global economy, but the days when the United States and other powerful countries eagerly abetted its ascent are over. Indeed, Xi’s effort to cultivate the domestic market is an implicit admission that China, which rose on the strength of an export-focused economy, now confronts a very different world.

China’s predicament has been thrown into relief, ironically, by COVID-19. Early on, the pandemic seemed to herald an epochal global shift. Prominent U.S. analysts saw it as a “Suez moment,” the terminal crisis of the U.S. empire. Xi touted his regime’s success in containing COVID-19 at home (albeit after allowing it to escape to the world) as an advertisement for Chinese authoritarianism. Two years later, it’s clear that COVID-19 was a turning point but not in the way that Xi hoped.

The pandemic hypercharged global anti-China sentiment, after Beijing concealed the initial outbreak and then exploited the resulting chaos to bully nations from Australia to Germany and the United Kingdom. It thereby encouraged a host of efforts—through multilateral institutions such as the Quadrilateral Security Dialogue, AUKUS, and the G-7, as well as the United States’ bilateral alliances in the Pacific—to counter Chinese power. “A Cold War mentality” had reemerged, a spokesperson for China’s foreign ministry complained, as the United States and its friends pursued “anti-China encirclement.”

COVID-19 also confirmed how patchy China’s rise had been: The country’s biotechnology sector couldn’t produce anything like the revolutionary vaccines that democratic innovation economies in the United States and Europe churned out. Even China’s heavy-handed success in containing COVID-19 at home became a trap: The combination of “zero-COVID” policies, low levels of natural immunity, and vaccines that proved weak or worthless against highly contagious variants condemned the country to recurring lockdowns of major cities, with all the accompanying disruptions.

Even before COVID-19, in fact, China’s economic vital signs were worrying. The government claimed a growth rate of 6 percent, but Chinese insiders and academic research indicate that the true number is considerably lower—and even that growth is inflated by the relentless injection of capital into a less and less efficient economy. As a result, overall debt grew eightfold between 2008 and the end of 2020, reaching 335 percent of GDP. In other countries, this combination of slumping productivity and growing debt usually presages sharp crises that turn into lasting economic quagmires.

Xi’s Chinese dream involves catching up to the United States. In reality, his country is slowing down.

China is not, however, slowing down in all areas at once. This isn’t unusual: The Soviet Union hit the apex of its military power in the 1980s, when its economy was in a death spiral. In the early 20th century, Britain ruled a global empire at a time when its economic supremacy had already slipped away. Today, China is stagnating economically, but its drive for world power is accelerating.

Chinese leaders and propaganda organs now openly tout the country’s designs: In the coming decades, the official state news agency Xinhua proclaimed, China will “re-ascend to the top of the world.” Beijing is creating new international organizations and co-opting others. Its marquee projects, namely the Belt and Road Initiative and the Digital Silk Road, aim to project economic and political influence across Eurasia and beyond. China also fashions itself as an ideological role model for other countries: Its style of governance, Xi has said, offers a “new option for other countries and nations that want to speed up their development while preserving their independence.”

Most notably, China is building and wielding the tools of geopolitical coercion. Countries such as Australia, Lithuania, Norway, and South Korea have felt China’s economic bite after they opposed its policies or criticized its internal practices. Chinese military spending—having already grown tenfold in real terms between 1990 and 2016—continues to rise, funding a dramatic expansion of the capabilities needed to conquer Taiwan, overawe Beijing’s neighbors, and perhaps even take on the United States in the Western Pacific.

What the United States will face in this decade is a China whose ability to batter its enemies and challenge the global order is growing, even as leaner economic times loom ahead.

The statistics are simply astounding: Beijing put as many ships to sea from 2014 to 2018 as were in the navies of Britain, Germany, India, Spain, and Taiwan combined. And having long avoided a nuclear arms race with Washington, Beijing is now sprinting forward and could be the United States’ nuclear peer by the 2030s. Threats to use force against enemies have also become ubiquitous: Anyone who obstructs China’s plans, Xi warned in 2021, will “have their heads bashed bloody against the Great Wall of Steel.”

It is sometimes hard to believe that such a country is running out of gas. But perhaps China’s strategic urgency is increasing because its economic outlook has turned grim.

China’s “hide and bide” strategy—the approach it followed for a generation under Deng and after—was one of patient confidence. If time was on a rising Beijing’s side, then it made sense to gradually build the country’s power and delay confrontation with the United States. Today, China’s strategic mindset is darker and more insistent

In many areas, Xi acknowledges, “the West is strong, and the East is weak.” China must race to make itself “invincible” so that “nobody can beat us or choke us to death.” What the United States will face in this decade, then, is a China whose ability to batter its enemies and challenge the global order is growing, even as leaner economic times loom ahead

This China is unlikely to be benign or peaceful. History has seen many once ascendant countries lash out violently rather than accept a disappointing future as a second-tier power. This fear is what led Germany to take the risks that helped ignite World War I. It prompted Japan to undertake the expansionist rampage that helped bring on World War II.

Xi has grand ambitions, from capturing Taiwan to establishing China’s primacy in Asia and, eventually, the world. If he loses faith that the patient accumulation of economic power will bring Beijing these rewards, he may become more inclined to take risks and use China’s coercive tools to secure them instead. This means that the task of dealing with China could prove quite ticklish in the years ahead.

### !---Warming

#### Sustained EU cooperation with China is key to combat climate change.

Barbara Pongratz ’21, Associate climate policy analyst for Merics, “EU-China climate policy – balancing cooperation and pressure,” <https://merics.org/en/short-analysis/eu-china-climate-policy-balancing-cooperation-and-pressure>, cy

Chinese reactions to EU measures show a largely constructive approach, says Barbara Pongratz. Europe has to build on this momentum and avoid triggering backlashes.

Chinese reactions to three key European climate-policy measures show that the EU is in a position to motivate China to accelerate its climate mitigation efforts. The EU’s Carbon Border Adjustment Mechanism (CBAM), Emissions Trading Scheme (ETS) and its green finance frameworks have sparked co-operative and critical reactions from Chinese commentators in academia and politics. To avoid damaging disputes, the EU has to maintain the right balance between working together with China and putting pressure on it to speed up climate action. With both sides’ combined efforts, it may be possible to more effectively reach the common goal of keeping the global temperature rise below 2.0 degrees Celsius.

Chinese critics say the Carbon Border Adjustment Mechanism is protectionist

Perhaps the most controversial EU measure is the Carbon Border Adjustment Mechanism (CBAM), which from 2023 is meant to impose tariffs on carbon-intensive imports to counter carbon leakage. CBAM can be seen as an instrument of fair competition within the EU – it ensures foreign companies bear the same environmental costs as European competitors. Zhao Lijian from the Carbon Trust China Office says many Chinese stakeholders view CBAM as a trade barrier. Some even regard it a protectionist move. Chinese experts are unsure about the EU’s motivation for CBAM and criticize its scope, design, risks and compatibility with the Paris Agreement and the World Trade Organization. The EU needs to communicate CBAM better.

The EU still has to decide crucial details of the scheme. A recent YouGov-E3G survey shows that the European public is generally in favor of CBAM, regardless of potential obstacles to trade. Experts at Chinese government think tanks have been discussing the possibility of introducing counter-measures should the EU not compromise on critical issues such as the use of revenue, exemptions and a link to Emission Trading Scheme (ETS) reform. A key question about CBAM revenues is whether they will be used for the EU’s own budget or whether they will be earmarked for other climate-change mitigation measures.

Chinese negotiators are pushing for creation of a global carbon market

CBAM is closely related to another important issue in EU-China discussions, the Emission Trading Scheme (ETS). Chinese policymakers want to accelerate development of a Chinese scheme with the EU’s help. The EU ETS is the largest and most advanced emissions trading market. The EU and Germany have been helping China develop its own ETS, a good example of constructive cooperation. Chinese commentators have urged the EU to link CBAM to ETS reform and allow exemptions for China’s developing economy to avoid double burdens for its companies. Chinese negotiators have also ambitiously suggested increasing EU-China cooperation to create a global carbon market as an alternative to Europe’s CBAM.

The EU has set a higher carbon price in its ETS than China and could use it as a benchmark for determining the carbon tax within CBAM, posing a risk for EU-China trade relations. Steel, for example, is not covered by the Chinese ETS and would be included in the current EU CBAM proposal. Chinese commentators criticize this could seriously hurt China’s sizeable steel exports. However, the actual impact of CBAM on trade with the EU is disputed – in recent EU-China discussions, EU stakeholders said CBAM at least initially would not affect trade that much. But the EU’s announcement that it might phase in CBAM for steel and some other sectors in 2023 has put pressure on China to push on with ETS sector coverage.

EU approaches to green finance are praised by Chinese observers

However, the open debate between the EU and China about CBAM and ETS shows the general direction of EU climate action to be cooperative. Indeed, Chinese reactions to EU moves in green finance show a willingness to reciprocate. Chinese observers have praised EU moves to mobilize financing for sustainable growth. They see the EU as a pioneering market for investment guided by environmental, social and governance (ESG) criteria. Bankers and experts praise its sustainable finance classification scheme and other ESG frameworks for being comprehensive and practical – and note that China still has a way to go.

Chen Yulu, deputy governor of the People’s Bank of China (PBOC), is often quoted in the green finance context. In a speech at a green finance forum last year, he called on China to continue promoting green finance and named increased international cooperation as one of three crucial steps to take. This year, a number of government ministries published important new policies about ESG investment. Both sides are stepping up their efforts to devise regulations for green finance, and this suggests that cooperation can also be the name of the game in this context – if it is coordinated well.

China’s drive for more green finance guidance for Chinese companies is not just politically motivated, it is meant to increase EU-China investment flows. Although only 11 percent of Chinese investors consider ESG in practice, China ranks first globally in terms of outstanding green loan value. With its developing green business sector, China can leverage the increased interest in green investment and the EU’s stricter green finance rules. In a Ministry of Commerce-affiliated magazine, Chinese commentators have emphasized that the EU and China “need to add concrete and actionable commitments” and harmonize existing approaches on both sides.

EU measures can motivate moves towards climate action in China

China’s response to the three key European climate-policy measures is striking in that many government-affiliated analysts and experts have called for the accelerated implementation of Chinese measures. This shows that EU measures can motivate China to move towards accelerated climate action. Brussels’ approach of pursuing climate cooperation and applying pressure is proving effective.

Both the EU and China have committed to achieving net zero emissions. The willingness to act and implement climate-action measures exists on both sides. The EU would be well advised to further build on the debate in China and use this momentum for negotiating ambitious but appropriate measures in EU-China climate-policy discussions.

#### Extinction.

Depledge et al. ’21 [Michael; 2/27/21; PhD in the ecotoxicology of marine organisms from the University of London, non-executive Director and Chief Scientific Advisor of the Eden Project, Honorary Professor of Public Policy University College; "‘Existential Threat to Our Survival’: See the 19 Australian Ecosystems Already Collapsing," https://www.ecowatch.com/australian-ecosystems-collapsing-2650822373.html]

​Ecosystems consist of living and non-living components, and their interactions. They work like a super-complex engine: when some components are removed or stop working, knock-on consequences can lead to system failure. Our study is based on measured data and observations, not modeling or predictions for the future. Encouragingly, not all ecosystems we examined have collapsed across their entire range. We still have, for instance, some intact reefs on the Great Barrier Reef, especially in deeper waters. And northern Australia has some of the most intact and least-modified stretches of savanna woodlands on Earth. Still, collapses are happening, including in regions critical for growing food. This includes the Murray-Darling Basin, which covers around 14% of Australia's landmass. Its rivers and other freshwater systems support more than 30% of Australia's food production. The effects of floods, fires, heatwaves and storms do not stop at farm gates; they're felt equally in agricultural areas and natural ecosystems. We shouldn't forget how towns ran out of drinking water during the recent drought. Drinking water is also at risk when ecosystems collapse in our water catchments. In Victoria, for example, the degradation of giant Mountain Ash forests greatly reduces the amount of water flowing through the Thompson catchment, threatening nearly five million people's drinking water in Melbourne. This is a dire wake-up call — not just a warning. Put bluntly, current changes across the continent, and their potential outcomes, pose an existential threat to our survival, and other life we share environments with. In investigating patterns of collapse, we found most ecosystems experience multiple, concurrent pressures from both global climate change and regional human impacts (such as land clearing). Pressures are often additive and extreme.

#### AT: China Tech Leadership

Toner ’22 [Helen; 3/22/2022; Director of Strategy at Georgetown’s Center for Security and Emerging Technology, former Senior Research Analyst at the Open Philanthropy Project; "Will China Set Global Tech Standards?" https://www.chinafile.com/conversation/will-china-set-global-tech-standards]

For countries seeking to respond to Chinese standards activities, the primary challenge will be to not overreact. Despite an increasingly prevalent narrative that China has figured out how to “dominate” or “manipulate” international standards-setting processes, the reality is much more mundane. The primary effect of the Chinese government’s growing emphasis on the importance of standards is that Chinese organizations are more empowered and incentivized to participate in standardization than they have been in the past. The simplest and most effective way for competing nations to keep pace will be to ensure that their own domestic participants are similarly empowered.

The coordinated efforts of Chinese companies in the development of 5G standards looms large in discussions of undue Chinese influence on standards, but this case represents far more the exception than the rule. China’s technical advantage over other countries in 5G, which gave companies such as Huawei and ZTE significant leverage in standards discussions, is not the norm in most technologies. What’s more, the voluntary nature of international standards-setting processes means that in most cases, countries or companies are able to opt out of standards that cause them concern; rarely is interoperability as non-negotiable as it is in telecommunications. Increased Chinese engagement in international standards bodies is certainly a reality; sudden Chinese supremacy in these bodies is not.

A recent study run by the National Institute of Standards and Technology gave U.S. companies and industry organizations the opportunity to weigh in on how concerned the United States should be about Chinese participation in standards development. As the Carnegie Endowment summarized, only a small minority of private sector respondents expressed concerns. Far more prevalent than alarm about undue Chinese influence was consensus that the U.S. government could do more to support U.S. engagement. Relevant measures could include subsidizing the participation of companies or industry organizations in standards development processes—an expensive undertaking for which the Chinese government provides significant support. At least as important is to remove barriers to participation that currently prevent or deter some U.S. organizations from participating in standards development processes, for instance export control-related restrictions that prevent U.S. companies from engaging in any discussions where blacklisted foreign companies are present.

China is sure to continue pursuing its own interests in international standards bodies, and other countries should stand ready to counter this. But a productive response needs to be based on an understanding of how standards processes work and in what ways they can be skewed, not on a kneejerk reaction to fears that China is suddenly pulling all the marionette strings. Many of the ways in which China could unduly benefit from standards are continuous with long-standing concerns about Chinese involvement on the international stage, such as Chinese domestic regulatory structures that hinder international firms’ market access. Others are only outgrowths of other trends, such as China’s increasing sophistication in scientific and technological research and development. A holistic approach to technology competition must recognize and address how these challenges are interconnected, not overestimate how important (or susceptible to influence) standards development processes are on their own.

### UQ---2NC

#### Relations high---economic talks solve.

GT 7/18; “EU should care for own interests, not to be 'exploited by US': Chinese experts;” Global Times; July 18, 2022; https://www.globaltimes.cn/page/202207/1270833.shtml

Against the background of ricocheting regional tensions, such as the Ukraine-Russia conflict, China and Europe deliver a signal of maintaining economic cooperation by reportedly planning to hold a high-level dialogue on Tuesday.

Chinese experts said that the EU should not be "exploited by the US" and hold a hostile policy toward China, at a time when the EU is mired in severe inflation, malfunctioning supply chains and economic slowdown.

According to the South China Morning Post (SCMP), the trade EU will hold a high-level dialogue with China on Tuesday after months of delay.

Valdis Dombrovskis, the European commissioner for trade, and Chinese Vice Premier Liu He will co-chair the virtual dialogue, which will also include representatives from the trade and economic ministries of both sides, according to the SCMP report.

The report cited a European Commission representative as saying that a number of global economic challenges will be discussed during the dialogue, including food security and energy prices, supply chains, financial services, and bilateral trade and investment concerns.

Experts said that holding the meeting reflects the two sides' shared willingness to keep China-Europe relations stable and resilient despite a volatile geopolitical situation, by striving to keep the bilateral mechanism running normally.

"The more difficult the situation is, the more significant the two sides hold discussions. Otherwise, both sides will become victims of international political wrestling," Cui Hongjian, director of the Department of European Studies at the China Institute of International Studies, told the Global Times.

According to Cui, China and the EU need to join hands to tackle the negative economic impact of the Ukraine crisis. In particular, they should work together to address some urgent problems facing them.

For example, the EU has been talking about the urgency of supply chain security, but the achievement of such a goal shouldn't be equated with excluding China from the EU's supply chains, like some have proposed, Cui said.

As China and Europe have deep economic ties in many aspects, the two sides will need to support each other on many economic issues. For example, at a time when global grain prices are fluctuating, China and the EU should make sure that the two sides cooperate to stabilize grain supply.

And, they should think of ways to ensure global grain security by jointly addressing the negative impact of current conflicts on global grain prices, which will also bring benefits to many countries.

#### Economic integration is at an all time high.

Chenghao ’22 [Sun; 2/6/2022; Fellow, Center for International Security and Strategy, Tsinghua University; "Compartmentalisation in China-EU Relations after the Ukraine Conflict," <https://valdaiclub.com/a/highlights/compartmentalisation-in-china-eu-relations/>]

The publication of the China-EU 2020 Strategic Agenda for Cooperation in 2013 also has spoken volumes about the encompassing and growing nature of China. In 2014, President Xi called for China and the EU to build partnerships for peace, growth, reform and civilisation, recognising growth and development as the driving force of relations but also adding a civilisational and global dimension to China-EU relations.

Throughout the past decades, economic and trade relations have stayed the most important pillar of China-EU relations. Although it has never been friction or complaint free, the economic and trade link continues to provide both the basis and impetus for the bilateral relations. Compared with 1975, when two-way trade volume registered a mere 2.4 billion US dollars, it is a different world nowadays. Benefitting from China’s continuous reform efforts, opening-up and integration into the global economy, as well as European entrepreneurship in exploring the Chinese market, the economic link has grown immense and resilient.

In terms of volume, trade between China and the EU reached a record high of US $800 billion in 2021, China remains the largest trading partner of the EU, and the EU is China’s second largest trading partner. The bilateral trade structure has continued to improve, with trade in aerospace, biology, optoelectronics, electronics and materials growing by more than 30%. In 2021, an agreement on geographical indications between China and the EU came into force.

Two-way investment between China and the EU has exceeded $270 billion, with active investment and cooperation in finance, new energy, electric vehicles and logistics. China’s investment in Europe continues to grow against the trend.

According to a 2021 survey of the European Union Chamber of Commerce in China, 60 percent of the companies surveyed plan to expand their operations in China, and nearly half of the companies surveyed have enjoyed higher profits in China than the global average. The conclusion of the Comprehensive Agreement on Investment (CAI) is the epitome of a win-win arrangement and reflects huge potential for China-EU economic cooperation.

### UQ---Ext

#### Chinese reforms attract European cooperation and both sides are willing to overlook tensions.

Chenghao ’22 [Sun; 2/6/2022; Fellow, Center for International Security and Strategy, Tsinghua University; "Compartmentalisation in China-EU Relations after the Ukraine Conflict," <https://valdaiclub.com/a/highlights/compartmentalisation-in-china-eu-relations/>]

China views Europe from a long-term and strategic perspective and believed their relations are vital for world peace, stability and development and that their importance will only increase in a world beset by uncertainty. There are two things China would do. First, do its own homework and let deeds speak for themselves. Recently, The Standing Committee of the National People's Congress of China has ratified the International Labour Organisation’s Forced Labour Convention of 1930 and the 1957 Convention on the Abolition of Forced Labour, showcasing China’s real progress in reforms.

China has continued its step-by-step approach, providing better access, a level playing field, and more transparency to foreign companies. The unwavering commitment to reform and opening up will continue to be a powerful pull factor for Europeans.

Second, to have a frank and honest dialogue with Europe on the state and the future direction of the bilateral relation. The EU has said repeatedly that it does not want to be part of a new cold war with China and the two should agree on how to prevent a new cold war and re-set “peace and development” as the theme of our time despite the on-going Ukraine conflict. The two can and should address the emerging factor of Russia, our shared neighbour, on our bilateral relations, and start constructive discussion on rebuilding Ukraine after the conflicts.

### UQ---BRI---2NC

#### Majority of NATO nations are supporting the BRI.

Fortier 22 [Meadow Fortier, Turkish Heritage Organization, 2022, "China’s 5G Technology in the NATO Alliance: A Case Study on Italy", accessed 7-16-2022, https://www.nato2030fellowship.org/china-s-5g-technology-in-nato] Lex IT

The North Atlantic Treaty Organization (NATO) aims to modernize its security and defense strategies amidst the changing nature of global cooperation and defense. Pertinent to this modernization campaign is the challenge posed by China. While China poses a challenge in a myriad of ways, its competence and dominance in technology is undeniable and pressing. Its technological innovation has produced enumerable benefits, but the increasing claims of China using it as emerging and disruptive technologies (EDTs) against NATO members propels us to consider the real scope of its benefit and threat. The growing popularity of the Chinese company Huawei and its provision of fifth-generation (5G) technology throughout NATO member states serves as an example to assess China’s challenge and its use of EDTs. Huawei is a private telecommunications company that supplies 5G infrastructure, or networks and devices with notably high rates and easy connections. Its international supply of 5G is part of a larger Chinese initiative known as the Belt and Road Initiative and its Digital Silk Road, a campaign other countries join to receive Chinese investments in infrastructure such as 5G, roads, oil pipelines, ect. Currently, 18 of 35 NATO countries have joined the BRI. These memberships have visibly led to the spread of Huawei’s 5G throughout NATO territories, with 28 of the 50 global Huawei commercial contracts signed with European countries. In fact, many European countries find it difficult not to engage with Huawei given its superior ability to meet the demand for 5G technology (1), as opposed to European 5G companies such as Nokia and Ericsson (2). In the context of technological challenges posed by China, the concern over Huawei stems from its access to sensitive information and China’s 2017 National Intelligence Law. Passed two years after the launch of the Digital Silk Road and 5G infrastructure, the law grants the government power to “require relevant organs, organizations, and citizens to provide necessary support, assistance, and cooperation,” with state intelligence work. The government further incentivizes cooperation by granting itself the power to “reward individuals and organizations that contribute to national intelligence work,” (3). As a telecommunications company, Huawei can access a wide array of transactions and communication that could be relevant to a government’s security. Coupling the information Huawei has access to with China’s Intelligence Laws, a serious challenge arises for countries who become involved with the BRI. NATO allies have already attributed a wide number of intelligence-related EDT threats like cyber-attacks, intellectual property theft, and disinformation campaigns to actors based in China (4). Aside from the PRC’s Intelligence Law, Huawei’s relationship with the BRI and its Digital Silk Road situates the company within a larger geopolitical struggle that inherently triggers security concerns. The BRI is arguably China’s attempt to translate its international economic influence into political influence (1), pulling any company apart of the initiative, such as Huawei, into to NATO’s radar. This speculation of the BRI’s geopolitical intentions is supported by the current nature of global competition and dominance, where power comes from non-traditional means like diplomatic and economic relations as opposed to traditional military strength. The NATO 2030 Reflection Group highlights China’s geopolitical tactics as they write how China is now “dedicating significant and increasing resources to this domain in effort to outpace the West” (4). Italy and its engagement with Huawei provide an interesting case study to better understand China’s potential technological challenge to NATO. While countries such as France or Germany may offer interesting insight due to their overall larger economic relations with China, Italy is relevant in that it has the largest market for Huawei’s 5G (5) and is the only G7 country to officially join the BRI. In other words, the fact that it is a core NATO member with not only economic but BRI-based diplomatic ties lends a geopolitical lens to observe the potentially negative intentions behind Huawei’s 5G. The limits of this assessment should be made clear, in that Italy’s relationship with Huawei is only judged upon publicly available information. When observing the initial development of Huawei in Italy, it looks strong and widespread. After Italy officially joined China’s BRI in 2019, the Huawei Italian CEO Thomas Miao revealed the tech company will invest more than $3.1 billion in Italy over the next three years. By 2020, Italy was the largest market in pursuit of Huawei’s supply of 5G technology and infrastructure, with over 800 people employed for research and development alone (2).

### UQ---AT: Ukraine---2NC

#### Relations high – Ukraine talks solve.

GT 7/18; “EU should care for own interests, not to be 'exploited by US': Chinese experts;” Global Times; July 18, 2022; https://www.globaltimes.cn/page/202207/1270833.shtml

Some experts stressed that China-EU cooperation is significant for Europe, whose economy is facing severe problems and has risks of falling into a deeper recession if it blindly follows in the steps of the US by countering China.

The EU is facing grave challenges, Li Yong, deputy chairman of the Expert Committee of the China Association of International Trade, a think tank affiliated with the Chinese Ministry of Commerce, told the Global Times on Monday.

Global inflation is elevated, driven by surging energy and food prices. Against the background of interest rate hikes by the US Federal Reserve, a European debt crisis has emerged and the euro has depreciated, Li said.

Hu Qimu, chief research fellow at the Sinosteel Economic Research Institute, told the Global Times on Monday that the EU is very likely to slide into recession by relying on its own economic cycle. Therefore, it is necessary for EU to strengthen cooperation with China.

As for why the trade dialogue was delayed for several months, Chinese experts said that the main reason is that the EU believed in the US energy commitment, stood firmly on the US side and held high the banner of sanctions against Russia.

"It should be said that the outbreak and continuation of the conflict between Russia and Ukraine is a strategic mistake made by the EU. The EU was exploited by the US and lost everything. In the end, it must return to the road of cooperation and negotiation with China," Hu said.

China and EU have already enhanced communication recently over multiple issues. On Sunday, Chinese State Councilor and Foreign Minister Wang Yi and Hungarian Foreign Minister Peter Szijjarto talked over the phone about bilateral ties and the Ukraine crisis.

Wang said that the Ukraine crisis has not only seriously affected Europe - its negative spillover has also affected the world.

The lessons from the Ukraine crisis are profound and worth learning for all sides, Wang noted, saying that in the long run, the parties should discuss building a balanced, effective, and sustainable European security framework, so as to realize lasting peace and security.

### UQ---AT: Thumpers---2NC

#### “Thumpers” open a window for rapprochement---China’s trying to improve relations, but the plan wrecks their attempts.

Philippe Le Corre 22, 5-17-22 Former research associate with the Ash Center from 2019-2021, former fellow with the Mossavar-Rahmani Center for Business and Government (M-RCBG) from 2017-2019, sr. fellow in the Asia and Europe programs at the Carnegie Endowment for International Peace and an Associate in Research at John. K. Fairbank for Chinese Studies at Harvard, https://ash.harvard.edu/ukraine-wars-impact-sino-european-relations//tyei

Indeed, projects around the Belt and Road Initiative (BRI) have been disrupted in Eurasia and Europe due to the war in Ukraine. Freight trains from China crossing into Central Asia have been prevented from reaching Ukraine, a country described in January by Xinhua News Agency as having “broad prospects for BRI cooperation with China.”

Ukraine-related projects are now at standstill, and even projects between China and Russia may be in jeopardy due to Western economic sanctions against Moscow. As for projects in Central and Eastern Europe (CEE), a sub-region long coveted by China, CEE countries are now largely focused on the Ukrainian situation, welcoming refugees and sending assistance to their neighbor. CEE governments are now less likely to conclude agreements with China, which is seen as an apologist for Russian actions. In addition, the 16+1 format, initiated by China 10 years ago as a mechanism to interact with the region through infrastructure projects in the energy and transport sectors, is currently being challenged in its very existence. The majority of CEE states have had relatively low trade with China and run a trade deficit worth $75 billion. The five non-EU countries — Serbia, Albania, Macedonia, Montenegro, and Bosnia and Herzegovina — have warmly welcomed China-funded projects worth about $6.3 billion in sectors such as highways, energy stations, and railways in the Western Balkans.

But as pointed out in a recent Observer Research Foundation report, none of the infrastructure projects announced for the remaining 11 countries, who are EU members, went beyond paper and political declarations. Projects signed as early as 2013 have not even begun, with the Belgrade-Budapest railway being the only exception. Last year, six CEE leaders out of the 16 members chose to send their foreign ministers to the 16+1 meeting rather than attend themselves. While Lithuania has fully withdrawn, Estonia, Latvia, Romania, Bulgaria, Slovenia, and the Czech Republic are also questioning the format’s usefulness.

For now, the future of the BRI remains uncertain. China may now refocus on the BRI's Central Asia-West Asia corridor, moving more Chinese exports across Central Asian countries, Iran, and Turkey, but those logistics are challenging as they involve transport via the Caspian Sea. The cheapest and easiest way is still the maritime route, all the way from Chinese ports to the Mediterranean Sea, but sea lanes have also been affected by serious delays.

Overall, Sino-European relations are reaching a tipping point. Following the pandemic and acrimonious exchanges over human rights in Xinjiang and Hong Kong, as well as economic and trade issues (Europeans are still complaining about market access for their companies in China), there is a risk that the Ukraine war and Beijing’s stance might deeply affect the long-term relationship. But with US-China relations at an all-time low, it would be surprising if China did not want to try to improve its relationship in particular with Berlin and Paris, offering these two capitals a window of opportunity once the Ukraine situation becomes less tense.

### Link---2NC

#### The aff forces Europe to cave to a US led initiative on 5G which collapses China relations.

Elmer 19 [Keegan Elmer is a reporter at the Post covering China in world affairs, including US-China relations and China's relationship with its neighbours. He has degrees from the University of Wisconsin, Madison and the University of Helsinki; "EU ban on Chinese technology would imperil trade, analysts say"; 02-07-2019; South China Morning Post; https://www.scmp.com/news/china/diplomacy/article/2185085/eu-ban-chinese-technology-5g-revolution-would-hit-trade]//AShah

Trade, investment and scientific cooperation between Europe and China are at risk of taking a “big step back” as the European Union considers banning Chinese telecom giant Huawei, analysts said. Beijing has hinted at retaliation should the European Union go ahead with the ban. The 28-member bloc is planning ways to ban Chinese firms from work to develop its 5G networks, and that might spell trouble for joint efforts to test 5G in China and Europe. Last week, EU officials said they were in the early stages of making plans to strengthen procurement rules, or change the legal definition of critical infrastructure. Such plans, if enacted, would effectively exclude Chinese telecom providers from development of European high-speed information networks. “The global economic implications of comprehensive bans on major Chinese tech firms almost go without saying – they would have enormous effects,” said Cui Hongjian, a senior fellow with the China Institute of International Studies. “It would definitely affect trade relations as well.” The EU is China’s biggest trading partner, averaging more than €1 billion (US$1.14 billion) per day, while China is the EU’s second-largest after the United States. Cui said that Beijing might also cancel scientific cooperation, or close doors on future plans, if it felt Europe was targeting China’s technology companies. Huawei is building a strong presence in European markets, and Chinese telecom firms have been working with their European counterparts on 5G networks for years. China and the EU signed an agreement on 5G cooperation in 2015, pledging to conduct joint research and promote standardisation. The agreement was signed as a part of a public-private partnership launched by the EU, with the bloc pledging €700 million in government funding by 2020, and a further €3 billion to be raised by industry. Huawei said it was playing a “major role” in cooperation, according to the company website, and was working with European telecom companies such as Nokia and Ericsson, as well as European research institutions, to explore 5G. This year, the EU began a two-year programme with China to develop 5G under the 2015 agreement, and is prepared to spend millions of euros. In November, the EU and China began a 20-month collaboration under the 5G-Drive project for joint research and trials agreed between the bloc and the China Mobile Research Institute. The Chinese side of the project is coordinated by China Mobile, where project partners include Huawei. The project will focus on sites in Italy, Finland and Britain, and five in China – in Hangzhou, Shanghai, Wuhan, Suzhou and Guangzhou. Chinese and EU scientific cooperation stretches back more than two decades and includes agriculture, biotechnology, space and human health research. A co-funding mechanism for scientific cooperation has mobilised more than €500 million from the EU, and 1 billion yuan (US$148 million) from China from 2016 to 2020. But the momentum for cooperation may be lost if European national security concerns over Chinese companies, especially Huawei, take precedence. At least five EU governments – France, Germany, Poland, Britain and the Czech Republic – have said they are investigating whether to bar Huawei from 5G infrastructure developments. One of the concerns cited by European nations is that Chinese law demands private companies and individuals cooperate with national intelligence agencies – meaning Huawei could turn sensitive data over to the Chinese authorities. Tim Rühlig, an analyst of EU-China relations at the Swedish Institute of International Affairs, said rivalry between China and the US had put Europe in an “awkward position” because of its extensive cooperation with both sides. “Both the US and China perceive the conflict over 5G infrastructure as a matter of geopolitics,” he said. “China cutting supply chains to Europe in information and communication technology would be a serious problem for the region’s technological development, as they are heavily reliant on China. “China has leverage, but I am not sure it is willing to utilise it.” The concern intensified last month when European Commission vice-president Andrus Ansip, who is in charge of digital affairs in the union, said that all Chinese companies were “under suspicion” as possible security risks. But Zhang Ming, head of the Chinese mission to the EU, said banning Huawei from European 5G projects would risk “serious consequences” for global economic and scientific cooperation. German telecoms company Deutsche Telecom warned that a ban on Huawei would put European firms behind US and Chinese firms, and set back the release of 5G technology in Europe by at least two years. “At this moment, I believe that Europe tends to side with the US. If China wants to prevent Europe from taking this decision, it is well advised in trying to tone things down and not try to blackmail Europe. The most likely result would be the EU‘s complete turn to the US,” Rühlig said. But Shi Zhiqin, who studies European affairs at the Carnegie-Tsinghua Centre for Global Policy, said the EU as a whole would not ban Chinese tech companies. “If they do take action, China-EU relations, on the whole, are likely to take big steps back. But Huawei’s market share in Europe, and the existing scale of joint research, make it very difficult to imagine a full ban on Huawei,” Shi said.

#### 5G a high-stakes for China---successful US pressure breaks economic and scientific cooperation with China.

Voelson ’19 [Dr. Daniel Voelson works on issues at the intersection of technology and foreign policy. He is particularly vested in the political debates about the future of the Internet as they take place in the institutions of global Internet governance, as well as the use of digital technologies as a means in shaping (international) politics; "5G and the US–China Tech Rivalry – a Test for Europe’s Future in the Digital Age"; 6-29-2019; https://www.swp-berlin.org/en/publication/5g-and-the-us-china-tech-rivalry-a-test-for-europes-future-in-the-digital-age]//AShah

Until late last year, most Europeans only knew Huawei as one of many smartphone manufacturers gaining ground in stores across the continent. But in recent months, the tech giant has turned into a symbol of a high-stakes wrestling match between the world’s premier superpower, the United States, and its increasingly ambitious and capable challenger, China. Indeed, the impending rollout of 5G infrastructure has become a key battleground in a broader struggle for control over the industries of the future. Europe has meanwhile been caught on its back foot and urgently needs to develop a strategy to not only guide it through the current 5G debate, but also the tech rivalries that are still to come.

With dramatically higher data transfer speeds and decreased latency, 5G carries the promise of revolutionizing all spheres of daily life: from self-driving vehicles to health­care to the “internet of things” and the digi­tali­zation of industrial production processes and so-called smart cities. Huawei currently leads the field in 5G infrastructure and as such, for the first time in modern history, China is in a prime position to lead the world in the rollout of a potentially game-chang­ing technology. This prospect has caused fierce pushback from Washington and jit­ters across Europe and much of the West.

For months, the United States has been pressuring its European allies to enact an outright ban of Huawei from the rollout of 5G infrastructure on the continent. US Secretary of State Mike Pompeo even warn­ed that allies who deal with the com­pany will no longer be privy to American intelligence. China, in turn, threatened retaliation against European countries inclined to give in to US demands. China’s ambassador to the Euro­pean Union (EU), Zhang Ming, spoke of “serious consequences” for eco­nomic and scientific cooperation, whereas China’s am­bassador to Poland warned of “steep costs” for Poland if it decided to ban Huawei.

Caught between the two powers, Europe’s vulnerability is clearly visible: On the one hand, European countries depend on Chi­na’s central position in the value chain for information and communication technology (ICT), in particular regarding hardware; on the other hand, the United States dominates software development and remains Europe’s prime security guarantor.

Complicating matters further, the Trump administration announced on May 15 that Huawei would figure on the “Entity List” of the US Department of Commerce, effectively placing sanctions on the Chinese tech giant and banning all access to US technology (from microchips to critical software). This decision constitutes a major blow to the com­pany that has the potential to severely affect its operations. It is also a clear signal to Western allies that the United States is serious in its campaign to stop Huawei’s grow­ing influence. For its part, China has responded with its own broadly defined “unreliable entities list” of countries, com­panies, or persons that “seriously damage the legitimate interests” of Chinese com­panies.

In this situation, Europeans risk becoming mere objects in a geopolitical struggle for technological leadership that will significantly shape our future. The defense of European interests and values in this context will require Europeans to develop a common political strategy – based on sound principles and objective criteria – for navigating the geopolitical conflicts that new technology will bring. The 5G debate adds a sense of urgency to this quest.

#### Limiting China’s 5G market access in Europe causes retaliation that undermines cooperation on global issues.

Ugo Armanini 20, Ugo Armanini is a Research Assistant on Asia-Pacific at the Elcano Royal Institute. Graduated in Law and Political Science from the University of Montpellier, with an M. Sc. in International Studies from the University of Montreal where he has been teaching assistant. He is currently a Ph.D. student in Political Science at Madrid’s Universidad Autónoma, working on a thesis on China-Latin America relations., July 2020, “The EU should refuse any negotiation on Huawei”, <https://www.realinstitutoelcano.org/en/the-eu-should-refuse-any-negotiation-on-huawei/> //skwon

COVID-19 has emerged as a catalyst of troublesome trends in international relations. It has revived the US-China rivalry and further put international institutions under stress. EU-China relations have not been unscathed. China has emerged as a necessary partner in times of need and there is space for cooperation in global issues, but COVID-19 has also fostered a process of disenchantment of several EU member states and societies towards China. COVID-19 has highlighted the risks of overdependency towards a single major supplier and the normative gap between both parties have been exposed. The crisis has underlined China’s lack of transparency as well as a its assertive diplomacy at times involved in disinformation. China’s Human Rights record is also in the spotlight due to the adoption of Hong Kong’s security law and the situation in Xinjiang which have both raised concerns. In addition the negotiations on the EU-China Comprehensive Agreement on Investment and EU member states’ decision on the role of Huawei in the development of their 5G networks are pending issues that are not evolving favourably to China. Regarding 5G, this is illustrated by the recent French decision to move away from the Chinese provider and of Telefónica choosing to reduce its dependency to Huawei’s 5G core technology. Across the Channel, UK has decided to ban it by 2027.

Chinese authorities may want to introduce a transactional approach to reverse this trend. That is, if the EU would limit Huawei’s access in its market, China would retaliate against European firms. Chinese diplomacy may call for an ‘open, fair, and non-discriminatory […] environment’ but these claims have little normative ground. EU firms face restricted access and unequal treatment in the Chinese market resulting in unfair competitive advantages for their Chinese competitors. Benefiting from open market rules requires to abide them. This would not be a case of discrimination, but indeed of equal treatment. Amid COVID-19 China has recently displayed its commitment to greater openness and trade liberalization. Nevertheless, those prospects remain irrelevant until substantive progress materializes.

Moreover, stakes go well beyond economic interests. In fact, UK’s decision on Huawei has been taken despite additional economic costs and delays in its 5G rollout. Huawei’s involvement in EU’s 5G network raises security and strategic concerns, including possible risks of espionage and sabotage and a deterioration of trans-Atlantic links. In reaction, EU and EU member states have embarked in the adoption of new and upgraded investment screening mechanisms to better monitor foreign involvement in critical infrastructures and the EU has adopted a security-driven approach on 5G. In that respect, the main issue is that Huawei does not appear as a very trustworthy provider. The firm’s corporate structure remains opaque, and its independency unclear due to the financial support it has received and the characteristics of the Chinese state which ‘could compel anyone in China to do anything’. Japan’s and France’s de facto bans have taken into account this lack of trustworthiness and the higher risks posed by foreign (Chinese) providers. The centrality of this security and strategic dimension should proscribe ending up in a bargaining over EU and China’s respective companies.

China’s possible retaliation would push the EU to face difficult choices. If China were to target EU firms, this would be a reminder that economic interdependency and need for cooperation do/should not preclude power politics. The EU may be an international actor with significant soft ‘presence’ and capabilities. But it will have to better deal with power, i.e. to better mobilize these capabilities to achieve intended outcomes –level-playing field– and prevent unwanted ones –security risks– in its relations with China. In fact, levering market access would turn to be a necessary instrument to do so. For the last year and half the EU has dodged difficulties by postponing concrete decisions to ban or not Huawei, and by focusing on mitigating security risks to ensure strategic autonomy. Now that EU members may start taking more concrete action, they will likely face hard pressure from China. They should not be blinded by commercial trade-offs in this issue as the role of Huawei in Europe´s 5G networks has implications well-beyond this field.

### Link---Ext

#### Chinese telecom is committed to European markets but commitment to equal competition is necessary.

Herd ’20 [Phillip; September 2020; Senior Communications Advisor and Crisis Management Strategist, former Telecommunications Public Affairs Expert; "The win-win relationship between the EU and Huawei," https://huawei.eu/story/win-win-relationship-between-eu-and-huawei#:~:text=To%20ensure%20Huawei%20is%20able,local%20and%20regional%20authorities%20beginning]

As the world enters the 4th industrial revolution, the era of Artificial Intelligence, the Internet of Things and faster and more powerful 5G telecommunications networks, the EU and Huawei have a unique opportunity – to be partners in leading the world’s economic growth through digitalisation.

Huawei, the world’s foremost supplier of information and communication technologies (ICT) equipment, has been based in Europe since it set up a first research lab with a small number of employees in Stockholm in 2000.

Now, two decades later, Huawei employs nearly 15 000 people across Europe, 70 % of these locally hired, in all the EU countries and beyond. Some 2 400 of these staff work in highly skilled jobs, dedicated entirely to research, development and innovation, at Huawei’s European research facilities, which now number 23 across the continent.

Meanwhile, as EU per capita income has nearly doubled over the past 20 years, so Huawei’s contribution to European GDP has soared. You could say the EU and Huawei have grown hand in hand in this respect, especially in the technology sector, where Europe is well positioned to become a leader globally.

Huawei’s most spectacular growth in Europe has taken place over the past four years. According to the global forecasters, Oxford Economics, the company’s contribution to Europe’s GDP in 2018 was €12.8 billion, having grown at an average annual rate of 19 % since 2014. In the same period, employment supported by Huawei grew by 13 % per year to nearly 170 000 jobs, and the €5.8 billion tax revenue the company paid to European countries in 2018 has increased by 17 % a year since 2014.

Huawei, a European company

Huawei is committed to Europe. The company sees Europe as its second home base and wants to contribute to European growth and towards Europe’s technology leadership in the world. It wants to help Europe achieve true digital sovereignty in terms of data protection, citizens’ privacy, cyber security, and the ethical considerations of the applications and equipment used on European soil. And Huawei is more than committed to making a decisive contribution to Europe’s economic recovery. Already today, Huawei has manufacturing sites on European soil. Further significant investments in 5G manufacturing will follow.

To ensure Huawei is able to contribute fairly and equally to the European ICT ecosystem, the company has established thousands of win-win partnerships with European telecoms carriers, industrial companies and industry associations, top universities and research institutes, and local and regional authorities beginning to introduce smart technologies.

Huawei is now a part of the European fabric, an active player in shaping the digital economy for the future, contributing innovative technology to EU research projects and broad-ranging industryled cooperation initiatives such as those for connected vehicles, digital transformation and smart agriculture.

The EU’s approach to free, fair and open competition in the ICT sector, protecting innovation and consumer choice, and ensuring equal opportunities for companies to compete in the European marketplace, makes Europe an attractive base for companies developing high-end intellectual property.

### Link---Backlash---2NC

#### China backlashes even if Europe wants cooperation on other issues.

Noah Barkin ’19 [Noah Barkin was a DAAD/AICGS Research Fellow from mid-March to mid-May 2019. Noah Barkin is a senior visiting fellow in the German Marshall Fund’s Asia Program based in Berlin. Prior to joining GMF, he was a journalist who had reported from over 20 countries in 25-year career with Reuters, specializing in German and European political and economic issues. He served as Bureau Chief for Germany/Austria/Switzerland and in other senior writing, editing, and management roles in Paris, London, and New York. Noah has written a regular “Inside Europe” column for the New York Times and authored a book on the introduction of the euro. A native Californian, he has a BA in Political Science and French from UC Berkeley and a Master’s in International Affairs from Columbia University; "China Backlash: Toward a Transatlantic Agenda?"; 06-13-2019; AICGS; https://www.aicgs.org/publication/china-backlash-toward-a-transatlantic-agenda/]//AShah

Backlash against the Backlash?

Europe is in a very different place. Although senior officials in Brussels, Paris, and Berlin may bemoan what they see as a lack of interest in Washington in cooperating with Europe on China (last year when French president Emmanuel Macron urged closer cooperation, [Trump reportedly told him that the EU was worse than China](https://www.axios.com/donald-trump-emmanuel-macron-eu-worse-than-china-trade-tariffs-57f53e00-8b5c-4931-9d05-97ee0b510fd5.html)), it is unclear whether European leaders would really welcome a full-blown, institutionalized transatlantic agenda directed against Beijing. This would give the impression that the EU was taking sides in the dispute, a step European officials say in private that they want to avoid. It could endanger European commercial interests in China. And it would be a difficult sell to European publics. Indeed, as the Trump administration’s confrontation with China becomes more ideological and urgent, there is a risk that we see a backlash against the China backlash in Europe, with the political momentum behind robust pushback against Beijing fading. How a new European Commission positions itself on China and whether a fragile German government is willing to pay a price in order to forge a more united European and transatlantic stance will be key in this regard. So too will be [Britain’s positioning on China post-Brexit](https://www.merics.org/en/blog/brexits-false-eastern-promise). Once outside the EU, will the British government feel it can’t afford to put its economic ties with China at risk? Without London, Berlin, and Paris pulling together, it is difficult to imagine a loose European or transatlantic consensus on how to handle China.

### Link---Security Cooperation---2NC

#### Defense cooperation via NATO hinders EU-China BRI cooperation.

Boštjan Peternelj 19. \*Doctoral research on the Faculty for Social Science. \*\*Igor Klopotan, University North Croatia. \*\*\*Petar Kurecic, University of North Croatia. “The Prospects of Defence Cooperation Between the European Union, the Russian Federation and the People's Republic of China” ResearchGate. February 2019.

The PR China had opened wide door to European military technology to invade into PR China’s defence sector since the economic embargo was lifted to transfer advanced military technology.Financial dynamic invested into PR China’s defence sector had completely changed situation over the past five years into military modernization process of the PR China’s army. Chinese President Xi Jinping has put an end to the practice of making any progress on international security cooperation with Europe conditional on the lifting of the embargo. This is the result of the PR China’s arms industry’s progress (Duchatel, 2018). The PR China had access to critical technologies that had speed up modernization process for ten years, and beside it had created main conditions for advanced innovation and leadership for the next generations of arms toward C4I updated technology. The PR China had paid off for some advanced hi-tech licensed equipment – those are being incorporated into Chinese military helicopters, ships and submarines, and were needed to speed up modernization process of China army but it seems that the EU thoughts ongoing into direction to prevent all transfers of dual-use technology to the PR China as to protect Europe’s critical technology. China’s economic intensions became doubtful about financial influence to invest more money by spending into common hi tech military projects together with Europe champions into defence sector as the PR China tries to increase pressure by lifting economic barriers to arms transfers and export controls. The main barrier to deepening of the EU-PR China defence cooperation is the will of NATO allies and especially of the US to preserve sensitive hi-tech military technology, whilst the PR China is still accused for industrial espionage and steeling military patents. Arms control measures among transferring hi – tech military technology to third states could not be secured by NATO protocol of regime export mil technology or under the PESCO projects carried out by the EDA control. The PR China may use hi-tech military projects to benefit itself to modernize own army into all military branches by following up European modernization process under Horizon 2020 projects. The defence companies from the EU shall take decision, if cooperate or not cooperate into the joint EU-PR China defence cooperation. The PR China had pleased the EU member states to fully participate into the Eurasian megaproject and invest more money to rebuild the Silk Road strategy toward the western part of Heartland. This invitation was referred on the defence cooperation too if EU states did not decide for protectionism. It was likely seen that the EU had been stuck between US and PR China’s economic influence from foreign geoeconomic investments. The PR China, meanwhile, “is leveraging military modernization, influence operations, and predatory economics to coerce neighbouring countries to re-order the Indo-Pacific region to their advantage,” the Strategy declares. And the Chinese military modernization program, it adds, is designed to achieve “regional hegemony in the near-term and displacement of the USA to achieve global pre-eminence in the future” (Morgan, 2018). “The EU and China signed a ‘strategic partnership’ in 2003, and adopted 2020 strategic agenda for cooperation in 2013. These agreements resulted from a mutual commitment to cooperation and signal an interest to further advance ties” (Dorussen, 2017: 2). Prominent role from EU states those had invested more money into defence sector into foreign business had cemented economic benefit in the PR China defence sector for some EU defence firms, to expand the global market for selling military goods out of the EU market, that became more relevant on global market inside the EU-PR China defence relation. Solidarity and unity were cracked down into one voice while decision making process inside European NATO pillar had been divided into two political blocks. Atlantic hub encountered against European hub for more centrists reproach toward federalization process to form the EU super state. Political dwindling, dividing and disunity (3D) had brought NATO alliance to crack solidarity and unity apart between Europe and the USA, only media black coverage had been disseminating lies into publicity that was everything fine within the EU-US bilateral cooperation under the NATO alliance but this was false flags signal to sweep rubbish under the political carpet. Those political, economic and defence cooperation for 3D reasons had worsened fragility under the NATO alliance. Otherwise, an alternative was opened as China signalled to EU states as to re-join Silk Road strategy on continent. China is willing to invest more money into EU critical infrastructure to reconnect roads and rails guided from Peking to Europe by transiting Russian territory.

### Link---Silk Road---2NC

#### EU-China cooperation on 5G high now—that’s key to adapt to a Digital Silk Road

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The industrial agreement between the EU‘s 5G PPP Association and China’s IMT-2020 (5G) Promotion Association will enhance cooperation in this feld. This agreement marks another stage in their cooperation (EU-China partnership on 5G 2015). It was based on other agreements already signed between the European Commission, Japan, and South Korea during 2015.18

The agreement was very opportune in the light of the countdown for the World Radiocommunication Conference 2019, because the two countries have started together in the 5G standardization race and discussions on spectrum requirements for 5G (Liu 2016).19 Europe wants to ensure that it does not lag behind in 5G adoption by reaching deals with countries that are at the forefront of its development. China is becoming one of the major players in the development of 5G and one of the largest markets for 5G technologies, products, and services (MWL 2015). The agreement facilitates an environment for cooperation between Sino-European telecoms and ICT companies by trying to increase higher access to both markets, facilitated through development and innovation initiatives and publicly funded 5G research.20 However, the reality is that the European market is fully open whereas the Chinese market is not. Despite offcial talks, there are no joint private projects between European and Chinese companies.

The areas of cooperation were defned as having fve components: 1. Come to an understanding on the concept, basic functionalities, key technologies, and time plan for 5G 2. Examine the possibilities for joint research actions, including participation of enterprises on the services and applications for 5G 3. Popularize global standardization for 5G through relevant organizations such as the 3rd Generation Partnership Project (3GPP) and the International Telecommunication Union (ITU) 4. Cooperate in identifying the most promising radio frequency bands to meet the new spectrum requirements for 5G 5. Investigate the services and applications for 5G linked to the IoT (EU–China partnership on 5G, 2015)

The joint EU–China projects will be funded by a co-funding mechanism (CFM) for research and innovation for both partners. An investment of over €640 million from 2016 to 2020 is expected. In this regard, at the end of 2015, the MOST made its frst annual call under the CFM to provide €28 million support for Chinese organizations (Huawai 2016).

Under this cooperation, it seems that many doors could be opened at all levels. Yet, at the institutional level, governments need to promote global standardization for 5G by improving infrastructure networks and facilities such as the ITU21 and the 3GPP2.22 This task will not be simple because some of the new spectrum requirements for 5G, such as the most appropriate radio frequency bands, are complex to achieve. This challenging situation gives rise to the possibility for SinoEuropean cooperation; for example, research centers and universities could work together in implementing joint research actions, and businesses could develop 5G research projects. The question is how to fnd those partners, sit them down together, and make them understand that by working together they could obtain better results. Even if President Xi Jinping has called on scientists, entrepreneurs, scholars, and technicians in the industry to work together toward the goal of welcoming foreign collaborations to pool together more human, material, and fnancial resources (New China internet strategy unveiled 2016), these actors do not know where to fnd potential European partners. At the same time, the European industry still has doubts about the benefts that can be obtained by sharing knowledge and expertise if local markets are still closed to them.

On the brighter side, there are wishes to jointly explore services and applications for 5G, especially in the area of the IoT, smart cities, e-health, intelligent transport, education, entertainment, and media. The case of e-banking is another signifcant application area because the shift to a digital economy has changed the customers’ use of fnancial tools such as e-wallets, e-payment, and touch-pay systems (Yang 2016). Moreover, Sino-European organizations, research centers, and private companies fostering cooperation in terms of reciprocity and access to 5G network research funding could provide openness in terms of market access (European Commission 2015c). European companies could increase access to and participation in China’s public funds for 5G research, while Chinese enterprises are already involved in EU’s 5G activities (EU-China partnership on 5G 2015; EU, China sign key partnership on 5G 2015). Yet, experience shows that these intentions have not been adopted at the time of writing this chapter.

Some Chinese and European universities are joining to prepare a formal launch of the China–EU Digital Research Center at the end of 2016.23 This research center aims at systematically monitoring and comparing Chinese and European regulatory frameworks, e-commerce,cloud services, data protection, cyber security, 5G and future networks, copyrights, and patents to achieve better synergy between Europe’s Digital Agenda and China’s Internet Plus (New China internet strategy unveiled 2016). Because both the European Commission and Chinese national government are now reviewing their rules and eliminating requirements that stife e-commerce, this type of joint project could be very complementary at the institutional level.

In contrast to the EU, which has a dedicated agency (ENISA)24 to promote and coordinate cyber security policies, China has not yet developed a comprehensive cyber security strategy. However, as President Xi recently mentioned, cyber security will be a focal point for the national government. China’s cyber security strategy builds on recent steps. Following the establishment in 2014 of the Central Cyber Security and Informatization Leading Group, the Cyber Security Association of China25 was founded on 25 March 2016. It conforms to academic institutes, individuals, and internet companies (including Tecent and Qihu360). Cyber space management and security is a prerequisite for increased internet usage everywhere. The organization aims to establish industry standards and cyber security studies, but also will promote “self-discipline” in the industry, a practice unwelcome in Europe (China launches the cybersecurity association of China 2016).

The protection of private data and the prevention of cyber attacks have become the main points in cyber security strategy in Europe and China. For this purpose, both partners wish to speed up legislation and surveillance measures to avert cyber threats (New China internet strategy unveiled 2016). This area of cooperation is described as “CyberRealpolitik” and is tackled by the EU–China cyber taskforce.

The success of the Sino-European cooperation for 5G standardization depends on the ability of businesses and research institutes to join forces to cooperate and implement projects together. It is also necessary for offcial institutions to facilitate policies, instruments, and mechanisms to carry out joint projects. At the time of writing this chapter, there was no transposition from the top level to the bottom. However, large potential avenues have been acknowledged in the digital feld, particularly with the development of 5G technology

As the Chinese idiom goes, 抛砖引玉 (pāo zhuān yǐn yù), literally meaning “cast a brick to attract jade,” this chapter offers a few remarks to set the ball rolling. Similarities in the B&R initiative and the Juncker Plan have been identifed. Both economic initiatives and the confdent offcial relationship between the EU and China provide a favorable environment for develoment of the EU–China Investment Cooperation. It remains to be seen how this cooperation will play out once both initiatives have been fully developed. In the meantime, the ability to explore joint investment projects other than infrastructure is recommended to strengthen numerous opportunities for business, research, and services in both China and Europe.

The digital age is here and has not yet arrived at an impasse. Both the EU and Chinese governments are making efforts to adapt to the changing technical environment created by the internet, IT systems, and data analysis. Digital transformation is underway in both regions, which must catch up fast with the leaders of the digital world to avoid lagging behind. Research, innovation, and a new generation of infrastructure must be put in place in order to be on the frontline of the advances in cyber space and technology, as well as to adapt to the requirements of users and services.

In this regard, the EU and China have plenty of room for cooperation in the 5G market. Their intentions are still in an incipient stage but must speed up in bringing 5G to reality. Behind all the joint research projects on radio frequency bands, regulatory frameworks, cyber security, and big data, there is an ultimate idea: to keep internal markets competitive. This cooperation should focus on those sectors where science, business, and society can also beneft. Now is the moment to catch the train and adapt the ancient Silk Road into what will come to be known as the Digital Silk Road.

#### Digital Silk Road key to combat terrorism, poverty, ethnic issues

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This strategic initiative has been reshaped and enlarged with new routes and projects. The Belt and Road initiative now concerns 4.4 billion people in sixty fve countries with a collective GDP of US$2 trillion. The initiative aims to address primarily the infrastructure investment needs of Asia. The Asian Development Bank (ADB) estimates that about US$8 trillion is needed for infrastructure investment in the Asian region between 2010 and 2020. Based on an implementation guideline for the Belt and Road initiative released by China’s National Development and Reform Commission (NDRC) in March 2015, development plans along the Belt and Road routes aim to improve connectivity in fve areas: policy, infrastructure, trade, currency, and people. Priority is given to development of transport infrastructure such as roads, railways, and ports. Another area of focus is connectivity of energy infrastructure, such as power grids, oil and gas pipelines, liquifed natural gas terminals, high-voltage power lines, nuclear power reactors, renewable energy installations and other energy projects. Construction of communication line networks and IT infrastructure links across Asia, the Middle East, East Africa, and Europe is also important.

East Asia is the fastest growing and most dynamic area of global economy, followed by the strong growth of South Asia. Central Asia lags behind in many aspects, although it is richest in natural reserves. The goals of the Belt and Road initiative address this particular point because Central Asia is probably the frst and nearest area where projects regarding energy, transport infrastructure, and introduction of common standards will be implemented. Properly implemented, the projects that comprise the Belt and Road initiative could signifcantly boost regional economic growth, development, and integration. They can also promote political cooperation, better understanding, and stability, which could reduce the roots of and felds for terrorism and extremism in the region, going hand in hand with set of strategic policies and goals of the Shanghai Cooperation Organization (SCO). On the other side of the continent and China’s borders, ASEAN countries have high levels of energy defciency and a critical need for energy infrastructure investment, coupled with a desire for increased regional energy connectivity.

The ASEAN countries are also expected to be high on the agenda of the Belt and Road initiative’s list of projects (SIEW 2015). Experience of East Asia’s economic rise has shown that economic success has had a positive impact on domestic social and political stability, as well as on regional interstate relations, although there are limitations resulting from historical, ideological, and other invisible and deeply rooted obstacles. Domestic needs refected at, and strategic goals and gains coming from, the Belt and Road initiative are numerous. Considering China and her domestic needs, the initiative is intertwined with a range of challenges related to sustainable growth of the Chinese economy. China has been facing many problems in trying to switch to a new model of economic growth, some of the most grave being the need to access resources and markets for fnal products; reduce or reallocate part of its industrial overcapacity; deleverage some crucial sectors of the economy; and diversify and safely and effciently deploy its enormous US$3.51 trillion in foreign reserves (Wei 2015).

The Belt and Road initiative is an opportunity to solve some of these problems. By building or upgrading infrastructure relating to transport, energy, and communication along the Road and the Belt and connecting it with existing infrastructure, China can create a new and vibrant network. This brings the opportunity to export technologies, creativity, management skills, materials, and labor, which will reduce the pressure of overcapacity in sectors such as steel and cement manufacture, and maintain high and sustainable economy growth. It can also absorb and diversify China’s fnancial surplus and help increase capitalization and control extensive domestic investment. Economic structural reform is an urgent issue for China in order to overcome the steady decrease in its workingage population and the consequences of excessive domestic investment and overreliance on export-driven growth in recent decades.

Nevertheless, President Xi Jinping said he hoped that annual trade between the countries involved in Beijing‘s plan to create a modem Silk Road would surpass US$2.5 trillion within a decade (Wei 2015), which shows the importance of revitalizing exports as a growth engine for the Chinese economy. This should ease the process of structural change in the domestic economy. Furthermore, continuing economic growth would give the chance for China’s “Reform and Opening Up” program to once again become inclusive. Further results in alleviating poverty confirm the legitimacy of the Communist Party’s leading role, proving its continuing ability to provide a share of global wealth to the Chinese nation, more equally distributed than ever in the long history of the Chinese state. In that sense, economic growth is inseparable from national security. Also, China could and should further promote internationalization of the renminbi.

Beijing also hopes that improved connectivity between its less developed southern and western provinces, its richer coast, and the countries involved in the Belt and Road initiative will improve China’s internal economic integration and competitiveness and spur more regionally balanced growth. Regarding domestic security in China, the Belt and Road initiative offers an opportunity for central government to intensify its policy of economically upgrading the Xinjiang Uyghur Autonomous Region, which is the epicenter of the country’s secessionist and terrorist threats. Xinjiang, which borders Mongolia, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, and India, is strategically important for the infrastructure network of the Belt and Road initiative, which will pass through the region and connect China with relevant neighbors. This is particularly true for Central Asian countries that will be connected with western China through Xinjiang as the gateway. Such a position has already been provided with several infrastructure projects, such as a high-speed railway between Urumqi and Lanzhou, and initiatives for investing in Xinjiang’s banking sector, manufacturing, tourism, transportation and commercial hubs, and other sectors that should create work for locals and stimulate growth of the region’s economy and general well being. Beijing is counting on the calming effect that economic development and elimination of poverty should have on ethnic issues and political dissatisfaction on the part of the local Uyghurs.

External goals that China could achieve through the Belt and Road initiative are plentiful and inseparable from domestic goals. There is no doubt among the majority of decision-makers and analysts from the interested sides that implementation of the Belt and Road initiative could assist in deepening regional economic integration. This would come through increased cross-border trade, benefting from improved transportation and legal infrastructure, simplifed procedures, and unifed standards for trade and investments. For China, this initiative is the most rational way to exert its growing potential as a rising power and increasingly infuential international player, especially because the USA‘s Asia Pivot has strengthened US military alliances in East Asia and the Pacifc. Maritime and border issues in the South China Sea showed China’s gained military strength and self-confdence, but were counterproductive in terms of deepening mutual trust and maintaining good neighborly relations. Furthermore, Washington has been pushing two major economic initiatives on both points of its global dominance: the Atlantic and Pacifc Oceans. The Trans-Pacifc Partnership (TPP) and the Transatlantic Trade and Investment Partnership (TTIP) both exclude China. Certainly, containment of China’s rise has so far proved unsuccessful, but it has pushed China toward its western geostrategic vector and perhaps reassured its leaders that “peaceful rise” and “win–win” economic cooperation are better options than security and military pressure or confrontation. The Belt and Road initiative benefts China’s geopolitical and security interests by tying other countries into very close and interdependent economic relations.

### Internal---EU Leadership---2NC

#### The BRI is key to Europe’s influence in every area---it controls for negative externalities while still promoting development.

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However, this is also where the weaknesses of the EU approach are laid bare. The EU defined its approach, and indeed the relatively artificial boundaries that it created when grouping countries, on the basis of a single criterion: EU integration. It appears that, with the launch of the EU Global Strategy, a new and more interest-based approach may be developing in Brussels. Still, it is the EU’s understanding of a particular country’s prospect of integration into EU structures that forms the guideline for the EU’s policy. Geopolitical, economic, or trade factors have been secondary at best in this regard. This may have made sense in the immediate post-Cold War era, when the power of attraction of the EU was at its strongest and the geopolitical tensions in Eurasia at their weakest. However, since at least 2008, it has become clear that the EU’s relationship with the countries to its east cannot rely solely on the power of its normative values and the prospect of association with the EU. This reality stems from the EU’s growing aversion to enlargement as well as its reduced appeal following a succession of internal crises from the euro crisis to Brexit. The EU’s recent experience in the western Balkans and in the Eastern Partnership area is a clear indication that a new approach is needed – one that will focus to a much greater extent on European interests, not solely European norms and values. The EU must act not only as a European project but as a European power. 135 What, then, are the European interests in this area? Simply put, they range from stability and development in the political and economic fields to securing energy supplies and developing trade and transport links. Importantly, the EU’s interest in political and economic stability implies that the development of the rule of law and the consolidation of participatory forms of government are not simply European values but also concrete EU interests. In this sense, China’s rise presents important opportunities. For all the talk of a Russian–Chinese alliance, it is a fact that Beijing’s involvement in Central Asia has helped to strengthen the sovereignty and independence of the region’s countries. The US and EU support for oil and gas pipelines linking the South Caucasus states to European markets broke Russia’s hegemony in that region and helped to secure the economic independence of Azerbaijan and Georgia in the early 2000s. China’s lead in the construction of pipelines linking suppliers east of the Caspian to itself in the latter part of the decade had exactly the same effect in Central Asia. In this sense, China contributed to a long-standing Western policy goal in the former Soviet space: the securing of sovereignty and independence that makes countries across this space full international citizens and thus potential partners not only for China but for Europe as well. In more recent times, against the background of a Western and particularly American disengagement from regional security issues, it is instructive to witness how countries closer to the EU, such as those of the Eastern Partnership, seek closer ties to China with the objective of counterbalancing their dependence on Russia. Furthermore, there is no question that China’s investments answer a direly felt need across Eurasia. As noted, the infrastructural needs of Eurasian and Asian states are enormous, and neither the EU nor Western development banks are in a position to fulfil those needs. In supporting infrastructure for trade and transport, China is providing a public good that will be beneficial for local states as well as business entities in Europe.

### Internal---Climate---2NC

#### EU-China relations solve climate change

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Shared interests China and the EU have shared interests in managing the public health impact and economic consequences of the global Covid-19 pandemic as well as preparing for and adapting to a changing climate. The pandemic may have promoted China–EU commerce in some sectors in response to European demand for specialized medical supplies and equipment. Despite the major disruption in international travel, the volume of cargo transported via the China Railway Express (CRE) train line to Europe grew strongly in 2020.101 China’s trade with the EU’s 27 members in 2020 reached €586 billion, compared to EU–USA trade of €555 billion, making China the EU’s largest trading partner for the first time.102 China’s interest in turning the crisis into opportunities to broaden and strengthen China–EU relations remains strong. Despite the fact that no face-toface summit between China and the EU was possible in 2020, high-level dialogues were established on the environment and climate and on digital cooperation.103China and the EU have both felt a shared responsibility to promote the success of multilateral measures to address climate change. For some time, EU leaders have encouraged China to strengthen its climate commitments—particularly by reaching peak carbon dioxide emissions at the earliest possible date and setting the goal of domestic climate neutrality. In a speech to the United Nations General Assembly in September 2020, President Xi Jinping announced that China will scale up its Intended Nationally Determined Contributions to the reduction in emission of greenhouse gasses by adopting more vigorous policies and measures.104 Xi also announced that China intends to achieve carbon neutrality before 2060—an unexpected announcement described by one EU official as ‘a very important and welcome step in the right direction’.105 The same official noted that, if China is to meet the commitment, ‘a lot remains to be done’, but, as one US commentator noted, ‘Almost all of China’s climate and energy targets in recent years have been met or exceeded, so anything President Xi Jinping announces in such a public forum is not just symbolic.’106 Climate policy may become a unifying element in China–EU relations, although differences remain over such issues as how to measure progress towards meeting climate-related commitments and how to balance the environmental and social dimensions of climate mitigation.107

#### EU-China relations revitalize climate multilateralism.

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EU-China Cooperation for a Green Partnership

In 1998, the EU and China established a long-term, stable and constructive relationship for the 21st century, then established a comprehensive partnership in 2001, followed by a comprehensive strategic partnership in 2003. The two sides further proposed four major partnerships – "Peace, Growth, Reform and Civilization" – between China and the EU in 2004. Overall, China, in its relations with the EU, has always favored cooperation, innovating new partnerships and, through them, enhancing the well-being of the people of both sides. Nowadays, China and the EU maintain deep intertwined economic relations. The volume of China–EU bilateral exceeded US$700 billion for the first time in 2019, with the EU as China’s largest trading partner for 16 consecutive years. China also continues to be the EU’s largest trading partner, the largest source of its imports, the EU’s third-largest export market. At the same time, bilateral direct investment remains strong. By the end of 2020, the EU’s real investment stock in China had reached US$118 billion. Finally, on 30 December 2020, after 7 years and 35 rounds of negotiations, the EU–China Comprehensive Agreement on Investment was completed, which was the first investment agreement the EU has concluded with another party since it was granted exclusive power to conclude investment agreements by the Lisbon Treaty (2009). The demand for capacity cooperation is rising, and cooperation in third markets is also on the agenda. China and the EU agreed to develop a green partnership and a partnership on digital cooperation by establishing high-level dialogue mechanisms in September 2020. The EU–China green partnership is another important addition to the four major partnerships of "Peace, Growth, Reform and Civilization". It builds on the EU–China Partnership on Climate Change and the EU–China Blue Partnership. This new dynamic element in bilateral partnership also fully reflects the commitment of both sides to uphold multilateralism, to work together to tackle global environmental challenges and to provide an international cooperation model for achieving the 2030 Agenda. Various mechanisms exist for and around the EU–China green cooperation. Over the years, the two sides have carried out pragmatic exchanges and cooperation in air pollution control, climate change, green growth, circular economy and other fields, and have made significant contribution towards promoting environmental governance and sustainable development in China and Europe and at the global level. In addition to the Union level, China has concrete bilateral environmental cooperation mechanisms with several major member states in the EU, such as Germany, France, Italy and Norway. For instance, bilateral mechanisms include: (with Germany) China–Germany Environment Forum (ministerial level), the China– Germany Working Group on Environment and Climate Change (bureau level) and expert seminars; (with France) the China–France Year of the Environment, the China–France Beijing Initiative on Biodiversity Conservation and Climate Change; (with Italy) Cooperation Management Office of the China–Italy Environmental Cooperation Projects and so on, not to mention all those co-financed and co-implemented bilateral and trilateral programs and projects.

On the foundation of the green partnership and these various mechanisms, the bilateral exchange on cooperation informed by the EU’s Green Deal may be brought to a range of high-level dialogue tables. For instance, the first High-level Environment and Climate Dialogue between China and the EU was held on 2 February 2021. Besides, the EU Green Deal communication actually indicated that the EU will bring forward the discussion to multilateral floors such as G7, G20 and WTO. It is therefore reasonable to foresee relevant discussions and even negotiations taking place at these round tables. The completion of the investment agreement negotiations between China and the EU sends a positive signal to the international community and the global market that, it is hoped, will be influential in getting international supply-chain cooperation back on track soon after the COVID-19 pandemic. At the same time, the principles of sustainability, intellectual property protection mechanisms and codes of conduct for different ownership enterprises incorporated within the Agreement represent the new paradigm shift of international investment agreements, creating a cooperation model for emerging economies and developed countries to reach similar investment agreements. It can therefore play a leading role in the reform and upgrading of global investment governance.

Green Partnership Respecting Multilateralism and Interdependence: Concerns about the EU's Carbon Border Adjustment Mechanism

The European Green Deal is a new decarbonizing growth strategy as a response to climate and environment related challenges. In this regard, China and the EU share similar values and policy objectives. China is vigorously implementing the new development concept of "innovation, coordination, green, openness and sharing", while the EU is looking for a green and digital transformation of the economy, with both sides putting the concept of sustainable development to the fore. The Green Deal widens the policy window for cooperation, against the backdrop of COVID-19 pandemic, to consolidate global governance mechanisms, and to take the green recovery as the lever for Building Back Better and promoting the 2030 Agenda, while respecting existing UN norms. There is no doubt that the confidence and determination of the EU–China green leadership are manifested in all high-level dialogues. The next step is to adopt a mutually respectful, reciprocal and fair approach in practice. A controversial element, however, is the Carbon Border Adjustment Mechanism (CBAM), also described as Carbon Border Tax (CBT). It goes way beyond the technicalities of enabling a global green growth towards imposing unilateral coercive border tax with "much pain and little gain", as critics note both in Europe (7) and China. Since the EU's Green Deal is clearly communicated as a "new growth strategy" and the EU's growth is embedded within a global post-COVID development agenda (with other countries also demanding growth), the Global Difference Principle (a western political philosophy concept) should be respected when growth and development are discussed. The EU carbon border tax could frustrate developing countries' export trade, resulting in the EU's so-called "new growth" based on the economic frustration and trade disruption of developing countries as a result of green trade barriers. In that case, the EU could achieve the expected "new growth" after the introduction of a carbon border tax, but could fail to "play a role as part of a plan to raise the expectations of the worst-off" in line with the "difference principle", losing its creditibility of justice. Besides, several concerns are particularly relevant to the carbon border tax: First of all, while the Green Deal Communication is framed in terms of continued EU support for the Paris Agreement, the CBAM seems to be at odds with the core of the Paris Agreement, namely the "bottom-up" INDC approach, with all countries declaring their own ambitions. CBAM deviates from the self-determined contribution framework to an approach that features "coercive pressures from some nations towards other". From a critical perspective, the EU's assertion that imposing a CBT could encourage other countries to raise their decarbonization ambition might result in a "slippery slope", as it is not convincing that the CBTdriven result will be better than the INDC-driven counterfactual result. Besides, it may imply that a "sovereignty-seeking" EU places little trust in the efforts of NDCs from other nations, not to mention that many academic researchers have questioned the so-called "carbon leakage" that serves as the asserted reason for a CBT (8).

The CBT is understood by and large as a protectionist policy which is not yet compatible with WTO legislation. It violates the principle of "common but differentiated responsibilities and respective capabilities" which is endorsed by Paris Agreement and UNFCCC. Therefore, it is understood that if the EU wishes to take the lead in climate policy respecting WTO and UNFCCC principles, then the CBAM should only target developed countries. Second, the EU Green Deal is generally seen as EU's initiative to reclaim global climate governance leadership. Nevertheless, global leadership in the multilateral system must respect existing UN rules and norms. Analysts have raised two major concerns: 1. 2. A third concern is that the potential EU–USA alliance on CBT (6) risks becoming a source of conflict on a global scale. In the EU's New EU–US Agenda for Global Change, the EU proposes to re-establish a close and open transatlantic partnership. In the new agenda, the EU affirms the "unique" nature of EU–US relations, arguing that if Europe and the US join forces, their global influence will be unmatched in terms of both total economic volume and technological innovation capacities. Some analysts raised the concern that if the Biden administration supports the Clean Energy Security Act, the US–EU consensus on a carbon border tax may also become a new trade-protection tool for developed countries against developing countries. If most developing countries practice solidarity in rejecting the CBT, the world economy might split into parallel systems, namely a lower-carbon-intensity economic system (of developed countries) and a higher-carbonintensity economic system (of developing countries). There seem to be other obstacles in the way of the EU implementing the Green Deal. First, implementing the CBT faces many practical barriers, such as 1) the difficulties and costs of carbon-footprint tracking and data access across the whole supply chain, 2) the risk of unjust treatment towards countries with heterogeneous carbon-tracing capacities, 3) the possibility of causing trade deviation that bypasses decarbonization paths etc., which are discussed by the Brussels-based think tank Bruegel (9) and are well covered in Chinese opinions and discussions. Second, it is observed that the Green Deal meets certain opposition from the Visegrad Group (Czech Republic, Hungary, Poland, Slovakia), and it is yet to be seen how the Just Transition Mechanism works to harmonize the conflicts of interest within EU.

Conclusion

The Chinese vice-premier addressed the first High-level Environment and Climate Dialogue between China and the EU, stating that "[t]he two sides should uphold multilateralism, safeguard the international system with the United Nations at the core, abide by the principle of common but differentiated responsibilities, and promote the construction of a fair, reasonable, and win–win global environmental governance system". Should the EU and China pursue a win–win cooperation and uphold multilateralism, there is huge potential for cooperation in a long list of diverse fields, such as green automobiles, digital technology, big data technology, Artificial Intelligence (AI), renewable energy, the internet of things, circular economy, smart grid, Carbon Capture and Storage (CCS), battery and storage technology, green investment and green standards. The EU and China should work together to consolidate the green partnership for better global governance.

### Internal---Central Asia---2NC

#### Effective BRI investments stabilize Central Asia.

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In order for the countries of the South Caucasus and Central Asia to benefit from the BRI, regional cooperation must be deepened and accelerated so that they can reap the rewards of greater connectivity to neighboring and global markets, while also helping to mitigate the initiative’s not-insignificant negative effects. This strategy will ensure regional coherence, learning, and leverage of the opportunities offered by the BRI. Nationally, however, each state must first defend itself at the economic level, act with full transparency with local citizens, and not commit to projects it cannot pay for, thereby risking its sovereignty. At both the social and environmental levels, countries must have a clear strategy on how to deal with the implications of the Chinese initiative and manage cooperation between regional states. For example, countries should consider ways to compensate or help businesses and employees that may be harmed by the BRI.

By greatly improving regional and international connectivity, the BRI could be a tremendous opportunity for the countries of Central Asia and the South Caucasus to fuel economic growth, link up to global trade networks, and enhance regional cooperation. However, maximizing the benefits of the BRI while minimizing the costs will also require them to maintain a careful balancing act, with an eye to ensuring their sovereignty and the well-being of their economies and citizens is properly safeguarded.

### Internal---AT: EU Not Key---2NC

#### The EU is key---it’s a critical route that makes BRI projects effective.

Wang Yiwei 20. Director of the Institute of International Affairs and Centre for European Union Studies at Renmin University of China. “China and Europe: BRI and the 17+1 Initiative” Valdai. 1-28-20. <https://valdaiclub.com/a/highlights/china-and-europe-bri-and-the-17-1-initiative/>

First, the BRI will enhance the development of all its participants, and Europe stands to benefit most from it. Europe is the terminal of the ancient Silk Road and now a crucial partner for the BRI. In space, most of the six economic corridors of BRI converge in Europe. Projects such as a China-Europe railway will improve the mobility and interconnectedness of Eurasia, which will help Europe exert more influence in the Pacific region.As when digging a tunnel, joint efforts from both sides can ensure that construction is done sooner. Second, it helps to promote a better regionalisation and integration of the EU.The traditional mode of globalisation is led by a triangle where America provides the drive, China is at the application end by offering a market, and Europe creates norms. However, the structure is damaged now. Europe is in a prominent position in the industry chain, value chain and supply chain. The BRI creates new possibilities for globalisation and hence Europe will obtain new chances. 23 EU countries, including thirteen countries among the 17+1 summit members, have signed various memoranda with China to enhance cooperation, such as the Siemens-CRRC cooperation and the financial investment memorandum between the Netherlands and China. It means most EU countries have participated in the BRI, which will bring about more cooperation in different areas between them. Beijing is unlikely to speed up the phase two talks this year but will prefer waiting for the outcome of the US presidential election. EXPERT OPINIONS The flow of capital and technology in Europe and China’s experience can be combined for work on new projects such as the Pelješac Bridge in Croatia. The funds are from EU, the technology is German, the labour force is from Croatia and construction is Chinese. We know that although China is exceptionally capable at building infrastructure, its ability to provide supervision and consultant services is relatively weak, and many rules have been set by Europe. So such cooperation is an ideal model. This is also the reason why China has signed memoranda with many financial and multilateral organisations to perfect the BRI. On the other hand, it also helps interconnect European countries and narrow its 'inner development' gaps. For example, currently many EU products are transported east from Rotterdam and Antwerp. Now with the BRI harbour project in Greece and Italy in the south, the flow of trade can be more balanced. Projects such as the railway from Luxembourg to Zhengzhou have expanded Europe’s scope of influence.“Four levels in one” (land, air, ocean, internet) interconnection is essentially different from what exists now. It upgrades regional integration to yield global interconnection. This systematic connection will bring about leveraging effects.

### Impact---Solves Case/AT: BRI Bad---2NC

#### BRI expansion upholds the LIO and encourages multilateral cooperation.

Kong, 18—Senior Researcher of the Institute of European Studies, China Academy of Social Sciences (Tianping, “China’s Role in International Order,” <http://www.geopolitika.hu/en/2018/06/04/chinas-role-in-international-order/>, dml)

China’s role in international order

In the post-Cold War era, China has to adapt to the changing international order, find out its place in international order. In recent years, China’s role in international order has become a hot topic, whether in Munich Security Conference or in Valdai Forum. It is true that China officially rarely use the term “world order”, “international order” (alternatively international system) is widely used in official documents and speeches, as Madam Fu Yin pointed out in her address in Munich Security Conference two years ago. China draws distinction between world order and international order, as the world order always equals to the US-led world order. Madam Fu assumed that the US-led world order rests on three pillars: first, the American value system, which is also accepted as the western values; second, the U.S. military alignment system, which is claimed to be the security foundation for US leadership; third, the international institutions including the UN system[vii]. In china’s opinion, the international order is the UN based system including the international institutions and norms. Fu Yin emphasized that China has a strong sense of belonging to this order, as China is one of its founders and is a beneficiary, a contributor, as well as part of its reform efforts[viii]. President Xi Jinping explained China’s role in his speech in Seattle in 2015 in this way, “as far as the existing international system is concerned, China has been a participant, builder and contributor. We stand firmly for the international order and system that is based on the purposes and principles of the UN Charter”. He stated “a great number of countries, especially developing countries, want to see a more just and equitable international system, but it doesn’t mean they want to unravel the entire system or start all over again. Rather, what they want is to reform and improve the system to keep up with the times. This would serve the common interests of all countries and mankind as a whole”[ix]. What China envisions the international order is not fully compatible with the America-dominated world order. China does not fully embrace the US-dominated world order. One the one hand, China is a contributor of current international order, on the other hand, China is a reformer of current international order. The collapse of the current international order is not in the interests of China, therefore, China seeks to defend current international order find out its place. In this sense, Mr. Xi Jinping highlighted in his address in 19th party congress last year that China will be a staunch upholder of the international order.

China’s vision over the world order demonstrates in the conception of building a community with a shared future for mankind. President Xi put forward the idea of building a community with a shared future for mankind, the conception is the continuation of the previous ideas in post-Cold War era, for example, building new political and economic order, pursuing the path of peaceful development and building harmonious world. Mr. Xi Jinping elaborated China’s vision in 19th Congress of CPC, he stated that “We call on the people of all countries to work together to build a community with a shared future for mankind, to build an open, inclusive, clean, and beautiful world that enjoys lasting peace, universal security, and common prosperity”[x]. To large extent, the ruling party’s evaluation of the international situation determines the orientation of foreign policies. Mr. Xi Jinping deemed “The world is undergoing major developments, transformation, and adjustment, but peace and development remain the call of our day. The trends of global multi-polarity, economic globalization, IT application, and cultural diversity are surging forward; changes in the global governance system and the international order are speeding up; countries are becoming increasingly interconnected and interdependent; relative international forces are becoming more balanced; and peace and development remain irreversible trends”[xi]. Based on the vision of building community of shared future for humankind and judgement about international situation, Mr. Xi Jinping sent the message to the world what kind of role China will play in international order. The message is quite clear, China will be an architect of world peace, China will be a stalwart of global development, China will be a staunch upholder of the international order. As for the way of diplomacy, China seeks communication rather than confrontation, China seeks partnership rather than alliance. China pursues independent and peaceful foreign policies, defends its legitimate interests, dedicates to construct stable and balanced framework for relations with great powers.

After 18th National Congress of CPC, China has introduced proactive foreign policy away from the policy of “keeping a low profile and never taking the lead” set by Deng Xiaoping in the early 1990s. China’s emergence as the economic powerhouse is a shock for global economic order based on Bretton Woods system, the idea of new Bretton Woods system never has the chance to be tried. China realized that the current global economic order does not fit well for itself, the transition of global economic order should accommodate its needs. China’s notion of global governance is based on the principle of achieving shared growth through discussion and collaboration in engaging in global governance. China pledged to play its part in global governance, take an active part in reforming and developing the global governance system, and keep contributing Chinese wisdom and strength to global governance. One of the most important policy initiatives is the One Belt and One Road Initiative (Belt and Road Initiative, in short, BRI). This is regarded as the public goods that China provides for the world. The BRI is a comprehensive initiative, including political communication, policy coordination, infrastructure building, connectivity, trade and investment, financial integration and people-to-people exchange. The BRI is a geo-economic conception rather than a geo-political strategy. The BRI is not based on geopolitical rivalry, rather than it is based on economic cooperation, mutual trust and mutual benefit. If we examine the official discourse and narrative, geopolitics is beyond consideration. As one senior decision-maker for foreign policy pointed out in Boao Forum in 2014, “Chinese leaders have made it clear that in implementing the initiatives, China will uphold the spirit of ‘amity, sincerity, mutual benefit and inclusiveness’, which guide China’s diplomacy regarding its neighbors, and China will not interfere in other countries’ internal affairs or seek dominance over regional affairs or sphere of influence. The Belt and Road initiative is for open cooperation, with economic and cultural cooperation being the focus. They are not aimed at creating exclusive blocks or compromising existing multilateral mechanisms[xii]” The BRI is not intended to undermine and destabilize current global economic order. China as one of the beneficiaries of the globalization, strongly supports the globalization process, opposes different kinds of protectionism. President Xi’s speech at World Economic Forum last year showed that China is a strong supporter of free trade and economic globalization[xiii]. In essence, the BRI is the continuation of opening policy. The BRI may be regarded as China’s regional integration initiative with wide-ranging countries. The BRI is a loose, flexible arrangement, it contrasts sharply with the usually treaty-based or rule-based integration model. The AIIB and the Silk Road Fund are complementary to the global and regional multilateral development bank rather than substitutes. The new financial institutions established by China, for example, AIIB and Silk Road Fund operate under current global economic and financial order. The BRI is one of the most important initiative in the last 3 decades, if it is implemented adequately, it will shape the global economic order.

## CMR DA

### Link---CMR---1NC

#### Adoption of 5G fails – lack of training and soldier backlash causes fights

Brown & Scott ’22 [Leland and Anna, 2-2-2022, "Four strategies the DoD must consider to leverage 5G’s full potential," C4ISRNet, <https://www.c4isrnet.com/opinion/2022/02/02/four-strategies-the-dod-must-consider-to-leverage-5gs-full-potential/>, St. Mark’s, AM]

There may be significant adoption challenges for 5G technologies, both at the individual and organizational levels.

For instance, 5G will make extended reality (XR) viable in the field, but it will require soldiers to wear or carry cumbersome equipment. That could spur some backlash — after all, not many soldiers will likely want to wear a bulky augmented reality headset for eight to ten hours per day or during tactical operations. Equipment will need to get smaller and reduced to the optimal size, weight and power (SWAP). Soldiers will also need to train to understand that the benefits of using the equipment will ultimately overshadow the drawbacks, regardless of SWAP.

There will also be organizational cultural hurdles to overcome, particularly among IT teams that are used to doing things “a certain way” because they’ve proven reliable in the past. But 5G is rewriting those rules since it is combining the IT, applications and communication/network capabilities. This requires new skills, responsibilities and perspectives. The DoD must begin laying the groundwork today, start thinking of ways to train these individuals on the technology and work with them to ensure they are comfortable with the impending changes.

## DOD Tradeoff DA

### Link---1NC

#### Military 5G-networking is expensive, complex, and challenging.

John Keller 20, Editor-in-chief at the Military & Aerospace Electronics Magazine, 12/2/2020, "What 5G means to the military," Military Aerospace, <https://www.militaryaerospace.com/rf-analog/article/14188341/military-5g-communications>, RMax

Drawbacks and tradeoffs

High-band 5G signals, which will operate in the millimeter wave range, hold the brightest potential for new military capabilities, but the ability to operate in these frequencies will come at a price — namely the need to build many more fixed-site and mobile antennas and towers than today’s 3G and 4G cell services require.

“5G frequency bands do not penetrate walls very well, or rain or foliage very well,” says Persistent Systems’s Robenhymer. “The way it is architected you need a lot of towers, or radiators, in your office or home. It adds to the complexity of 5G, but it is still a limiting factor in coverage and the number of towers you would need.”

The stationary nature of most of the cell tower infrastructure may necessitate sizable investments in building new 5G towers — especially for the military, which must operate in challenging environments, such as the leading edge of the battlefield, in urban areas with terrain masking and multipath interference, in the air at various altitudes, and in the world’s oceans.

“Our customers are seeing the base stations for 5G that will operate at a significantly higher speed, but at shorter ranges,” says Curtiss-Wright’s Southworth. “The military will have to implement many more base stations to get the coverage they need.”

The military, especially, ultimately will need a new kind of mobile 5G infrastructure to ensure that the next-generation infosphere will be available wherever the military operates. “It’s a question of the reliance on these systems,” points out Persistent Systems’s Robenhymer. “That could be a problem unless we can cut the cord and really start moving these systems around.”

5G antennas must be complex designs. “All the 5G bands use multiple-element antennas,” says Pentek’s Hosking. “Each antenna is connected to its own transceiver; there are 64 elements — each of which is a small antenna itself, but arranged in a grid so they act in a phased array for beam steering.”

Designing the 5G antennas themselves in the small size and rugged packaging that the military needs also will be a challenge. “One of the key things in 5G is the ability to manage these antennas,” Hosking says. “You have to think about the dimensions of these 64-element antennas, because the space between the elements gets tighter as you go up in frequency. You could have an array in a fairly small area, but the electronics still must fit in that area. Getting the electronics of the transmit/receive antennas integrated into that space is a challenge.”

### Link---2NC

#### DoD 5G rollout is expensive

Keller 20 [John Keller is the chief editor at the Military & Aerospace Electronics news site; "Pentagon’s plan to help the nation stay ahead on 5G includes aggressive support for U.S. telecommunications"; 6-11-2020; Military Aerospace & Aerospace Electronics; https://www.militaryaerospace.com/communications/article/14177558/5g-military-telecommunications]//AShah

WASHINGTON – The U.S. Department of Defense (DOD) strategy for fifth-generation (5G) wireless technology does not mention China or any of its telecommunications companies by name, but it’s clear that the document was written with more than the U.S. armed forces in mind. Fedscoop reports. Continue reading original article

The Military & Aerospace Electronics take:

11 June 2020 -- DOD leaders see 5G broadband coverage as a critical strategic technology that private industry must develop aggressively with geopolitics in mind.

To help the U.S. telecommunications industry win the battle of the networks, the military has offered its bases as testing grounds for U.S companies and launched other programs to accelerate 5G development.

Several technical hurdles remain on the road to broad 5G deployment inside and outside the military: apportioning the bands of spectrum for 5G signals; building out extensive — and expensive — new network infrastructure; and having mobile devices that can support 5G’s speed and power.

#### DoD 5G implementation has to clear massive hurdles before successful implementation

Demarest 22 [Colin Demarest is a reporter at C4ISRNET, where he covers military networks, cyber and IT. Colin previously covered the Department of Energy and its NNSA — namely Cold War cleanup and nuclear weapons development — for a daily newspaper in South Carolina. Colin is also an award-winning photographer; "How the Pentagon is harnessing 5G for the future fight"; 5-10-2022; C4ISRNet; https://www.c4isrnet.com/battlefield-tech/it-networks/5g/2022/05/10/how-the-pentagon-is-harnessing-5g-for-the-future-fight/]//AShah

Hurdles to clear

Embracing 5G is not without risks. The Government Accountability Office in a 2020 report said 5G could introduce new paths for cyberattacks, exacerbate existing privacy concerns and face broader implementation challenges and expensive infrastructure costs.

## Politics DA

### Link---1NC

#### Plan decks PC---5G ignites fights and lacks political consensus.

Taylor ’19 (Margaret Taylor, senior editor and counsel at Lawfare, fellow in Governance Studies at the Brookings Institution, former Democratic Chief Counsel and Deputy Staff Director for the Senate Foreign Relations Committee (2015-2018). “What Congress Is (And Isn’t) Doing on 5G” 08/28/19 https://www.lawfareblog.com/what-congress-and-isnt-doing-5g) ☺

But it is doubtful that the 116th Congress will muster any [broad-based response](https://www.nytimes.com/2019/07/01/business/dealbook/huawei-5g-national-security-trade.html) that will materially change the trajectory of the United States’s deployment of 5G technology or the security of the network. Because 5G will remain a private-sector-led initiative in the United States, the government’s role is limited largely to debating regulatory issues. There is no broad consensus on whether or how federal regulation should preempt local regulations on sensitive local issues like infrastructure installation, nor any consensus on how to make available the resources necessary to bridge the financial gap so that rural areas in the United States get 5G coverage. And while most observers agree that the aggressive implementation of 5G by Chinese companies around the world poses serious security concerns for the United States, Congress is still holding out hope that simple moves like banning the Chinese company Huawei will solve the security problem. It will not.

More broadly, the reality is that adequate political will does not exist on Capitol Hill to tackle the complicated, multifaceted and resource-intensive issue of 5G in a meaningful way. In the current political environment, it may take a Sputnik moment—when the Soviet Union launched the first satellite into space, spurring the United States to redouble efforts to catch up in the space race—to capture the interest and concern of everyday Americans and, by extension, their elected representatives.

Meanwhile, the Trump administration has employed impressive rhetoric on 5G but has no real plan and lacks both leadership and interagency coordination on the issue. The executive branch is also making moves—like trying to reduce regulations at the local level and using the Chinese technology company Huawei as a tool in a trade war with China—that have uncertain outcomes and could end up hurting the effort to deploy 5G quickly and securely.

The 116th Congress will accomplish the minimum incremental steps needed to make the claim that Congress is doing something on 5G. But it likely will not unlock the resources needed to securely deploy 5G in the United States in a timely way or to assure a technological edge over international competitors on 5G. Instead, Congress’s principal achievements this year and next will be to provide oversight of the Trump administration’s actions related to 5G and lay the groundwork for serious consideration of this issue in 2021.

Background

Several [useful](https://www.nytimes.com/2018/12/31/technology/personaltech/5g-what-you-need-to-know.html) [primers](http://www.politico.com/sponsor-content/2018/11/5g-explained) have been published explaining what, exactly, 5G is and [why it poses new and different challenges](https://www.brookings.edu/research/5g-in-five-not-so-easy-pieces/) compared to older-generation networks. Mobile service providers are currently in the process of deploying 5G networks throughout the United States, and some providers have already launched 5G services in certain cities. Some telecommunications companies [estimate](https://www.wsj.com/articles/the-downside-of-5g-overwhelmed-cities-torn-up-streets-a-decade-until-completion-11561780801) the full rollout of 5G will take a decade or longer. The Congressional Research Service offers research on various [technical aspects](https://crsreports.congress.gov/product/pdf/IF/IF11251) of the 5G challenge as well as broader contextual [analyses](https://crsreports.congress.gov/product/pdf/R/R45485) for congressional consideration. Meanwhile, my Brookings colleagues have outlined a number of 5G challenges and opportunities, including how 5G could be used to [advance environmental sustainability](https://www.brookings.edu/research/achieving-sustainability-in-a-5g-world/?utm_campaign=Governance+Studies&utm_source=hs_email&utm_medium=email&utm_content=38469658) and help cities [manage scarce resources efficiently](https://www.brookings.edu/blog/techtank/2016/11/30/5g-technologies-will-power-a-greener-future-for-cities/), how 5G will [impact the future of health care](https://www.brookings.edu/blog/techtank/2016/07/14/how-5g-networks-can-shape-the-future-of-health-care/), and how 5G rollout [could impact communities of color](https://www.brookings.edu/research/enabling-opportunities-5g-the-internet-of-things-and-communities-of-color/) in the United States.

In addition, Lawfare has published multiple articles addressing the security challenges associated with 5G. Jim Baker [summarized](https://www.lawfareblog.com/5g-networks-must-be-secure-and-reliable) the situation:

5G promises to revolutionize how people use technology. From transportation to health care to entertainment, the way people interact with wireless internet devices will change substantially. And as 5G enables data to be transmitted much more quickly, the number of devices connected to the internet will likely explode, producing massive economic benefits for those who can quickly take full advantage of the new technology.

But 5G poses huge risks for society as well. As people become more dependent on wireless communications and generate even more data about what they are doing, the adoption of 5G will bring with it substantial national security, cybersecurity and privacy risks. These risks must be mitigated appropriately in order to protect the interests of the United States and its allies.

[Others](https://www.lawfareblog.com/huawei-and-managing-5g-risk) on Lawfare [debated](https://www.lawfareblog.com/risks-huawei-risk-mitigation) the [best way](https://www.lawfareblog.com/risk-mitigation-and-huawei-response) to manage the technical security risks presented by Huawei’s dominant position in 5G. My colleagues Tom Wheeler and Robert Williams [pointed out](https://www.lawfareblog.com/keeping-huawei-hardware-out-us-not-enough-secure-5g) that the Trump administration’s imposition of export restrictions on Huawei and other Chinese companies will not be sufficient to stem the security threat from China, and that the Trump administration has in fact killed or missed opportunities to increase the security of the network.

Congress began taking a serious look at 5G issues in 2018 and passed a number of laws in the prior Congress aimed at facilitating aspects of 5G—including, for example, laws aimed at making [more spectrum](https://matsui.house.gov/news/documentsingle.aspx?DocumentID=1752) (the range of radio waves used for communications purposes) [available](https://matsui.house.gov/news/documentsingle.aspx?DocumentID=1752) to telecommunications companies to support 5G. How countries make spectrum available to telecommunications providers plays an important role in how, and on what timeline, new networks and services are rolled out. In the United States, spectrum traditionally is auctioned to telecommunications providers, and the money goes to the U.S. Treasury.

Spectrum issues will be a perennial issue and will [continue to percolate](https://matsui.house.gov/news/documentsingle.aspx?DocumentID=1876). But Congress is also considering a range of other issues related to 5G and is weighing a range of approaches—some of which have more merit than others.

Bipartisan Pushback on Nationalization of 5G

In theory, government control of the 5G network could increase security and ensure that 5G reaches rural markets where there is currently little profit incentive for private industry to build infrastructure and provide services. Congressional responses to proposals to nationalize parts of the 5G network offer a window into the political aspect of the 5G issue.

The nationalization idea has been advanced twice, each time for a different reason. First, in early 2018, a [leaked National Security Council memo](https://www.axios.com/trump-team-debates-nationalizing-5g-network-f1e92a49-60f2-4e3e-acd4-f3eb03d910ff.html) proposed that the U.S. government pay to build a single 5G network—an unprecedented nationalization of private infrastructure—in order to compete with China and protect the system from malicious cyber actors. Second, in March 2019, Politico [reported](https://www.politico.com/story/2019/03/01/trump-campaign-5g-1230276) that Trump 2020 campaign officials supported a proposal—which reportedly “spark[ed] wireless industry fears of nationalization”—under which the government would take over spectrum designated for 5G and develop a system to share the spectrum with wireless providers on a wholesale basis. According to [Politico](https://www.politico.com/story/2019/03/01/trump-campaign-5g-1230276), this was a bid by Trump campaign officials to woo rural voters who have lacked adequate internet service in the absence of financial incentives for wireless companies to offer affordable broadband. The plan was [reportedly](https://www.fiercewireless.com/5g/confusion-reigns-trump-2020-s-5g-wholesale-vision) backed by Trump 2020 Campaign Manager Brad Parscale and Adviser [Newt Gingrinch](https://www.facebook.com/newtgingrich/videos/newt-live-the-american-5g-failure/2262549377351710/).

Congressional pushback was clear and bipartisan. Sens. Ted Cruz, R-Texas, and Catherine Cortez-Masto, D-Nev., twice introduced the thoroughly named [Eliminate From Regulators Opportunities to Nationalize The Internet in Every Respect (EFRONTIER) Act](https://www.congress.gov/bill/116th-congress/senate-bill/918/text?q=%7B%22search%22%3A%5B%22e+frontier%22%5D%7D&r=2&s=3). It would prohibit the president and federal agencies from constructing, operating, or offering wholesale or retail service on a broadband network “unless a duly enacted Act of Congress signed into law by the President provides the President or the agency … with that authority.” An [identical bipartisan bill](https://www.congress.gov/bill/116th-congress/house-bill/2063/text?q=%7B%22search%22%3A%5B%22e+frontier%22%5D%7D&r=1&s=3) was introduced on the House side. And [another](https://www.congress.gov/bill/116th-congress/senate-bill/893/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=3&s=2) [pair](https://www.congress.gov/bill/116th-congress/house-bill/2881/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=2&s=1) of bipartisan, bicameral bills calling for the Trump administration to produce a strategy report contains an explicit limitation that the report “shall not include a recommendation or a proposal to Federalize 5th or future generations mobile telecommunications systems or infrastructure.” Yet another [bipartisan Senate bill](https://www.congress.gov/bill/116th-congress/senate-bill/1625/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=1&s=1) is broader in scope but includes a statement that it is the policy of the United States that “the Federal Government should … support but not build or operate 5G networks.”

The pushback worked. Some commentators [speculated](http://fortune.com/2019/04/12/trump-ajit-pai-5g-wireless-auction-rural-internet/) that the real reason the administration hastily put together a 5G event in April 2019—purportedly to announce two Trump administration efforts to promote 5G—was so the president could publicly calm fears about nationalization. And Trump did, [stating at the event](https://www.whitehouse.gov/briefings-statements/remarks-president-trump-united-states-5g-deployment/), “In the United States, our approach is private-sector driven and private-sector led. Government doesn’t have to spend lots of money…. We had another alternative of doing it that would be through government investment and leading through the government. We don’t want to do that because it won’t be nearly as good, nearly as fast.” Bipartisan congressional opposition, along with opposition by the major telecommunications providers, seemed to have forced the president to publicly rebut his presidential campaign and state his position clearly.

Bipartisan Agreement About the Threats Posed by China

The most common issue addressed in proposed legislation is the challenge posed by China both as an economic competitor to the United States in the “race” to deploy and dominate 5G and as a national security espionage and cyberattack threat. China is the current leader in less expensive technologies for 5G and is likely to deploy the world’s first 5G wide-area network. According to the [Congressional Research Service](https://crsreports.congress.gov/product/pdf/IF/IF11251), Huawei has signed contracts for the construction of 5G infrastructure in around 30 countries, including U.S. allies like Turkey and Iceland. American companies, which lack the technology and the financial incentive to seek these contracts, are not currently joining the competition.

The 5G national security issue for the United States is [multifaceted](https://www.ft.com/content/8b48f460-50af-11e9-9c76-bf4a0ce37d49). In April, four former high-level military officials issued a [statement](https://www.lawfareblog.com/document-former-military-and-intelligence-officials-letter-5g-risks) expressing “grave concerns about a future where a Chinese-developed 5G network is widely adopted among our allies and partners.” The concerns were threefold: espionage, the security of future military operations, and the vulnerability of democracy and human rights around the world.

A number of legislative proposals have sought to articulate the problem. A bipartisan Senate [concurrent resolution](https://www.congress.gov/bill/116th-congress/senate-concurrent-resolution/10/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=11&s=2) states that “Chinese telecommunications companies such as Huawei and ZTE pose serious threats to the national security of the United States and allies of the United States” and that “the United States should reiterate to countries that are choosing to incorporate Huawei or ZTE products in their new telecommunications infrastructure that the United States will consider all necessary measures to limit the risks incurred by entities of the United States Government or Armed Forces from use of such compromised networks.” Among other things, it finds that “the United States should work with the private sector and allies and partners of the United States, including the European Union, in a regularized bilateral or multilateral format, to identify secure, cost-effective, and reliable alternatives to Huawei or ZTE products.”

Other bills seek to gather information about national security threats to 5G. The Senate Intelligence Committee’s authorization bill, [S. 1589](https://www.congress.gov/bill/116th-congress/senate-bill/1589/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=6&s=2), and the similar House bill, [H.R. 3678](https://www.congress.gov/bill/116th-congress/house-bill/3678/text?q=%7B%22search%22%3A%5B%22network%22%5D%7D&r=1&s=7), require the director of national intelligence to submit a report to Congress addressing “(1) the threat to United States national security posed by the global and regional adoption of fifth-generation (5G) wireless network technology built by foreign companies; and (2) the effect of possible efforts to mitigate the threat.” [Another](https://www.congress.gov/bill/116th-congress/senate-bill/987/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=4&s=2) [pair](https://www.congress.gov/bill/116th-congress/house-bill/2565/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=5&s=2) of bipartisan, bicameral bills, called the U.S.-China Economic and Security Review Act of 2019, address select 5G issues as part of a broader bill to address problems posed by the rise of China as identified by the [U.S.-China Economic and Security Review Commission](https://www.uscc.gov/sites/default/files/annual_reports/Executive%20Summary%202018%20Annual%20Report%20to%20Congress.pdf). One section requires the administration to submit an annual report to Congress on supply-chain vulnerabilities related to China, including an “assessment of the existing procurement and security policies and guidance of each Federal agency with respect to cybersecurity, operations security, physical security, information security, and data security that may affect information and communications technology, fifth generation mobile networks (commonly known as ‘5G networks’) and the Internet of Things.” Another section requires a one-time report from the Federal Communications Commission (FCC) and the Commerce Department on steps required to ensure the rapid and secure deployment of 5G networks in the United States, with a particular focus on the threat posed by equipment and services designed or manufactured in China, as well as information on any new statutory authorities that may be required to ensure the security of domestic 5G networks.

A pair of [bipartisan](https://www.congress.gov/bill/116th-congress/senate-bill/893/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=3&s=2), [bicameral](https://www.congress.gov/bill/116th-congress/house-bill/2881/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=2&s=1) bills sponsored by John Cornyn, R-Texas, in the Senate and Abigail Spanberger, D-Va., in the House, called the Secure 5G and Beyond Act of 2019, goes a small step further, requiring the administration to produce a strategy in six months that would: (1) “ensure the security of 5th and future generations mobile telecommunications systems and infrastructure within the United States”; (2) assist allies and strategic partners “in maximizing the security of 5th and future generations mobile telecommunications systems and infrastructure inside their countries”; and (3) “protect the competitiveness of United States companies, privacy of United States consumers, and integrity of standards setting bodies against political influence.” The bill outlines 17 elements to be included in the strategy, including a “description of such legislative or administrative action as may be necessary to carry out the strategy.”

A more comprehensive, bipartisan bill offers some concrete ideas. The [United States 5G Leadership Act of 2019](https://www.congress.gov/bill/116th-congress/senate-bill/1625/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=1&s=1), introduced by Sens. Roger Wicker, R-Miss., Mark Warner, D-Va., Tom Cotton, R-Ark., and Ed Markey, D-Mass., prohibits the purchase—from any of the universal service funds outlined in section 254 of the Communications Act of 1934 ([47 U.S.C. § 254](https://casetext.com/statute/united-states-code/title-47-telecommunications/chapter-5-wire-or-radio-communication/subchapter-ii-common-carriers/part-ii-development-of-competitive-markets/section-254-universal-service))—of communications equipment and services from Chinese companies, any other entity that poses a national security risk, and “any company that is subject to extrajudicial direction from a foreign government.” It also aims to subsidize smaller providers (6 million customers or fewer) with a new $700 million Supply Chain Trust Fund (funded from the sale of spectrum) to ensure that such providers are purchasing uncompromised equipment and services. It requires a one-time report from the administration on steps to ensure the secure deployment and availability of 5G networks and “any new statutory authority required to ensure the security of 5G networks in the United States.” Finally, it establishes a “joint program to share information regarding security, risks, and vulnerabilities with United States communication providers and trusted suppliers” including small businesses and companies serving rural areas and directs the prioritization of federal funds “to enhance representation of the United States at international forums that set standards for 5G networks and for future generations of wireless communications networks.”

Several other bills begin to address the particular security challenges that the Department of Defense will face if 5G networks are not secure. The Senate Armed Services Committee’s National Defense Authorization Act (NDAA), [S.1790](https://www.congress.gov/bill/116th-congress/senate-bill/1790/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=9&s=2), includes two sections that address 5G directly. Section 212 requires the secretary of defense to establish secure 5G wireless network components and capabilities “at no fewer than two Department of Defense installations.” One, at the Nevada Test and Training Range, would allow the Department of Defense “to explore and demonstrate the utility of using fifth-generation wireless networking technology to enhance combat operations.” A second installation would “explore and demonstrate infrastructure implementations of high bandwidth, scalable, and low latency fifth-generation wireless networking technology” and “[a]pplications for secure fifth-generation wireless network capabilities for the Department.” On the House side, the House Armed Services Committee’s NDAA, [H.R. 2500](https://www.congress.gov/bill/116th-congress/house-bill/2500/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=7&s=2), requires the secretary of defense to develop a strategy for harnessing 5G technologies to enhance military capabilities, maintain a technological advantage on the battlefield, and “accelerate the deployment of new commercial products and services enabled by 5G networks throughout the Department of Defense.” It proposes a $175 million increase in funds for such research.

One bipartisan bill in the Senate, introduced by Martin Heinrich, D-N.M., and Rob Portman, R-Ohio, focuses on training personnel in the Armed Forces in light of new technology challenges like 5G. [S.1471](https://www.congress.gov/bill/116th-congress/senate-bill/1471/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=8&s=2), the Armed Forces Digital Advantage Act, seeks to “promote and maintain digital engineering as a core competency of the Armed Forces” and charges the under secretary of defense for personnel and readiness to carry out “the recruitment, development, and incentivization of retention in and to the Armed Forces of individuals with aptitude, experience, proficient expertise, or a combination thereof in digital engineering.”

Finally, some bills address head-on the challenges posed by international economic competition. A Senate [resolution](https://www.congress.gov/bill/116th-congress/senate-resolution/259/text?q=%7B%22search%22%3A%5B%22AIRWAVES%22%5D%7D&r=1&s=1) “deems it a national priority for the United States to lead the world in the development and deployment” of 5G techology and “strongly urges all entities, including Federal agencies, to work cooperatively with the Federal Communications Commission to advance the goal of United States leadership in 5G technology, including at the upcoming World Radiocommunication Conference 2019.” Section 103 of the bipartisan [H.R.3407](https://www.congress.gov/bill/116th-congress/house-bill/3407/text?q=%7B%22search%22%3A%5B%225G%22%5D%7D&r=8&s=4) would require the Export-Import Bank to establish a Program on China and Transformational Exports specifically to support the extension of loans, guarantees and insurance to American companies that are fully competitive with how China and other countries that use subsidies to increase exports treat their domestic companies. The explicit aims are to “directly neutralize export subsidies for competing goods and services financed by official export credit, tied aid, or blended financing provided by the People’s Republic of China or by a covered country” and “advance the comparative leadership of the United States with respect to the People’s Republic of China, or support United States innovation, employment, and technological standards, through direct exports” in a number of areas, including “[w]ireless communications equipment (including 5G or subsequent wireless technologies).” [H.R. 3679](https://www.congress.gov/bill/116th-congress/house-bill/3679/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=1&s=2) directs the director of national intelligence, through the director of the Intelligence Advanced Research Projects Agency, to carry out a prize competition worth up to $5 million to competitively stimulate research and development relevant to 5G technology.

At this point, it is difficult to say which of these many bills may become law. The yearly NDAA is probably the most important single item to follow: Unlike smaller stand-alone bills, the NDAA will almost certainly become law.

Lack of Consensus on How to Address State and Local Impediments to Small Cell Deployment

The timely rollout out 5G in the United States faces significant hurdles. Rollout of 5G across the United States [could take a decade or longer](https://www.wsj.com/articles/the-downside-of-5g-overwhelmed-cities-torn-up-streets-a-decade-until-completion-11561780801?mod=mhp) due to a lack of investment in low-density areas as well as a lack of cooperation at the local level. The United States trails other countries, most notably China, in site density of 5G infrastructure. Many Asian countries already have far denser infrastructure for their 4G network and, as a result, have a head start on the density required for 5G. One Chinese company called China Tower has a total of approximately 1.9 million wireless sites in China, [compared to](https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf) a total of approximately 200,000 in the United States across all companies. China has installed 350,000 cell sites since 2015, whereas the United States has installed fewer than 30,000 during the same time period. That means China is deploying an average of 460 cell sites a day within the country—12 times the United States’s pace.

The importance of speedy deployment of 5G in the United States is the subject of some debate. Some observers [hold the view](https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf) that network effects—in which the value of a product or service is dependent on a high number of users—could grant a first-adopter sustained advantage and the potential to capture a greater share of the economic potential of 5G. Put another way, countries with the largest and most reliable networks will have a head start in developing the technologies enabled by faster speeds that can then be exported to other 5G markets. Others [make the point](https://www.brookings.edu/blog/techtank/2018/09/25/the-real-5g-race-is-to-serve-all-americans/) that the United States was not the first to roll out 1G, 2G, 3G or 4G but nonetheless is currently the world leader in the chips, operating systems and software applications that run on 4G; and that the United States should instead “race” to make 5G both secure and available to all Americans.

The arduous and intense installation requirements for 5G mean that many more workers—[including engineers, planners, trench diggers and antenna installers](https://www.wsj.com/articles/the-downside-of-5g-overwhelmed-cities-torn-up-streets-a-decade-until-completion-11561780801?mod=mhp)—will need to be trained in related skills if 5G is to take place in a competitive time frame. To address this problem, one bipartisan bill in the House, titled the [Communications Jobs Training Act of 2019](https://www.congress.gov/bill/116th-congress/house-bill/1848/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=10&s=2), focuses on educational training requirements to support 5G deployment and implementation. The bill amends the Communications Act of 1934 ([47 U.S.C. § 301](https://casetext.com/statute/united-states-code/title-47-telecommunications/chapter-5-wire-or-radio-communication/subchapter-iii-special-provisions-relating-to-radio/part-i-general-provisions/section-301-license-for-radio-communication-or-transmission-of-energy) et seq.) to require the FCC, in consultation with the secretary of education, to carry out a grant program to establish or expand job training programs in community, vocational and technical schools for communications tower service, construction, maintenance and structural modification. Whether this bill gains any traction remains to be seen.

But a far more important and controversial issue looms. There is a major question of how the United States’s federalist system will handle the challenge posed by the sheer volume and density of the infrastructure needed to fully deploy 5G. Under China’s system of government, there are no similar impediments based on local rules or control. If the rollout of 5G is a proxy for a great power competition between China and the United States, China has a distinct advantage in this regard.

Earlier generation technologies like 3G and 4G required the installation of large 200-foot cell towers spaced relatively far apart and were the subject of much regulatory oversight at the local level. 5G requires high-volume, pizza-box-sized small cells that are more compact but must be much more densely installed for 5G to achieve its full potential.

In September 2018, the FCC issued an [order](https://docs.fcc.gov/public/attachments/FCC-18-133A1.pdf) titled “Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment,” requiring localities to consider applications for siting of “small cell” equipment—a key component of 5G deployment—quickly and on a limited number of criteria. Twenty-five states refused to adopt the FCC’s rule. Generally speaking, these states oppose the preemption of state and local regulations, particularly state and local fees, time frames for cell-siting decisions, and aesthetic requirements. A number of municipalities [filed petitions for review](https://fas.org/sgp/crs/misc/LSB10265.pdf) in the U.S. Court of Appeals for the Ninth Circuit, alleging, among other things, that the FCC’s order exceeds the commission’s statutory authority. (Several mobile service providers, including AT&T, Verizon and Sprint, also filed petitions for review in federal appellate courts with various other complaints.)

While some members of Congress support the administration’s effort to cut through state and local regulatory frameworks to facilitate quicker 5G deployment, others oppose taking regulatory decision-making away from local officials. A January [House bill](https://www.congress.gov/bill/116th-congress/house-bill/530/text?q=%7B%22search%22%3A%5B%22Accelerating+Wireless+Broadband+Deployment+by+Removing+Barriers+to+Infrastructure+Investment%22%5D%7D&r=1&s=5) sponsored by 50 Democrats (no Republicans were involved) [aims to](https://eshoo.house.gov/news-stories/press-releases/eshoo-introduces-legislation-to-restore-local-control-in-deployment-of-5g/) restore local regulatory control in the deployment of 5G by causing the administration’s order to have “no force or effect.” Many localities are encouraging their representatives in Congress to support local control. Cities in Ventura County, [for example](https://www.vcstar.com/story/news/local/communities/conejo-valley/2019/05/31/ventura-county-ca-5-g-fcc-kamala-harris-dianne-feinstein-julia-brownley/1224775001/?mod=article_inline), are urging California Sens. Dianne Feinstein and Kamala Harris to introduce their own legislation or support the House bill.

### Link---2NC

#### Congresspeople are skeptical of 5G, and a bill to revoke rollout received widespread support– cite health concerns.

PST ’19 (Physicians for Safe Technology, group of physicians and health professionals whose mission is to provide trusted leadership in promoting healthy and safe environments, run by advisory board of individuals with M.D.s and PhDs. “Senator Blumenthal Blasts FCC and FDA For No Research on 5G Safety” 02/13/19 https://mdsafetech.org/2019/02/13/no-research-on-5g-safety-senator-blumenthal-question-answered/) ☺

At a Senate Commerce, Science and Transportation Committee Hearing Feb 6, 2019, Connecticut Senator Blumenthal finally got the answer to a question that he and Congresswoman Eshoo directed to Federal Communications Commissioner Carr in a letter December 3, 2018. They asked, “We respectfully request you provide to our offices the 5G safety determination from FCC and relevant health agencies that you referred to during the field hearing.” Although Blumenthal and Eshoo did receive a letter from the FCC Dec 17, 2018, it had no mention of 5G safety testing,

Winning the Race To 5G But Flying Blind on Health and Safety

Later, at a Senate Commerce Committee meeting, “Winning the Race to 5G and the Next Era of Technology Innovation in the United States”, Senator Blumenthal brought up the question of scientific evidence of the safety of 5G. He stated, “I believe that Americans deserve to know what the health effects are. Not to prejudge what scientific studies may show. They deserve also a commitment to do the research on outstanding questions….How much money has the industry committed to support independent research?…has any been completed… on the biological effects of this new technology?” Industry representatives replied, “There are no industry backed studies to my knowledge right now.” Senator Blumenthal replied, “ so, we are flying blind here on health and safety”. There was no mention of public safety or environmental concerns aside from that brought up by Senator Blumenthal. The lengthy but enlightening full video of the Senate Commerce Committee meeting is here.

Industry Pushing 5G Next Generation Technology for Citizens and Military Operations

The Feb 6 Commerce Committee meeting was focused on “key steps to maintain U.S. global leadership in next-generation communications technology, spectrum needs to accelerate deployment, and new applications and services consumers can expect with 5G deployments.” The hearing also examined current efforts to modernize infrastructure siting policies and the security of 5G networks to grow the digital economy, described as a “trillion dollar opportunity”. It was mentioned that 5G with quantum computing and artificial intelligence is needed to unleash the national agenda including national defense. Ms Cantwell stated early in the meeting, this will “will reshape the economy of the future” and “change our modern warfare creating military advantages through integrated military operations.” She also expressed deep concern for cybersecurity issues with this technology.

Background: FCC Pushes Industry Agenda to Fast Track “Small Cell “ Towers

The FCC has issued Policy Ruling FCC 18-111 to speed deployment of “small cells” which went into effect January 14, 2019 and required cities to update their wireless facilities siting policies to allow for administrative permits only for “small cells”, not the usual careful process for placement that requires planning commission and city council hearings. The FCC Ruling allows batched permits (dozens of permits), a rapid turnover for approval of 60-90 days and a cap on what cities could charge for rent per pole of $250 annually. The telecommunications industry says it will save about $2 Billion but the cities state it will be taking away that money needed for vital city infrastructure.

Congress Pushes Back on FCC Federal Preemption with Eshoo HR530

Congresswomen Anna Eshoo and Speier introduced HR 530 to revoke the FCC Order and Ruling order. There are now 49 Co-Sponsors for the bill: Speier (CA), Bonamici (OR), McGovern (MA), Swalwell (CA), Suozzi (NY), Grijalva (AZ), Blumenauer (OR), DeSaulnier (CA), Huffman (CA), Thompson (CA), Pingree (ME), McNerney (CA), McCollum (MN, Cohen (TN), Ryan (OH), Doggett (TX), Bass (CA), Khanna (CA), Cisneros (CA), Engel (NY), Panette (CA), Omar (MN), Lofgren (CA), Levin (MI), Carbajal (CA), Lee (CA), Schakowsky (IL), DeFazio (OR), Neguse (CO), Rice (NY), Brindisi (NY), Cox (CA), Aguilar (CA), Crow (CO), Hill (CA), Lieu (CA), Ocasio-Cortez (NY), Craig (MN), Royal-Allard (CA), Gonzales (TX), Casten (IL), Velasquez (NY), Deutch (FL), Garcia (IL), Espaillat (NY), Norton (DC), Pappas (NH), Moore (WI), Brownly (CA)

Senator Elaine Morgan of Charleston, Rhode island supports a commission to review potential health impacts.

#### 5G causes local turf wars that sap capital and anger constituents.

Mims ’19 (Christopher Mims, Technology Columnist at the Wall Street Journal, won a SABEW award for commentary, has written a book, “Arriving Today” on how supply chains work. “Cities Are Saying No to 5G, Citing Health, Aesthetics—and FCC Bullying” 08/24/19 <https://www.wsj.com/articles/cities-are-saying-no-to-5g-citing-health-aestheticsand-fcc-bullying-11566619391>) ☺

Jack Tibbetts, a member of the Santa Rosa, Calif., city council, knew he had a problem. It was early 2018, and he’d started getting calls from constituents at opposite ends of the political spectrum. The common thread: cellular antennas going up next to their homes, causing concerns over property values and health.

The weight of evidence suggests that if radio-frequency emissions have any effect on humans at all, it is, [according to the World Health Organization](https://www.who.int/news-room/fact-sheets/detail/electromagnetic-fields-and-public-health-mobile-phones), about on par with other [“possibly carcinogenic” substances](https://www.iarc.fr/wp-content/uploads/2018/07/Monographs-QA.pdf), including coffee and pickles. The Federal Communications Commission, citing input from the Food and Drug Administration, [recently declared](https://www.fcc.gov/document/chairman-pai-proposes-maintain-current-rf-exposure-safety-standards) that existing limits on the amount of radio-frequency energy these antennas put out make them safe. A senior FCC official said there is nothing unique to 5G networks that poses additional health risks.

None of this has stopped the social-media-fueled conspiracy whirligig that allows health scares to thrive on the internet.

Cities and towns throughout Northern California are issuing ordinances that would exclude new 5G cell sites from residential areas, [citing supposed health concerns](https://www.sfgate.com/local/article/mill-valley-5g-antenna-tower-cell-phone-block-13221925.php). Residents of Portland, Ore., and Whitefish, Mont., have also cited these beliefs while lobbying for restrictions. Legislators in four states [including New Hampshire](https://trackbill.com/bill/new-hampshire-house-bill-522-establishing-a-commission-to-study-the-environmental-and-health-effects-of-evolving-5g-technology/1630657/?fbclid=IwAR28psMtRFU7mBGMmA8SKxoS0AIkf8LzcQR7e7vO_MiifUzs0N4GfUNcLC4) have proposed bills that would mandate further study of health effects or else urge Congress to do so, and Congressman Thomas Suozzi (D., N.Y.) wrote to the FCC [echoing these concerns](https://c-4tvylwolbz88x24kvjzx2emjjx2envc.g00.cnet.com/g00/3_c-4ddd.jula.jvt_/c-4TVYLWOLBZ88x24oaawzx3ax2fx2fkvjz.mjj.nvcx2fwbispjx2fhaahjotluazx2fKVJ-024397H2.wkm_$/$/$/$?i10c.ua=1&i10c.dv=24).

For Mr. Tibbetts, it didn’t matter whether or not these new “small cell” antennas—which are used for 4G networks but can be upgraded for 5G—going up in Santa Rosa were actually dangerous. Some were attached to utility poles a mere 20 feet from people’s bedroom windows, and residents complained Verizon had put them up without notifying them. What mattered was that his constituents didn’t want these ungainly chunks of public infrastructure anywhere near them.

“I don’t like the idea of someone being in their home and it’s supposed to be a place of security, and they are having that feeling of insecurity,” Mr. Tibbetts says. “I won’t be surprised if in 10 years there’s no evidence of cancer from these towers, but my job is not to protect Verizon, it’s to protect people in their houses.”

Whatever the basis for residents’ objections to new cell towers, Mr. Tibbetts—as well as countless mayors, governors and council members across the country—have little or no power under current rules to act on their constituents’ wishes. Nor do they have the leeway they once did to set pricing for cell sites, a lucrative source of funding for civic initiatives. Those who do take action are creating ordinances that put their cities at risk of being sued by the telecoms, as happened this month [in Rochester, N.Y.](https://www.scribd.com/document/421597227/Verizon-Lawsuit-Against-City-of-Rochester#from_embed)

Billed as the key to the future—of telecommunications, of global competition, of innovation and even of municipal infrastructure—5G has instead become a bone of contention. In addition to upgrading existing towers, it will require an estimated half-million new towers and small-cell sites on utility poles, lampposts and buildings. Experts also anticipate a long rollout period, potentially of a decade or more.

Most cities want 5G, but they don’t want to be told how, when and at what cost. Rules the FCC has already passed, meant to expedite 5G’s rollout, might well be creating acrimony that serves to do the exact opposite.

“My personal reason for doing this is I believe that humanity is threatened,” says Sandi Maurer, a member of the activist group EMF Safety Network, which lobbies to reduce people’s exposure to electromagnetic fields.

Partly as a result of such activism, many towns in Marin County, Calif., have passed ordinances or resolutions that limit 5G cell sites in residential areas. Towns like Mill Valley specify zones where towers aren’t permitted, and may also require them to be a certain distance from each other. In 2018, Verizon withdrew its application to install two small cells in Sebastopol, Calif., rather than sue the city or refer the matter to the FCC.

But since then, the FCC has rolled out its [5G Fast](https://www.fcc.gov/5G) plan requiring cities and states to approve new 5G antennas within 60 or 90 days. It also limits what government leaders can charge carriers for the real estate on which the new infrastructure will hang—be it a utility pole, streetlight or even building facade.

Carriers love this plan. A spokesman for AT&T [referred to a statement](https://www.attpublicpolicy.com/5g/att-applauds-administration-for-commitment-to-maintaining-u-s-leadership-in-5g/) lauding the FCC’s new rules, saying they “will help ensure that, through tried and true free-market incentives, all Americans no matter where they live will enjoy the benefits of jobs, investment, and economic growth this new technology will foster.” A Verizon spokesman said, “We’re looking for reasonable access and reasonable prices so that we can deploy 5G effectively and promptly to communities and the people who live and work in them.”

FCC chairman Ajit Pai and President Trump [have both said](https://www.wsj.com/articles/u-s-moves-to-accelerate-5g-rollout-in-race-with-china-11555105017?mod=article_inline) that widespread deployment of next-generation 5G wireless networks is critical to winning the race with China. A spokesman for the FCC referred to [previous statements](https://docs.fcc.gov/public/attachments/DOC-353230A1.pdf)by the agency: “To enable broadband providers to enter new markets and deploy high-speed networks, access to poles must be swift, predictable, safe and affordable.”

City leaders say their power to zone and regulate infrastructure is being abridged. More than 90 cities and counties have joined together in a lawsuit, currently before the Ninth Circuit Court of Appeals, arguing that the FCC has overstepped its authority. A decision could happen as early as in the spring, but it could also take much longer.

# Counterplans

## Unilateral CP

Note: less solvent for Advantage 2 (Military 5G) – best if paired with NATO bad.

### Unilateral CP---1NC

#### Text: The United States federal government should establish a 5G architecture for dynamic spectrum sharing using artificially intelligent cognitive radio resource allocation.

#### Spectrum sharing is key to winning the tech race and securing 5G – creates an American alternative through innovation which solves globally

O’Brien & Herman ’21 [Robert C. and Arthur, O’Brien is the co-founder and chairman of American Global Strategies, and he was the 28th U.S. national security adviser from 2019-2021, Herman is a senior fellow at the Hudson Institute, and co-chair of Hudson’s Alexander Hamilton Commission on Preserving Our Defense Innovation Base, 12-15-2021, "To compete with China in 5G, America must solve its spectrum problem," Hill, <https://thehill.com/opinion/technology/585662-to-compete-with-china-in-5g-america-must-solve-its-spectrum-problem/>, St. Mark’s, AM]

The next generation of wireless network, 5G, has arrived and is being rolled out around the world, including in communities across the United States. As demonstrated by the fierce competition from Huawei — the Chinese telecom-equipment giant that is leading China’s 5G effort and has been a pernicious security threat — the U.S. lead in this critical technology is not guaranteed.

Today only eight countries have been willing to join the American ban on Huawei’s 5G equipment, compared to the 90-plus countries that have signed up with Huawei, including NATO members Hungary, Iceland, the Netherlands and Turkey, as well as Saudi Arabia and the United Arab Emirates (UAE). A principal reason why the United States has had trouble persuading countries not to use the Chinese telecom giant is that we have not offered a viable American alternative.

Washington must establish a 5G architecture that recognizes the need for stable usage of spectrum across industries, expands wireless coverage to the entirety of the United States (including rural areas), and encourages the domestic production of key components such as semiconductors, while also protecting the privacy and security of its users. Above all, that architecture must cover a wide range of spectrum options, from high-end, very short wavelength (24-100gHz), to mid-band and low band (less than 1 gHz), including the C Band and sub-3 gHz spectrum where China and Huawei have staked their claim to 5G dominance.

In short, how the U.S. approaches access to the spectrum required to operate successful 5G networks will do much to determine the ultimate outcome of this technological competition with China.

The economic case for embracing the 5G revolution is clear. The growth of wireless connectivity has produced real economic gains, far beyond simply the telecommunications sector. The wireless industry supports over 4.7 million jobs and contributes over $475 billion to the economy each year. Analysts project that increased 5G deployment will add $1.4 trillion to the GDP and create at least 3.8 million jobs in the next decade.

Yet, one of the principal issues holding back U.S. dominance in this emerging field is a policy failure on the issue of spectrum. After much discussion and analyses across the U.S. government, the verdict is in: Operating a wireless communications system in different bands avoids conflict with other systems, provides maximum effectiveness to 5G networks, and provides the best balance to support further innovation in a sector where the United States must remain predominant.

The Federal Communications Commission (FCC) has decided to make spectrum available across the high, mid, and low bands. With many countries limiting the use of spectrum for 5G, the FCC has taken steps to provide the U.S. wireless industry with both high- and mid-band spectrum and determined that the regulated use of existing low-band spectrum would not interfere with legacy systems such as GPS.

Additionally, the FCC recently voted unanimously to make the 6 GHz band available for unlicensed use, opening up 1,200 megahertz of spectrum. This decision will help increase connectivity at a time when we need it most, especially in rural areas that have been particularly hard-hit by a lack of connectivity during the pandemic. Given the intense demand for spectrum, policymakers should not shy away from encouraging government spectrum users to share their resources. As FCC Commissioner Michael O’Reilly recently observed, the United States needs significant quantities of spectrum to lead the world in 5G. With the federal government owning substantial amounts of spectrum, we must be creative in expanding access to the bandwidth needed to bring 5G to consumers and innovators.

At the same time, sharing spectrum will require protecting data and networks from unwarranted intrusion and attack, including future large-scale quantum computer attacks. Quantum-safe encryption of data and networks must also be part of an American-led 5G effort — which also will enhance competitiveness with companies such as Huawei.

The U.S. cannot afford to wait while others, especially the Chinese Communist Party, determine international policy on telecommunications technology.

### Solvency---2NC

#### Creating a credible alternative solves – causes allied buy-in and solves globally

Sacks ’21 [David, 3-29-2021, "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>, St. Mark’s, AM]

While the U.S. pressure campaign has had some success, it is likely meeting its limits. The threat of the loss of intelligence sharing and security partnerships is unlikely to persuade countries that are not formal allies or close security partners with Washington.

Moreover, the United States has been unable to persuade all of its allies to avoid Huawei. The company is involved in 5G networks in NATO members Hungary, Iceland, the Netherlands, and Turkey. Some of the United States’ closest partners in the Middle East, including Saudi Arabia and the United Arab Emirates, are also using Huawei.

A principal reason that the United States has not had more success in persuading countries not to use Huawei equipment is that it cannot offer an alternative. The United States does not and will not have a company that is competitive in the full stack of 5G equipment.

#### Spectrum sharing is key to winning the tech race and spurring innovation

Cohen ’19 [Rachel S., 7-1-2019, "Huawei, Spectrum, Global Competition, and the Future of 5G," Air Force Magazine, <https://www.airforcemag.com/article/huawei-spectrum-global-competition-and-the-future-of-5g/>, St. Mark’s, AM]

Most mobile communication today takes place at spectrum bands below 3 GHz, according to mobile technology chipmaker Qualcomm. But 5G wireless networks in the US will operate in the millimeter-wave band, between 30 GHz and 300 GHz, a part of the spectrum set aside for this use in this country, but not worldwide.

This issue is at the center of today’s struggle between the US and China over 5G technology and the role played by Chinese telecommunications technology provider Huawei.

In the millimeter-wave band, signals do not propagate well over long distances, which poses a problem: While acceptable for dense urban and crowded indoor areas, where positioning additional antennae is relatively easy, the higher frequencies are ill-suited to open areas where frequent placement of antennae is impractical. There, bands below six GHz (“sub-6”) are more effective.

The trouble is, that spectrum isn’t available in the US for general commercial use—it’s reserved for the Defense Department. DOD must now determine if and how to share it with commercial users.

Some suggest the military should focus on higher bands. “Access to the 5G millimeter-wave bandwidth will be critical to operations in all warfighting domains, in particular, space C2,” wrote Air University scholars in a 2018 report. “[Electromagnetic spectrum] experts assess that 5G market share could be ‘locked up’ by US competitors in under three years with no second chances to enter the race.”

The Defense Innovation Board, however, came to a different conclusion. It called DOD’s focus on millimeter-wave spectrum “fundamentally flawed” and “impractical.”

“The United States may choose to continue down the path of mmWave, but the rest of the world is focused on building out sub-6 infrastructure, with China in the lead,” the DIB wrote. “Although mmWave components are typically more compact than sub-6 components, mmWave requires many more base stations positioned within close proximity of one another to maintain connection (and even then, there is still the risk that interference such as objects moving in front of the base station or weather will interrupt the connection).”

The board pointed to a 2010 broadband plan that could offer a blueprint for sharing the sub-6 part of the spectrum with non-DOD users by giving DOD priority access while allowing commercial users access when that spectrum is not in military use.

The DIB raised concerns that crowding sub-6 could reduce system performance and create vulnerabilities, and that tools built for certain parts of the spectrum would not be compatible with tools built for the others.

“In the current 5G competition, neither DOD nor the United States writ large is in a position to dictate the content and integration of the 5G supply chain—our focus on building a mmWave 5G ecosystem leaves us out of the global supply chain for the sub-6 5G ecosystem,” the DIB wrote. “This mismatch will create serious security risks for DOD going forward if the rest of the world accepts Chinese products as the cheaper and superior option for 5G.”

The DIB issued three public recommendations and one classified suggestion to DOD for moving forward on 5G.

First, come up with a plan for sharing parts of the sub-6 GHz spectrum that lays out how much—and which—bandwidths should be shared, when, and how it may affect DOD systems. Stop focusing on the more limited mmWave and instead think about how to coexist with civil operations on the 5G network. Prioritize moving to the most developed bands to make the jump faster.

“5G capability requires larger bands of spectrum, and without that additional bandwidth, the United States will not gain true 5G capability beyond the limited range that mmWave can provide,” according to the DIB. “In the next year, DOD is in the position to enable or inhibit 5G adoption in the United States based on its use of sub-6 GHz spectrum.”

Second, the report predicts the US will likely lose wireless network dominance. DOD should funnel research and development funds toward system security and resiliency, including testing and experimenting on technology past 5G, and must assume that all network infrastructure could be hit by cyberattacks.

Third, the DIB wants DOD to advocate for a stronger supply chain that is rewarded for its security and punished with heavy tariffs when faults are discovered. The DIB said the “Five Eyes” intelligence-sharing partners (the US, UK, Canada, Australia, and New Zealand) and NATO should adopt the same tariffs, and allies need to protect their own industrial bases as well.

Notably, the DIB predicts the move to 5G could also increase the likelihood of offensive cyber operations as defense gets harder.

Ready or not, 5G is coming—and the Pentagon’s innovation advisers aren’t entirely optimistic.

“Gaining a competitive edge over China [in sub-6] would require action at a rate and magnitude previously unseen within DOD,” the DIB warned. “For this reason, it is probable that most of the world outside of the United States will adopt a sub-6 5G solution, forcing DOD to operate on a ‘post-Western’ wireless ecosystem.”

### Solvency---Tech---2NC

#### 5G fails absent the counterplan – sub-6 is key to the global market

Medin & Louie ’19 [Milo and Gilman; Medin is the vice president of wireless services at Google and a member of the Defense Innovation Board; Louie is the founder of Alsop Louie, the founder and former CEO of In-Q-Tel, and an advisor to the Defense Innovation Board, 4-3-2019, “The 5G Ecosystem: Risks & Opportunities for DoD,” Defense Innovation Board, <https://media.defense.gov/2019/Apr/03/2002109302/-1/-1/0/DIB_5G_STUDY_04.03.19.PDF>, St. Mark’s, AM]

Spectrum will play a key role in the operation, development and roll-out of 5G. Peak data rates are driven by the amount of spectrum that is available to a wireless service. In 4G, up to five 20 MHz channels can be bonded together. But in 5G, up to five 100 MHz channels can be bonded together, enabling speeds approximately 20x faster than 4G and 4G LTE. While some 5G technology will be deployed in the currently-used cellular spectrum and achieve modest gains in performance (LTE is already fairly well optimized), full 5G development will require significantly more spectrum to provide another step-change improvement in performance for consumers, DoD or otherwise. Countries are pursuing two separate approaches to deploy hundreds of MHz of new spectrum for 5G. The first focuses on the part of the electromagnetic (EM) spectrum below 6 GHz (“Low- to Mid-Band Spectrum,” also referred to as “sub-6”), primarily in the 3 and 4 GHz bands. The second approach focuses on the part of the spectrum between ~24 and 300 GHz (“High-Band Spectrum,” or “mmWave”), and is the approach taken by the United States, South Korea, and Japan (although all three countries are also exploring sub-6 to various degrees). U.S. carriers are primarily focused on mmWave deployment for 5G because most of the 3 and 4 GHz spectrum being used by the rest of the world for 5G are exclusive Federal bands in the United States, extensively used by DoD in particular. The question of spectrum allocation is at the heart of the 5G competition, for the spectrum band of choice, whether sub-6 or mmWave, impacts nearly every other aspect of 5G development. Spectrum bands in the 3 and 4 Ghz range dominate global 5G activity because of improved propagation (range) over mmWave spectrum, resulting in far fewer base stations needed to be deployed to deliver the same coverage and performance. Because large swaths of the sub-6 bands in the United States are not available for civil/commercial use, U.S. carriers and the FCC (which controls civil spectrum in the US) are betting on mmWave spectrum as the core domestic 5G approach. U.S. carriers may continue to pursue mmWave, but it is impossible to lead in the 5G field without followers. Leadership in wireless networks requires the global market to subscribe to and build to the specifications of the leader’s spectrum bands of choice, as these 5G subcomponents and products will ultimately drive interoperability across networks. The rest of the world does not face the same sub-6 spectrum limitations as U.S. carriers, and is subsequently pursuing 5G development in that range. As a result, the United States may find itself without a global supply base if it continues to pursue a spectrum range divergent from the rest of the world. If the future 5G ecosystem adopted by most of the world is built on the sub-6 mid-band spectrum, the United States will also be faced with mmWave device interoperability challenges and sub-6 infrastructure security concerns. As sub-6 becomes the global standard, it is likely that China, the current leader in that space, will lead the charge. This would create security risks for DoD operations overseas that rely on networks with Chinese components in the supply chain. Even if the United States were to restrict use of Chinese equipment suppliers domestically, the United States is not a big enough market in wireless to prevent China’s 5G suppliers from continuing to increase market share globally, resulting in significant pressure on a declining set of vendors that would serve the U.S. market. These vendors will in turn be unable to invest R&D towards future 5G offerings due to decreasing market share, limiting the number of competitive products and depriving DoD and U.S. industries of better and cheaper global supply chains. China plans to deploy the first widespread 5G network, with its first set of sub-6 services becoming available in 2020. First-mover advantage will likely drive significant increases in their handset and telecom equipment vendors market along with their domestic semiconductor and system suppliers. As a result, Chinese internet companies will be well-positioned to develop services and applications for their home market that take advantage of 5G speed and low latency. As 5G is deployed across the globe in similar bands of spectrum, China’s handset and internet applications and services are likely to become dominant, even if they are excluded from the US. China is on a track to repeat in 5G what happened with the United States in 4G.

### Solvency---DOD---2NC

#### DSS solves DoD readiness and private innovation

Mitchell ’22 [Billy, 4-11-2022, "The importance of spectrum sharing to the future of war," FedScoop, <https://www.fedscoop.com/the-importance-of-spectrum-sharing-to-the-future-of-war/>, St. Mark’s, AM]

As the U.S. prepares for future conflict that will likely largely hinge on accelerating decision-making with data and modern technologies like artificial intelligence, it’s necessary that the Department of Defense has a system for dynamic spectrum sharing in place to facilitate that rapid flow of data, said one of the DOD’s top IT officials.

There’s much talk about how 5G mobile networks can speed data flow to enable AI and machine learning applications for the DOD; but before that can happen on a large scale, the department is going to have to find a way to share the limited existing electromagnetic spectrum dedicated to 5G with other commercial and non-defense industries, Dr. Kelly Fletcher, principal deputy CIO of the DOD, told FedScoop in an interview.

“As an American consumer, I’m really excited to have 5G. I’m excited to have it on my smartphone, on the weekend when I’m milling around my city. And we at DOD really, really want to enable that,” Fletcher said. “We really want folks here at home to be able to use 5G. And I really want to use 5G for our military folks, we want to provide it to them. But for all of this to work, we’re going to have to move into dynamic spectrum sharing.”

That means, in some cases, no one will outright own a piece of the spectrum. Instead, different entities will share it so as to not hamstring one another. The DOD is already experimenting with different structures and technologies to accomplish this in a smooth way in which it has freedom of action across the electromagnetic spectrum to support its network needs within the Joint All Domain Command and Control (JADC2) concept of operations.

### Solvency---AI/CR---2NC

#### CR solves 5G optimization through reallocation of spectrum – reconfigurability ensures interoperability

Ahmad et. al ’20 [Wan Siti Halimatul Munirah Wan, Ahmad is a Postdoctoral Researcher at Multimedia University in Malaysi, January 2020, ”5G Technology: Towards Dynamic Spectrum Sharing Using Cognitive Radio Networks,” <https://www.researchgate.net/publication/338559590>, St. Mark’s, AM]\*SS = Spectrum Sharing, CR = Cognitive Radio, PU/SU = Primary/Secondary User

IV. PROMISES OF COGNITIVE RADIO CR technology is one of the promising technologies that enable open SS for 5G. This emerging technology can satisfy the strict spectrum requirement of 5G networks. It has cognitive potential, is reconfigurable and its transmission parameters can be adjusted according to environment characteristics. The functions of CR include spectrum sensing, management, mobility and sharing. Spectrum sensing is a key function to detect the unused spectrum (spectrum hole). Spectrum hole is the temporary space-time-frequency that exists, is not used by any PU or SU and changes according to the time and place [77]. Spectrum management is utilised to determine the best channel for establishing communication based on user necessities. Spectrum mobility moves the spectrum with a low priority to the next vacant channel whenever PU is not in range. SS distributes the spectrum amongst SUs accordingly. The handover procedure for CRN was described in detail by [71] as follows. Upon the arrival of PU, SU has to vacate the occupied channel and is forcibly terminated. A method called fraction guard channel assignment performs this task, resulting in throughput increment of unlicensed users. However, the value cannot be attuned effectively. Four metrics were identified by [111] to present the performance of shortterm and long-term spectrum handover. The metrics are link maintenance probability, number of spectrum handover, switching delay and non-completion probability. The complete CR cycle is shown in Figure 9. A survey on cognitive and cooperative SS schemes was performed by [87], with focus on enhancing spectral and energy efficiency in a cost-effective manner. The approaches to SS were discussed from two perspectives: economic marketing perspective, which emphasises spectrum trading, spectrum leasing and multi-tier spectrum trading and leasing, and cross-layer technical implementation perspective, which discusses spectrum mobility, spectrum relaying, spectrum routing and spectrum harvesting. The buying and selling process and exchanging the rights to the radio spectrum are collectively known as spectrum trading, which also enhances the utilisation of the radio spectrum. SS based on game theory is one of the market-driven spectrum trading schemes. Spectrum leasing is the act of leasing parts of the bandwidth by the PU who owns a given licensed spectrum bandwidth to SUs in exchange for economic revenue or technical cooperation. Multi-tier spectrum trading and leasing were proposed in [87]. They have different tiers (upper, medium and low) to represent long, medium and short terms, respectively. In CRN, spectrum mobility enables the suspension of SU's transmission to vacate the channel in order for PU to reclaim its licensed channel that has been temporarily leased to SU. The main aim is to guarantee the QoS and performance of PUs and SUs during the switching process. The ongoing data transmission of the SU must be transferred from the current channel to an alternative free channel via a process known as spectrum handoff. In spectrum mobility, PU has a higher priority than SU. Thus, SU must immediately vacate the licensed channel once it causes interference. The SU may experience spectrum mobility due to the degradation of link quality. Spectrum relaying can be enabled with relay-assisted protocol for spectrum mobility in CRN, where each SU has more than one connection path to the BS through dynamic spectrum relaying. In wireless communication, spectrum routing is a series of channel switching decisions by TVWS sharing subscribers when they foresee channel availabilities. Meanwhile, spectrum harvesting is a new idea for CRN, where SS occurs between PUs and cognitive users as the SUs. To maximise spectrum utilisation, a new service provider dedicated for SUs was introduced; it harvests the available spectrum bands with CR capabilities. Spectrum access for dynamic sharing models is categorised as common, shared use and exclusive use. For CRs, the most promising model for satisfying the spectrum needs of users is the exclusive-use model with spectrum trading solutions, such as game theory, market equilibrium, classical optimisation and their hybrid. The overview of the said trading model together with its features, limitations, feasibility and stability of the pricing solution was presented by [17]. Service provisioning challenges, such as providing channel access opportunities for new service requests and guaranteeing continuous connections for ongoing flows until service completion, exist in wireless networks. These challenges can be addressed with the Dynamic Channel Reservation (DCR) algorithm and Dynamic Spectrum Access (DSA) scheme with three access privilege variations to explore the advantages of channel reservation in performance improvement in error-prone channels [112]. DCR is used to reserve a dynamically adjustable number of channels for uninterrupted services to maintain service retainability for current users. Alternatively, it is also used to enhance channel availability for new users. The DSA scheme has a DCR algorithm embedded in it to enable spectrum access for PUs and SUs based on their licensed shared access. In addition, the DSA scheme is utilised to investigate the performance of CRN in homogeneous and heterogeneous channel failures by using the continuous-time Markov chain model. CR is known to create opportunities for SUs to use spectrum holes or white spaces that are not being used by PUs, but the main challenge is to recognise without fail the specific time and location of spectrum hole existence [80]. Previously, CR-based SS used opportunistic PU-SU access in unlicensed bands (such as TVWS) only, but the 5G requirement demands for sharing of both licensed and unlicensed bands. A new E-CRN based on SS and spectrum aggregation for 5G was introduced by Zhang et al. [93]. They exploited the licensed spectrum of PU networks, including TVWS and LTE TDD bands, and the unlicensed spectrum from industrial, scientific and medical bands. The framework for E-CRN includesDSM for licensed SS and unlicensed spectrum aggregation. The method can control harmful interference but with trade-off between sharing and aggregation efficiency. Thus, spectrumlean management was introduced to achieve DSM. In addition, a water-filling algorithm was proposed to access the available spectrum dynamically and assign system traffic offloading to the shared and aggregated spectrum bands. The authors in [93] also studied the co-existence of E-CRN and WiFi. The CR in the 5G environment has the following characteristics: interoperability, context awareness, learning ability, self-optimisation, dynamic spectrum management, adaptive decoding and self-healing. It can be realised by using a CR terminal with several components, such as a software-defined device, a geo-locator, a learning system, a policy database, sensors, optimisation algorithms and the cognitive engine itself [79]. CR technology was initially implemented using half-duplex (HD) radio due to the hardware and software complexities of the superior FD communication [113]. After five decades, this FD CR technology gained serious attention with the recent advances in signal processing, machine-tomachine communication and deep learning methods. A survey on SS in CR networks was conducted by [83] in four key steps: spectrum sensing, allocation, access and handoff; the key enabling technologies related to 5G were presented. The technologies were FD spectrum sensing, spectrum databasebased spectrum sensing, compressive spectrum sensing and carrier aggregation-based spectrum allocation. Spectrum prediction and spectrum sensing can be used to reliably identify when and where spectrum holes exist. Several of the applications of spectrum prediction in 5G SS include costefficient wideband carrier aggregation, dynamic frequency selection and predictive interference mitigation [80]. The theory of interplay between predictable and unforeseeable underlying real-world RSS was studied by [80]. Technical guidance on how to apply the predicted RSS to the design of future wireless communication was provided.

### Solvency---AT: DSS Fails---2NC

#### New tech means implementation is possible – directly answers Rysavy

Kane ’22 [Joe, Kane is the director of broadband and spectrum policy at ITIF and holds a J.D. from The Catholic University of America as well as a master’s in economics from George Mason University, 7-5-2022, "Spectrum Sharing: Holy Grail or False Hope?," ITIF, <https://itif.org/publications/2022/07/05/spectrum-sharing-holy-grail-or-false-hope/>, St. Mark’s, AM]

Still, Rysavy’s practical criticism of sharing is not that it cannot work but that it does not work yet. His critique is compatible with a view that new technologies could create a more workable and generalizable solution that will make the existing Environmental Sensing Capability (ESC), the detection system which itself uses valuable bandwidth and needs interference protection, look primitive. Rysavy is again skeptical, since one promising development on this front—the National Telecommunications and Information Administration’s (NTIA’s) Incumbent Informing Capability—is a long-term project with inadequate funding.21 Here, however, a counsel of despair is unwarranted: If viable sharing technologies are on the horizon but underfunded, policymakers can do something about that. In sum, it may be that potentially viable future sharing technologies are possible but aren’t yet ready for wide deployment.

#### That’s just uniqueness – the counterplan is key to developing those systems and increasing security

Rysavy ’21 [Peter, 4-6-2021, "No magic spectrum sharing solutions," <https://www.fiercewireless.com/regulatory/no-magic-spectrum-sharing-solutions-rysavy>, St. Mark’s, AM]

Bottom line, solutions exist by which industry and government can collaborate for 5G networks that share frequencies currently used by DoD to provide DoD a secure 5G network and to make these frequencies available for commercial networks. In contrast, as discussed, no solutions exist for dynamic sharing between commercial and military systems. To develop these currently unavailable technologies, industry and government need to do more experimentation. For example, in October 2020, DoD announced $600 million for 5G experimentation and testing at five installations. The National Science Foundation also has a Spectrum Innovation Initiative studying spectrum sharing.

Looking at the rest of the decade, AI will be increasingly used in wireless networks, including 5G, for a multitude of purposes, including augmented security, best real-time allocation of radio resources, intelligent edge services, and fault mitigation. The Open RAN architecture facilitates AI integration by having well-defined interfaces for management functions.

### NB---Politics---2NC

#### Spectrum sharing doesn’t cost PC – spectrum auctions and efficiency gets everyone on board

Dano ’21 [Mike, 9-14-2021, "5G industry struggles with spectrum sharing," Light Reading, <https://www.lightreading.com/5g/5g-industry-struggles-with-spectrum-sharing/d/d-id/772057>, St. Mark’s, AM]

Political desire runs into political capital

A number of policy makers across all levels of government have expressed interest in furthering spectrum sharing.

"We're going to have to get creative about the policies we put in place," said Acting FCC Chairwoman Jessica Rosenworcel earlier this year. She said spectrum sharing in the CBRS band is a "terrific example" of creative spectrum management policies.

"It's something that I think we're going to need to study going forward, because as we scour the airwaves for more opportunities for commercial services, we're going to need to be mindful of the fact that there are just many more actors who are going to want access to spectrum," she continued. "And more ways to be creative and efficient are going to be important."

Indeed, the White House recently requested $39 million in 2022 "for advanced communications research at the National Telecommunications and Information Administration (NTIA), which would support the development and deployment of broadband and 5G technologies by identifying innovative approaches to spectrum sharing."

Likely in response, the NTIA has scheduled a spectrum symposium later this month that will "talk about plans for midband spectrum access, spectrum sharing approaches and techniques, and innovative, dynamic spectrum management tools and concepts." A number of government officials have discussed the potential for incumbent-informing capability (IIC) to underpin sharing in a wide range of spectrum bands.

But some financial analysts believe that – ultimately – money talks. For example, the analysts at New Street Research noted that a recent proposal among Senators would help fund President Biden's massive broadband infrastructure bill in part with money raised from exclusive-use spectrum auctions. That makes sense considering conservatives do not want to pay for the infrastructure bill with increased taxes, and exclusive-use spectrum auctions can be lucrative.

The New Street analysts described the Senators' proposal as "a win for the wireless industry as it will put pressure on the [Biden] administration to put pressure on the Department of Defense to free up more midband spectrum. And it will put pressure on the FCC to allocate spectrum through exclusive licensing, which raises more money than shared or unlicensed allocations."

## EU CP

### EU CP---1NC

#### Text: The European Union should [plan].

#### Only the EU can solve with a coordinated response in line with European needs and interests

Margarita **Robles-Carrillo** 20**21**, She is a Professor of Public International Law and International Relations at the University of Granada and has a Master in European and International Comparative Legal Studies by the European University Institute, September 2021, “European Union policy on 5G: Context, scope and limits”, Telecommunications Policy, Volume 45 Issue 8// skwon

The EU has acknowledged that the deployment and management of 5G networks is a matter of national security. But it has also recognised, precisely in the Commission's Communication “EU-China - A Strategic outlook”, that the security of 5G networks is essential to ensure the strategic autonomy of the Union.39 According to the Commission, “ensuring the cybersecurity and resilience of 5G networks is an issue of strategic importance for the Union”40. The Statement issued by the European Council, 2021 on March 25, 2021 stresses “the need to enhance Europe's digital sovereignty in a self-determined and open manner by building on its strengths and reducing its weaknesses and through smart and selective action, preserving open markets and global cooperation”.41 Although the concepts of digital autonomy and strategic sovereignty have not been defined in the EU framework, and although the real value of 5G may even be questioned by some authors, after these and other previous and subsequent statements, it seems clear that for the EU it is an essential value linked to the concept of digital sovereignty. In addition, the development of 5G technology affects several areas of EU competence, in particular the digital single market which is one of the essential pillars of the Union. And it is, in the European framework, a key component to ensure the EU's strategic autonomy and digital sovereignty.

5G is not only a key issue for Member States and the EU, but also an area where national and European competences come together in such a way that it is not always easy to determine the respective powers and the authority ultimately responsible. There are three additional problems. First, 5G affects several main areas of EU action and, in the absence of a common policy, there is a risk of fragmentation of the internal market and thus of the very foundations of European integration. Second, as the Commission pointed out, the interconnected and transnational nature of these infrastructures mean that any significant vulnerabilities and/or cybersecurity incidents concerning 5G networks happening in one Member State could have significant impacts beyond national borders.42 Third, 5G the problem of technological dependence that can hardly be addressed by individual States acting alone. As Kaska pointed out, “a shared concern necessitates a coordinated response” (Kaska et al., 2019, p. 20).

There have also been some proposals focused on an EU/NATO coordination in this matter (Kaska et al., 2019, p. 20). However, considering the role of the US in this alliance, action in the NATO framework would not really be a European policy or even a response in line with European needs and interests. Moreover, by the nature of this organization, it would be a policy conceived in terms of security that would neglect the other dimensions of the 5G. Precisely, defending Europe's interest from commercial or anti-competitive practices, such as those emanating from China (Rühlig & Björk, 2020, p. 27), requires a joint European Union action.

### EU CP---2NC

#### EU solves—only a European policy is key to strategic autonomy and European digital sovereignty

Margarita **Robles-Carrillo** 20**21**, She is a Professor of Public International Law and International Relations at the University of Granada and has a Master in European and International Comparative Legal Studies by the European University Institute, September 2021, “European Union policy on 5G: Context, scope and limits”, Telecommunications Policy, Volume 45 Issue 8// skwon

5G technology has been defined as a key component for the development of the economy and society as a whole. 5G has also become a source of international controversy. Whether directly or indirectly through their technology companies, the US and China are at the centre of a controversy in which the defence of national interests and security is intertwined with the struggle for hegemony in the technological, political and strategic domains.

The EU recognises the existence of a national security issue for Member States and also the strategic value of 5G for the Union as a whole. But it has neither the means nor the competences to enter into such competition with the world leaders in 5G technology. EU Member States lack the technological base and lack all the necessary powers to manage 5G independently because some of the competences needed have been conferred to the EU or may affect EU competences. Moreover, no individual State can have the same capacity and potential to respond to this problem and to the pressures of third States as would a coordinated action of all the countries in the framework of the EU.

Since the adoption of the 5G Action Plan in 2016, and on the basis of the competences attributed to the EU in the areas of electronic communications, network and system security, cybersecurity and certification, a European 5G policy has been progressively built up so far. The analysis of this process, its nature and characteristics, the subjects involved and the measures adopted to achieve its objectives allows some conclusions to be reach in relation to the three main questions addressed in this research.

The objective of achieving technological autonomy and digital sovereignty has become a priority within the EU and has been consistently reiterated by the Member States and the EU institutions. This objective is attached to the EU and not to its Member States individually, the fact that it is a common, European, rather than a national or individual objective, is of enormous significance. It is recognition of the commitment to European action, despite the fact that it is a matter of State competence. Whereas States are still appealing to their sovereign status in the physical world in the traditional sense, the idea of digital sovereignty is associated with EU activity.

Having decided on the preference for joint European action, it is necessary to define the model for the organization of the European and national competences. According to Article 2 of the Treaty on the Functioning of the European Union, the EU can exercise different types of competences, ranging from exclusive or shared competences, to coordinating competences or supporting, promoting and complementary competences. Among these options, the coordination of national policies is the method chosen for 5G. A model of exclusive or shared competences would not necessarily be a better option considering that for many Member States this is a matter of security and national interest. Moreover, national policy coordination has proven to be an effective and operational, as well as realistic, method in other areas of particular relevance such as economic, social or employment policies.

Therefore, the EU has the competence to coordinate Member States' national 5G policies. In other words, the EU cannot legislate or adopt legally binding acts in the area of 5G, as this is the responsibility of the Member States. However, the Member States are bound by the coordination model established at European level for the definition, implementation and evaluation of the measures adopted in this field. For now, the main coordination procedures and instruments have been the EURAC5G and the EUT5G as well as the implement evaluation developed by the Commission.

The European 5G model can be explained clearly and transparently by distinguishing between the regulatory legal responsibilities of States and the coordinating legal responsibilities of the EU. Rules and acts with legal effects for third parties are the responsibility of the individual Member States. The objectives, subjects, measures, procedures and instruments are the result of European coordination, mainly through soft law norms, which includes both the programming phase and the evaluation of results.

The technological dependency imposed by 5G technology is a fact which can only be addressed with some guarantee of effectiveness through action at European level. No Member State has the capacity to overcome this situation, neither would it be feasible within the digital single market itself, which does not allow for any autonomous national policies. This situation can only be addressed with a European policy which, due to its size and components, could constitute an alternative to the pre-eminence of other States and companies coming from or being supplied by other countries.

In the short term, such a European policy should be built through EU coordination of national policies and following a strategy of supplier diversification which, in itself, would increase competition and reduce the perverse effects of technological dependence. In the medium and long term, the objective should be more ambitious. Following the multi-stakeholder model, a consortium of European companies, with strong European funding or even public participation, justified by the public good or service nature of 5G, could be a solution to external dependency. The support of economic actors for a European policy was already made public in December 2019 in a Declaration by the CEOs of major telecommunications operators and service providers on the purpose of digital networks.74 A European policy based on the coordination of national policies of the Member States and a multi-stakeholder governance model are, for the time being, the way towards strategic autonomy and European digital sovereignty.

### AT: Perm Do Both---2NC

#### The perm fails – NATO interferes with national governance and EU leadership

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From the European view, a delay in applying 5G would mean falling further behind in the 4th technological ­industrial revolution, risking relegation to the margins in the US ­China competitive race. Huawei offers a cheap upgrade to 5G networks and around half of the 65 commercial deals that have been signed have been with European customers.17 The US is demanding that its allies set aside their economic interests and put security first, a security set on its own terms. But how much, the Europeans might ask themselves, does the US ambition to monopolise new technologies matter to them?

There is another aspect to European reluctance. Western European NATO and China allies in particular see NATO’s expansion beyond security into matters of economy as interference in the regulatory role of national and EU governance. By raising questions about China’s investment in critical infrastructure, Stoltenberg is pushing at the boundaries of NATO’s core focus. According to his vision, NATO 2030 would work more closely with industry and scientific research institutes curtailing the powers of European governments to handle matters of foreign direct investment and technology policy to maintain the West’s technological edge over China.18

## EU-US CP

### EU-US CP---1NC

#### Text: The United States federal government should substantially increase its cooperation with the European Union on [plan].

#### US-EU coordination solves---only regulatory responses effectively develop resilience of commercial networks.

Tom Wheeler 19, visiting fellow in Governance Studies at The Brookings Institution, former Chairman of the FCC; and David Simpson, Professor at the Pamplin College of Business at Virginia Tech, Former Chief of Public Safety and Homeland Security Bureau at the FCC, 2019, “Why 5G Requires New Approaches to Cybersecurity,” *The Global Race for Technological Superiority: Discover the Security Implications*, <https://www.ispionline.it/it/pubblicazione/global-race-technological-superiority-discover-security-implications-24463>, RMax

Current procedural rules for both US and European agencies were developed in an industrial environment in which innovation and change – let alone security threats – developed more slowly. The fast pace of digital innovation and threats requires a new approach to the business-government relationship.

* More effective regulatory cyber relationships with those regulated. Cybersecurity is hard, and we should not pretend otherwise. As presently structured, government is not in a good position to get ahead of the threat and determine detailed standards or compliance measures where the technology and adversary’s activities change so rapidly. A new cybersecurity regulatory paradigm should be developed that seeks to de-escalate the adversarial relationship that can develop between regulators and the companies they oversee. This would replace detailed compliance instructions left over from the industrial era with regular and fulsome cybersecurity engagements between the regulators and the providers at greatest risk as determined by criticality, scale (impact), or demonstrated problems (vulnerabilities) built around the cyber duty of care. It would be designed to reward sectors where participants have organized and are clearly investing ahead of failure to address risk factors. Conversely, where sectors are ignoring cyber risk factors, graduated regulatory incentives can change corporate risk calculus to address consumer and community concerns. These activities would be afforded confidentiality and not be used by themselves to discover enforcement violations, but instead to help both regulators and the regulated better spot trends, best practices, and collectively and systematically improve their sector’s approach to cyber risk. NATO and national security agencies can have a role in this, but at the end of the day, the balance between security, innovation, corporate means, and market factors is inherently regulatory.
* Recognition of marketplace shortcomings. Economic forces drive corporate behavior. Of course, there are bottom-line-affecting costs associated with cybersecurity. Even when such costs are voluntarily incurred, however, their benefits can be undone by another company that doesn’t make the effort. The first of this paper’s two recommendations suggests what companies can do to exercise their cyber duty of care. History has shown, however, that the carrot accompanying such efforts often needs the persuasion of a standby stick. This is only fair to those companies that step up to their responsibility and should not be penalized in the marketplace by those that do not step up. A rewards-based policy would amplify the value of cyber duty of care participation, especially when others fall short. It would also provide forward-looking incentive for risk reduction and a more useful feedback loop when breaches invariably occur.
* Consumer transparency. Consumers have little awareness and no insight with which to make an informed market decision. The situation is analogous to the forces that resulted in the establishment of nutritional labeling for foods. Consumers should be given the tools with which to make informed decisions. “Nutritional labeling” about cyber risks or a cyber version of Underwriters Laboratories’ self-certification will help focus the attention of all parties on its importance.
* Inspection and certification of connected devices. For years, the FCC has overseen a program to certify that radio-signal-emitting devices do not interfere with authorized use of the nation’s airwaves. Whether cellphones, baby monitors, electronic power supplies, or Tickle Me Elmo, the FCC assures the design and assembly of transmitting devices are within standards. Similar agencies have done the same in Europe. Industry then organizes underneath that construct to self-certify devices in a cost-effective means baked into their production and distribution processes. At the time of the 2016 DYN attack that took control of millions of video cameras, the authors proposed a similar regimen to review the cybersecurity of connected devices. Why should radio networks be protected from harmful equipment, but not 5G networks15 from cyber-vulnerable equipment?
* Contracts aren’t enough. Governments often seek to use their purchasing power to impose cybersecurity requirements. This is an important, proven practice, but it can only go so far. Such acquisition policies, for instance, do not reach non-government suppliers that in an interconnected network can wreak havoc by simply connecting to the network. Typically, small and medium 5G network providers are not bound by any of these government contracts.
* Stimulate closure of 5G supply chain gaps. In both the US and Europe, review of mergers and acquisitions has typically failed to appreciate the potential negative impact on critical supply chains. Moving companies and processes offshore or to joint ventures with non-democratic foreign ownership/control has created wholesale gaps in the supply of crucial 5G components and the absence of procurement options with the domestic US and Europe. Country of origin/ownership concerns must become relevant to both the corporate calculus that led to offshoring purchase decisions as well as to the market conditions that led to the destruction of a national capability in the first place. 5G supply chain market analysis must be continuous with regular engagement between regulators, industry, and the executive and legislative branches to properly incentivize globally competitive domestic sourcing alternatives.
* Re-engage with international bodies. At present, the standards setting process for 5G is governed by the 3rd Generation Partnership Project (3GPP), an industry group that makes decisions by consensus based on input from its members, including Chinese 5G equipment companies. (Huawei reportedly made the most contributions to the 5G standard) 16. The Obama FCC engaged directly with 3GPP to identify public safety and cybersecurity risk considerations applicable to the US market. It additionally opened a notice of inquiry to ask the nation’s best technology brains how to implement cybersecurity risk reduction as part of the development and deployment cycle. The move was opposed by some industry associations and the Republican commissioners. Shortly after the beginning of the Trump administration, the new FCC cancelled the Obama FCC’s cyber initiatives. Both the US and EU should have policy-maker engagement with 3GPP. There needs to be informed third-party oversight early in the 5G industry’s design and deployment cycle in order to prioritize cyber security. Governments should have some degree of agency in the process. This will allow for earlier issue identification and the opportunity to submit concerns, without changing the basic governance of standards setting. The representatives of the citizens of the US and EU should have the option to escalate engagement on matters of national security and public safety concern.

Conclusion

In March, the European Commission released a recommendation17 on the cybersecurity of 5G networks, culminating in a major new report18 on 5G and cybersecurity this October. In July, the US Senate, led by Republicans, introduced legislation19 instructing the Trump administration “to develop a strategy to ensure the security of next generation mobile telecommunications systems and infrastructure”. Key leadership in both the EU and US recognize the full peril that 5G introduces, and the need for whole-of-government responses.

Early generation cyberattacks targeted intellectual property, extortion, and hacked databases. Today, the stakes are even higher as nation-state actors and their proxies gain footholds in critical infrastructure to create attack platforms lying in wait. Companies that provide critical network infrastructure or provide products or services connected to it represent the likely and potentially most dangerous enemy course of action in the ongoing cyber cold war.

“If you’re asking me if I think we’re at war, I think I’d say yes”, the former commandant of the Marine Corps, Gen. Robert Neller, told an audience in February20. “We’re at war right now in cyberspace. […] They’re pouring over the castle walls every day”. While the adversaries of the US and Europe see positive outcomes for high-profile direct attacks, they also are perfecting less-risky positive outcomes in a steady pace of low-level attacks intended to erode public confidence in cyber critical infrastructure and the digital economy it underpins. The low-intensity cyber war is already ongoing as non-democratic regimes in Moscow and Beijing risk very little in these attacks but stand to gain much.

Into this attack environment has come a software-based network built on a distributed architecture. With its software operations per se vulnerable, and a distributed topology that precludes the kind of centralized chokepoint afforded by earlier networks, 5G networks will be an invitation to attacks. Given that the cyber threat comes through commercial networks, devices, and applications, the 5G cybersecurity focus must begin with the responsibilities of those companies involved in the new network, its devices, and applications. The cyber duty of care for those involved in 5G services is the beginning of such proactive responsibility.

At the same time, both the European Union and the United States have their own responsibility to create incentives for 5G companies to focus on the cyber vulnerabilities they create. This is especially the case when there may be a corporate or marketplace lack of motivation to prioritize a maximum cyber effort. As outlined in this paper, this will necessitate replacing the rigid industrial-era relationship between government and business with more innovative and agile means of dealing with the shared problem.

Yes, the “race” to 5G is on – but it is a race to secure the shared future of the United States and Europe.

### EU-US CP---Solvency---2NC

#### US and EU must work together on the cybersecurity—sans cooperation, China will set global norms

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The European debate over digital sovereignty and its various elements has arisen at a time of high tension in the US-EU relationship. Many in the US foreign policy community have resented the EU adoption of “strategic autonomy” as an ambition in and of itself. “Digital sovereignty” elic- its some of the same concerns: Sovereignty from whom? Sovereignty how? After three years of rising tensions with the Trump administration, particularly in the sphere of trade and economics, few European governments are willing to curtail EU ambitions because of US concerns. Criticizing the United States and its role in Europe’s digital economy has unfortunately become good politics in many areas of Europe. The experience of the COVID-19 response has only increased the distrust of the Trump administration among European leaders. If the pandemic has generally increased awareness about the importance of the digital sector of the economy, it has also made any reliance on US policy and technology even more suspect. If the United States and European Union continue to move in separate, and potentially conflicting, directions in the digital sphere, the country that will benefit most is China. Already a massive digital market, with leading global companies such as Tencent and AliBaba, China takes a distinctly different view of digital regulation, ranging from state aid to privacy. Moreover, China’s surge of new investments in Europe during the past decade, both in the digital economy and infrastructure, makes clear its ambition to be a global player. Its headline-grabbing public diplomacy during the COVID-19 experience and willingness to employ disinformation have shown a darker side of that ambition. The United States and the European Union must face this challenge together. They should be working together on a broad array of digital policy issues to ensure that their approaches to the digital economy—and not China’s—become the global norms. COVID-19 will undoubtedly spur both the United States and EU to focus on ensuring that key elements of their economies—including the digital sector—are resilient to foreign manipulation and domination. However, this should not mean excluding any foreign participation or erecting barriers in the global economy. Instead, the United States and the European Union should work to create standards and rules in the digital space (as well as in the traditional economy) that reflect their values and interests. As the EU moves forward with new regulatory initiatives, it is the optimum time for the United States and EU to begin identifying shared perspectives and objectives. There are modest but tangible ways for the United States and the European Union to mitigate their growing digital divergence. Digital policy issues presented by cybersecurity (including vis-à-vis the Internet of Things), artificial intelligence, disinformation, and other emerging digital technologies and practices are ripe for transatlantic dialogue. Such cooperation is also the best way of ensuring that the EU move toward digital sovereignty is genuinely focused on enhancing Europe’s own capabilities rather than excluding others. Europe’s path forward in the digital arena is not yet set—it is time for both the United States and the EU to make the right choices as they prepare for a new digital, postCOVID-19 age.

#### EU and US have been consistently discussing 5G security—CP ensures effective coordination on 5G moving forward

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An additional issue that has caused friction between the EU and the US since 2018 has been the determination of Washington to ban the Chinese telecommunications company Huawei from operating within the country and to persuade the US allies to take similar measures. Despite the confrontational rhetoric of Donald Trump and the aggressive lobbying campaign of the US Secretary of State, Mike Pompeo, the issue of 5G security has been a constant topic of discussion for the EU-US Information Society Dialogue and the EU-US Justice and Home Affairs Ministerial Meetings, and the tone of these talks has been softer; for example, Robert Strayer, who has represented the US in EU-US Information Society Dialogue since at least 2018, referred to the EU measures on 5G security in an approving way in the statements he gave for two Senate hearings. Speaking about the EU’s 2019 report on coordinated risk assessment of 5G networks security, Robert Strayer noted that he welcomed this ‘assessment and how it clearly identified the vulnerability of 5G vendors or suppliers that could be subject to pressure or control by a third country, especially countries without legislative or democratic checks and balances in place’ (Strayer 2019). He also highlighted that the EU’s report ‘aligns with the U.S. assessment that you cannot mitigate the risk of untrusted suppliers by limiting them to certain parts of a network’ (Strayer 2019).

Similarly, the issue of 5G has been discussed in the bi-annual EU-US Justice and Home Affairs Ministerial Meetings, where participants have shared best practices and informed each other about policy changes. For example, one internal EU document mentions that the EU-US Justice and Home Affairs Ministerial Meeting of June 2019 was a constructive ‘opportunity for both sides to discuss ways to expand their cooperation and best practice exchanges in areas like cybersecurity’, with a particular focus on the security of 5G networks (Council of the EU 2019c). In the same meeting, the EU and the US briefed each other about their respective initiatives: the EU presented the 5G risk assessments that member states were conducting while the US talked about its initiatives on international benchmarks for the security of 5G networks.

Moreover, while the EU did not advocate for an outright ban of Huawei, as early as in December 2018 the EU Commissioner, Andrus Ansip was noting that ‘we have to be worried’ about Huawei (Politico 2018). In the same month, more than one thousand hacked EU documents were leaked to the newspaper, the New York Times, which stated that hackers allegedly linked with the Chinese army managed to infiltrate the EU communication systems and collected classified information for years. The European Commission had already commissioned a study on industrial espionage and cyber theft of trade secrets which was finally published in December 2018 and which made extensive mention of the activities of Chinese hackers (allegedly state-sponsored). Similarly, in March 2019, the Commission submitted a report to the European Council titled ‘EU–China – A strategic outlook’ which highlighted that in some policy areas China is a ‘systemic rival’ (European Commission 2019). The report also stressed that foreign investment in strategic sectors, such as in 5G networks, ‘can pose risks to the EU’s security’. The EU member states shared in general these threat perceptions although the security measures that were proposed by national governments differed in their strictness.

In the course of two years (2019–2020), the Commission introduced a Recommendation on the cybersecurity of 5G networks (March 2019); the member states published a report on the EU coordinated risk assessment of 5G networks security (October 2019) which highlighted that ‘threats posed by States or State-backed actors, are perceived to be of highest relevance … [and] they represent indeed the most serious as well as the most likely threat actors’ (NIS Cooperation Group 2019); ENISA published a report on the threat landscape for 5G Networks (November 2019); and finally the Commission launched a toolbox on 5G security (January 2020) which urged the EU member states to specify and implement security measures and risk mitigation criteria for 5G vendors.

Both the EU’s toolbox and its implementation by the member states have gained praise from the US, with the US Secretary of State mentioning in July 2020 that ‘there is a transatlantic awakening’ to the threat posed by China (US Department of State 2020). Moreover, in August 2020, the US launched its ‘Clean Network’ initiative which is an effort by Washington to promote its risk management criteria for telecommunications networks and services, such as 5G networks or cloud computing, abroad. The EU’s toolbox became part of the Clean Network and the two actors issued a joint declaration in October 2020 highlighting ‘their commitment to shared principles on 5G security and the synergies between the EU 5G cybersecurity Toolbox and the Clean Network’ (European Commission 2020b).

#### EU-US cooperation ensures democratic technology

Annegret Bendiek and Isabella Stürzer 2022, Dr. Annegret Bendiek is a political scientist of the research division "EU/Europe" at the German Institute for International and Security Affairs (SWP); Isabella Stürzer is a student assistant in the EU/Europe research group; March 2022, “Advancing European Internal and External Digital Sovereignty”, <https://www.swp-berlin.org/en/publication/advancing-european-internal-and-external-digital-sovereignty> //skwon

Setting the Agenda for Transatlantic Cooperation

Transatlantic cooperation and European tech­nological sovereignty can appear to be mutually exclusive. For instance, the EU Chips Act calls for greater public investments in semiconductor R&D in Europe, where­as the American CHIPS Act, passed in June 2020, calls for investments in chip design R&D in America. Concerns about an emerging and counterproductive “subsidy race” have been voiced on both sides of the Atlantic. Careful leverage of the Brussels effect could also remedy this issue: Both American and European policymakers under­stand that a strictly US or EU focus on reclaiming technological sovereignty is unrealistic, which is why they are discussing areas in which international cooperation is inevitable, such as the procurement of rare earth elements necessary for chip production, via a TTC working group. This debate should also include considerations of an expansion of the TTC, for instance to include Canada, which is also committed to democratic technology governance and can certainly offer resources that are in demand.

As both the EU Chips Act and the US CHIPS Act have only been issued recently, the EU should seize the opportunity to facili­tate transatlantic research cooperation and set regulations for both the semiconductor market competition and the tech­nological capabilities of such products – similar to AI regulation – in order to out­law the inclusion of specific features that make chips made in Europe or the US vulnerable to espionage or sabotage. Trans­national cyber threats such as technological backdoors can only be combated if such equip­ment has equal certification in both the US and the EU. Although only the US currently has sufficient capabilities and expertise to compete with companies such as Huawei, whose products do not meet certification standards, the EU can set the agenda for spelling out the details of future cooperation on – and governance of – demo­cratic technology, as it already suc­cess­fully has in the case of AI technology. The case of Huawei equipment also illus­trates that companies not willing to comply with EU standards face market exclusion, which the EU should emphasise when it wants to protect its citizens’ data from US intelligence agencies as well.

The Way Forward

The path ahead can only be international, and especially transatlantic: American com­panies are dependent on access to the Euro­pean market to sustain their growth, and in turn, European citizens and com­panies (as well as public administrations) are depend­ent on products offered by Ameri­can digital technology companies in their daily lives and operations. Moreover, the US and EU constitute the biggest mar­kets, which are also liberal democracies, in a world where autocracies are on the rise, and they share key values such as the right to privacy and free speech as well as a commitment to free and fair economic com­petition. All of this makes a strong case for transatlantic co­opera­tion in advancing digital development and democratic tech­nologies. Leading up to the spring meeting of the TTC, European policymakers should continue their ap­proach of leveraging the Brussels effect in order to ensure and en­hance compliance with the European standards of fair market competition and data protection.

### EU-US CP---AT: Say No---2NC

#### EU follows US on 5G—Trump era foreign policy proves

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BRUSSELS — Officials in Europe would mostly like to forget the Donald Trump era, but one holdover from the former U.S. administration is likely to stick around: an anti-Chinese 5G policy.

A growing coalition of European countries have banned — or significantly reduced — China’s involvement in domestic 5G mobile telecommunications networks, and that’s to a large extent a consequence of the Trump administration’s insistent prodding.

These next-generation networks are crucial to everything from high-speed mobile downloads to autonomous vehicles. The likes of Huawei and ZTE, the Chinese telecom equipment-makers, are global players in this technology, sparking concerns among U.S. and European national security officials about their potential to spy on or disrupt Western democracies. Both companies dismiss these security concerns.

Yet despite foreign allies pushing back on almost all of the Trump era’s foreign policy objectives — whether it’s climate change or the botched purchase of Greenland — Washington’s efforts over the last 18 months to cajole the European Union to ditch China on 5G have been successful, and it’s a policy that is expected to continue under the Joe Biden administration.

“When we took it over in March, the Huawei president announced 91 deals, half of them in Europe, and it looked like they were going to run the table,” Keith Krach, the former U.S. undersecretary of State who led the Trump administration’s effort to convince countries to drop Chinese players, told POLITICO. “The objective was to take away the momentum through a rolling thunder of announcements.”

In truth, some EU countries had already become increasingly skeptical about including Chinese telecom equipment-makers in their 5G networks. European national security agencies had grown alarmed about how Huawei in particular gobbled up significant global market share against competitors like Sweden’s Ericsson and Finland’s Nokia.

Even if EU officials agreed with the stance, many didn’t like Trump’s aggressive approach, which included threats to hold back intelligence cooperation if the bloc’s members didn’t reassess their reliance on Chinese firms.

“The approach had been to pound on the table and tell people, don’t buy Huawei. It was a confrontational style,” Krach told the Digital Bridge, POLITICO’s transatlantic tech newsletter. But he said the approach changed somewhat after his involvement: “I said, why don’t we treat countries like a customer, and the customer is always right. You need to have a value proposition. For countries and telcos, what’s in it for them?”

The Trump-era 5G foreign policy strategy has paid off. Starting with smaller, Eastern European and Baltic countries, governments signed agreements with Washington to cut Beijing out of their networks. Last year, bigger countries like France and the United Kingdom followed suit, announcing a phaseout that would eventually eliminate Chinese players from national 5G investments.

Even Germany, which had pushed back hard against Trump’s heavy-handed approach, is expected to cut down at least partially on Chinese gear when it revamps its IT security laws in coming month. Berlin also plans to provide €2 billion to develop alternative 5G equipment-suppliers to wean local carriers off the likes of Huawei.

As the Biden administration was taking over the White House last month, the majority of EU countries, with help from the European Commission, have now instituted some form of restriction on the role that Chinese telecom equipment-makers can play in national 5G rollouts.

“If you can get all the telcos to say they won’t buy Huawei, you don’t need to talk to the governments,” said Krach, outlining how he met repeatedly with European telecom operators to highlight the potential security threats from using Chinese 5G equipment. “After a while, we could see it was creating a critical mass, a tipping point.”

That pattern is unlikely to change under the new U.S. administration.

In written comments to U.S. lawmakers on Tuesday, Gina Raimondo, Biden’s nominee for Commerce secretary, said she intended to maintain Washington’s hard stance on China and 5G.

“With respect to Huawei, let me be clear: telecommunications equipment made by untrusted vendors is a threat to the security of the U.S. and our allies,” she said.

## EU-NATO CP

### EU-NATO CP---1NC

#### Text: The European Union should increase cooperation with the North Atlantic Treaty Organization on [plan].

#### EU-NATO coordination solves.

Kadri Kaska 19, head of the Legal Branch and legal researcher at the NATO Cooperative Cyber Defence Centre of Excellence; Henrik Beckvard, researcher at the CCDCOE Strategy Branch; and Tomáš Minárik, researcher at the CCDCOE, 2019, “Huawei, 5G and China as a Security Threat,” *NATO Cooperative Cyber Defence Centre of Excellence*, <https://ccdcoe.org/library/publications/huawei-5g-and-china-as-a-security-threat/>, RMax

A shared concern necessitates a coordinated response. There is growing appetite among EU member states and NATO allies on EU/NATO coordination in this matter. In January 2019, Poland’s Minister of Internal Affairs called for the EU and NATO to take a ‘joint stance’ on Huawei after the arrest of a Huawei employee on spying charges.89 A similar sentiment was also expressed by the Estonian IT minister.90 EU Commissioner Julian King, in his speech at the Munich Security Conference in February, outlined a number of critical issues regarding European digital resilience towards foreign threats. These included the uncoordinated issuing of 5G spectrum licences, sales of European cutting edge technologies to foreign capital, and the need for coordinated investment in AI, quantum computing and cryptography so that the action of individual countries will constitute more than merely ‘the sum of its parts’. 91 He also highlighted the need for acknowledging critical elements in the European digital ecosystem. None of these issues are easy to resolve and are likely to require going beyond existing safeguards to address the risk. Next to political will to act, this indicates a need for radically improved understanding of the intertwined nature of contemporary digital ecosystems – which is even more true of EU member states due to their political and market independencies going beyond mere technology.

### EU-NATO---Solvency---2NC

#### NATO-EU cooperation is key to effectively challenge China—traditional military-capability planning, resilience requirements, common ground, and shared responsibilities

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From the major trifecta of summits around President Joe Biden’s visit to Europe during the summer, it has become clear that China will occupy a central role in the transatlantic relationship in the years ahead.

China now intersects with NATO’s agenda in several ways and occupies a far more entrenched part of the discussion. While NATO is not in a military conflict with China, Beijing remains a key geopolitical competitor to the West. Moreover, the United States sees China as a direct national security threat, and several plausible contingencies could draw the two sides into military confrontation.

The Right Role for NATO

While there are still debates about how far Europe and the United States should be aligned on China, the European NATO members have traditionally assumed part of the U.S. security and defense agenda in exchange for security guarantees. However, China also poses a set of distinctly security risks for Europe, particularly relating to resilience and critical infrastructure and to the considerable dependency of Europe’s digital infrastructure on Chinese technology. The current debate lies in whether NATO is the optimal platform to address those issues, if the EU should take a more active role instead, or if there is an appropriate division of responsibilities between them. For resilience to be the catalyst of closer NATO-EU cooperation, a balance must be found in which the roles of both sides are explicitly defined.

While NATO is adopting a more robust framework in the non-military dimension, it ultimately remains focused mostly on political coordination and consultation, crisis management and collective defense, and interoperability. The EU, on the other hand, has a range of regulatory instruments at its disposal, including the 5G Toolbox and the European Democracy Action Plan, to address some of the wider resilience issues. Future NATO­–EU cooperation should be established on the basis of closer linkages between traditional military-capability planning and resilience requirements, as well as a clear understanding of common ground and shared responsibilities.

Defense of Civilian Telecommunications

Strong, modern telecommunications infrastructure capable of intercepting and withstanding hybrid interference is a prerequisite for NATO to deliver on its key mission of collective defense. Yet, this infrastructure in Europe is largely privately owned, and as such is left exposed to the risk of external interference and susceptible to economic decisions that can neglect national security aspects if not clearly regulated by law. Russia is no longer the only state actor resorting to various types of hybrid tactics on NATO territory: China, too, has been using various sophisticated political and non-military tactics to advance its political and economic influence. In the face of these existing threats, it is imperative for NATO and the EU to delineate their scope of action, especially in instances—such as telecommunications—where the line between civil and military infrastructure is not clearly marked.

Telecommunications play a central role in the functioning of societies and economies, and provide the basis and future of innovation. These two dimensions are subsequently linked in the race for technological supremacy. Technology has been and will be the key to deterrence and defense. Technological dominance ensures not only battlefield supremacy but also supremacy beyond it. Such dominance is contingent on a robust and constantly advancing industrial base that integrates civilian and military innovation, research, and development. Joint innovation initiatives across the Atlantic are essential to maintain and heighten critical capabilities on and off the battlefield. In the interest of maintaining NATO’s competitive edge and strengthening the alliance’s resilience, new political channels integrating the economic dimensions underpinning elements of security policy, particularly with regards to industrial strategy, need to be established.

Prioritize 5G

Given that cyber threats have long been an area of concern for NATO, 5G networks have naturally become a focus for NATO discussions, even if its defense dimensions have only been slowly put on the agenda. In addition, how data is processed and stored is a key security area that must not become a blind spot. Protecting the public sector and industries, along with ensuring that companies, citizens, and government institutions have the possibility of sending their traffic end-to-end to a non-Chinese network, is at the heart of the matter.

In 5G, for instance, cloud infrastructure will play a significant role. Under Chinese law, the government can request and be granted access to the data of any private company in China, putting at risk all data on a Chinese 5G cloud. To take the example of Belgium, all of its telecommunications infrastructure was previously reliant on Chinese equipment, including mobile communications used by the EU and NATO administrations. Similarly, Chinese equipment today permeates Germany’s networks, meaning that the mobile traffic of all NATO troops based in Germany goes, at some point, through networks reliant on Chinese technology. Deutsche Telekom’s cloud, built and run by Huawei, had the Nuclear Research Center (CERN) in Switzerland as a key reference customer upon its launch. While it is clearly a minimum requirement to have scrutiny in place for networks that fulfill functions for government networks, defense industry, and internal security, networks that fulfill critical functions for society, such as in utilities and pharmaceutical industries, healthcare, banking, or transportation and communication, must likewise not rely on Chinese equipment.

The cost of replacing Chinese telecommunications infrastructure in Europe will not be prohibitive: as operators upgrade from 4G to 5G, all aging equipment will be replaced regardless. As such, a total ban on new Huawei equipment in Europe could “naturally” take about six years before the installed untrusted base is simply phased out. The question then, is rather one of ensuring a faster transition towards trusted technology on national security grounds, where short-term commercial considerations regarding phaseout times do not determine the pace. Chinese vendors are neither more technologically advanced, nor more competitive than their European counterparts: they simply rely on a system in which the combination of subsidies for homegrown companies operating on global markets and a heavily protected domestic market continue to distort the playing field. The issue is most acute for the smaller operators across Europe, Latin America, and Asia, which have weaker credit scores and thus must resort to Chinese loans unless alternative financing mechanisms are offered. The United States and South Korea are considered leaders in 5G network rollout, yet their infrastructure has been deployed without using any Chinese equipment, instead relying mostly on European technology. One commonly suggested long-term alternative is Open RAN, but, in practice, Chinese presence and influence in its development structures requires a comprehensive risk assessment.

The EU Toolbox for 5G security offers a good framework for initial action, but its non-compulsory nature allows for different interpretation and implementation across EU members, leaving vulnerabilities. One step in the right direction would see the stricter implementation of the toolbox across the EU, but this is only a starting point. Networks connecting critical assets via fiber optics, transport, and undersea cables require the same scrutiny and strict implementation of safeguards. The joint development of toolboxes for these network perimeters could then be envisioned too.

China and NATO

Despite the nuanced language adopted at the NATO summit, the perceived threat to the security interests and democratic principles of the alliance have raised the China issue to the status of a major NATO agenda item. The alliance’s policy towards China will be solidified in the upcoming Strategic Concept, which is expected to be adopted at the next summit. The difficulty then will be for NATO to address the various and diverse security threats at once: hybrid deterrence, disruptive and emerging technologies, and vulnerable critical infrastructure. Given the fast-changing security landscape and the rapid development of technology, its ability to adapt to this new scenario and act effectively on all these fronts will be crucial to NATO’s future.

#### EU and NATO collaboration on 5G is mutually beneficial and strengthens response to China 5G leadership

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How to reshape 5G’s transatlantic relations Divided, the EU risks missing the chance to leverage its strong position in wireless innovation (by some measures, the EU has more core 5G patents than China and the United States combined). Stronger policy at the EU-level by the Commission could encourage EU telecom leaders Ericsson and Nokia to continue their strong record of innovation as wireless architectures continue to transition to a more software-centric future. EU divergences may also have implications on transatlantic relations, which have suffered some setbacks in recent years in trade, competition policy, privacy agreements, and diplomatic relations. The EU should work towards a more consolidated approach and agreement among EU countries to accelerate the deployment and adoption of 5G, mitigate the risks to 5G telecommunications networks posed by certain suppliers, and enable a stronger response to China’s growing technological dominance. To start with, the EU should build on its existing international cooperation mechanism on 5G with like-minded countries, to reach a global consensus on 5G vision, standards, and spectrum requirements. As a security partnership, NATO could potentially serve as a forum for further collaboration on security standards between the EU and the United States. For instance, the Alliance could refine its role in cybersecurity protection, defence, and resilience. The EU is still searching for a common certification strategy to prevent backdoors—hidden entry points for attacking or spying—which may affect 5G hardware. This strategy might help the EU to surpass current national-based approaches, as well as to reshore its internal production capabilities and critical infrastructures’ resilience and could strengthen standards-setting collaboration within NATO regarding the impacts of cybersecurity on 5G networks.The EU, the United States, and like-minded partners (such as Japan) should renew their dialogue on the implications of state behaviour norms in cyberspace for the protection and resilience of 5G networks. China has become highly active in the multilateral arena by proposing principles regarding the respect for cyber sovereignty and the shaping of new AI-related uses in line with its Belt and Road Initiative and its Digital Silk Road. This may have significant implications on the 5G-driven connectivity of AI applications. A common transatlantic position is therefore sorely needed to tip the balance towards an open, fair, secure, and stable data governance system. Such a “common” position does not refer to similar policies and regulations but would be one through which all partners can cooperate on critical infrastructure connectivity while respecting common values and fundamental rights.With regards to the digital economy, both allies can mutually reinforce each other’s assets. The EU should work on joint technology initiatives with the US and other partners, as well as pool resources in the many areas that are mutually beneficial. In turn, the EU could use this collaboration as a two-way street, to boost its digital credentials in areas where it has incumbent strengths. The US, which has no major 5G wireless equipment provider, will continue to largely rely on the European companies Ericsson and Nokia but is aiming to accelerate alternatives for the future. These two European firms, which remain the second and third largest suppliers in the race for 5G, are also entering deals with Canada’s largest telecoms companies in order to build their 5G networks.The importance of 5G systems has taken on a geopolitical dimension. Given its importance as a national security asset and an economic driver, current strategies and principles cannot be limited to national agendas. International stability—security, peace, economy, and respect for human rights—relies on both the effectiveness and long-term readiness of multilateral negotiations. Opening up a deep transatlantic discussion on the role of 5G will be essential to ensure mutually beneficial cooperation. In turn, this will contribute to subsequent ways of dealing with models that might leave Western regulatory standards out of the shaping of a fair and safe technological near-future.

#### NATO can’t solve alone—EU is key to challenge China’s tech advances

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INTRODUCTION The June 2021 North Atlantic Treaty Organization (NATO) summit in Brussels launched the process to develop a new allied Strategic Concept to update its 2010 predecessor.1 As the summit communiqué stressed, NATO remains the central vehicle for security cooperation between the United States, Canada, and Europe.2 Leaders noted the “multifaceted” threats faced by the alliance, including “systemic competition from assertive and authoritarian powers, as well as growing security challenges to our countries and our citizens from all strategic directions.” They endorsed the NATO 2030 agenda, which seeks to ensure the alliance is equipped to face the most pressing present and future security challenges.3 Two issues that are rising fast on NATO’s agenda are China and climate change. As they did in the 2021 communiqué, these twin challenges will feature in the new Strategic Concept in some fashion, but how the alliance plans to address China and climate change and what NATO’s proper role is on these two issues as member states calibrate their national positions remain far from clear. The primary geostrategic competitor of the future — for the United States, at least — is China. But while China presents a complex set of economic, political, technological, and military challenges for which developing common trans-Atlantic positions is proving challenging, it is also very unlikely to trigger NATO’s Article 5 collective security provision. As French President Emmanuel Macron flatly stated after the 2021 Brussels summit, “NATO is a military organization, the issue of our relationship with China isn’t just a military issue. NATO is an organization that concerns the North Atlantic, China has little to do with the North Atlantic.”4 Meanwhile, the primary existential threat faced by allies is climate change, which will of course affect NATO operations (including through its impacts on low-lying military bases) and the livelihoods — and potentially political systems — of NATO nations. However, the alliance is but one forum that ought to be utilized to decrease greenhouse gas (GHG) emissions. Moreover, mitigating the impacts of climate change will require cooperation with China even as the strategic rivalry between the West and China intensifies. As Janka Oertel, Jennifer Tollman, and Byford Tsang articulated in a recent European Council on Foreign Relations paper, “Having acknowledged the fundamental systemic differences between it and China, Europe will increasingly have to balance the growing competitive dimension with the need to coordinate to achieve ambitious climate protection, including engaging China on the evolving rules of global competition around carbon.”5 Although NATO has evolved considerably since the end of the Cold War — taking on emerging threats like transnational terrorism and piracy, and venturing into new arenas such as cybersecurity and space — neither China nor climate change is an issue that fits comfortably into the mission of an alliance founded to address a direct military threat to Europe. Indeed, the nature of these two key threats highlights that in managing and addressing them, particularly the U.S.-European Union and NATO-EU relationships. Yet the June 2021 summit communiqué made clear that NATO intends to tackle both of these security challenges as it develops its new Strategic Concept (whereas the 2010 iteration mentioned climate change only briefly and China not at all). In this paper, we examine how NATO might usefully contribute to the trans-Atlantic response to the China challenge and climate change, while stressing why the United States and Europe will need to look beyond NATO as they seek to develop trans-Atlantic responses to these increasingly complex twin challenges. THE CHINA CHALLENGE In 2020, Secretary-General Jens Stoltenberg tasked a “NATO 2030” expert reflection group with preparing a set of ideas for the allies to consider as they move to develop a new Strategic Concept that addresses the alliance’s main concerns for the coming decade. The expert group put the China challenge quite starkly, arguing that the country is “best understood as a full-spectrum systemic rival, rather than a purely economic player or an only Asia-focused security actor.”6 This characterization went beyond the European Union’s own March 2019 designation of China as a systemic rival, focused on trade, governance, and human rights;7 it foregrounded that China’s growing military power is not confined to the Indo-Pacific and that its technology investments in Europe threaten NATO’s ongoing efforts to ensure a high level of military interoperability among alliance members. At the June 2021 summit, the NATO heads of state and government described China as presenting “systemic challenges to the rules-based international order and to areas relevant to Alliance security.” They mentioned Beijing’s “rapidly expanding” nuclear arsenal, its military cooperation with Russia, and its “use of disinformation.” They also noted their desire for engagement with China on issues of common concern — such as climate change — and called for “reciprocal transparency and understanding” in the nuclear area.8 But the communiqué remained vague on the question of which tools NATO should wield in response to challenges posed by Beijing, leaving the details of alliance efforts in this area for the Strategic Concept to be unveiled at the Madrid summit in 2022. Other NATO experts have added their calls for the alliance to shift more of its attention to China. Shortly after the June 2021 summit, former NATO Deputy Assistant SecretaryGeneral for Emerging Security Challenges Jamie Shea and Syracuse University professor Michael John Williams wrote that “the Alliance must balance Russia — which remains a threat — with a new focus on Asia aimed at building modernized Indo-Pacific partnerships. China should be top of mind throughout all Alliance structures and a regular discussion point in all high-level meetings.”9 Seton Hall University professor Sara Bjerg Moller has gone even further, arguing that the China challenge is precisely the type of threat NATO was designed to tackle, and that “[r]efocusing NATO to check the dangers posed by China’s rise would restore it to something closer to its original mission of safeguarding allies from strategic competitors.”10 The challenge that China poses for Europe is very different from the Soviet threat that NATO was originally formed to counter. With the Soviet occupation of Eastern Europe at the end of World War II, the United States, Canada, and Western Europe feared that Josef Stalin’s territorial ambitions extended even further west. NATO was created to reassure its founding European member states that the United States would protect them from member states will need to strengthen other frameworks that will play a more direct role attack. China today is not poised to invade Europe militarily and thus the perceived threat is not as stark for the populations of NATO member states as those posed, for example, by Russia for the eastern members of the alliance and by migration (and the possibility that some of those migrants might have links to terrorist organizations) for southern allies. In addition, the Soviet Union created its own closed economic sphere, de facto limiting Western Europe’s economic exchange with it. China, on the other hand, is deeply embedded in the global economy, and in 2020, overtook the United States as the EU’s largest trading partner.11 Despite some calls in the United States for “decoupling,” there is too much at stake with China to keep the economies as separate as those of the West and Soviet Union were during the Cold War.12 Not fearing a military invasion by China as they did from the Soviets during the Cold War, and economically intertwined with China as they never were with the Soviet Union, means that at least some U.S. allies will be unwilling, if asked, to choose sides between China and the United States in the heightening competition between the two superpowers. Recognizing European reluctance, Antony Blinken declared on his first visit to NATO as U.S. secretary of state in March 2021, “The United States won’t force allies into an ‘us-or-them’ choice with China.”13 China’s impact on NATO operations Since Article 5 refers to an armed attack in Europe or North America, China’s actions in the South China Sea and more broadly in the Indo-Pacific are far outside NATO’s writ in the North Atlantic, as Macron suggested in his post-summit comments. Nevertheless, Beijing has become increasingly active, although mostly non-militarily, in the Euro-Atlantic area where Article 5 applies. As the co-chairs of the NATO 2030 report argued, “China’s control of a growing portion of critical European infrastructure — from telecommunications networks to port facilities — directly affects NATO readiness, interoperability, and secure communications.”14 China may not pose a Soviet-style, traditional military threat to Europe, but Chinese ships and planes operate in the Eastern Mediterranean, the North Atlantic, and the Arctic, and the Chinese military has conducted joint exercises with the Russians in the Mediterranean and Baltic seas. Beijing now controls approximately 10% of European port capacity, primarily along the Atlantic and the Mediterranean, including Piraeus in Greece, Valencia in Spain, and Zeebrugge in Belgium.15 China’s challenge to NATO as a military alliance arises not only from its deployments, but its technology investments, including in 5G, as well as its role in supply chains, which could disrupt NATO military interoperability or create a Chinese capacity to disable weapons systems.16 As Julie Smith, Andrea Kendall-Taylor, Carisa Nietsche, and Ellison Laskowski have argued, “NATO interoperability requires member states to have secure and resilient telecommunications infrastructure, which Chinese systems put at risk. Moreover, if the allies diverged in their responses to the China challenge, the result could be the adoption of different standards, which would also undermine the interoperability of forces.”17 In response, NATO member states should be able to count spending on secure 5G systems toward their 2% of GDP defense spending target.18 While the United States is restricting Chinese telecommunications giant Huawei from access to its 5G networks, the range of reactions across the alliance is varied.19 Berlin is continuing to employ Huawei access, and although Paris favors Swedish and Finnish providers, it has not formally excluded the Chinese company.20 Ottawa, the lone hold-out of the Five Eyes on banning Huawei from its networks, has yet to reach a verdict as of mid-October 2021,21 while Warsaw is pursuing Huawei’s removal from Polish 5G networks.22 NATO’s tools for responding to the China challenge A decade ago, discussions about a forum for NATO conversations on China centered on the idea of a NATO-China Council, analogous to the NATO-Russia Council (NRC), a structured dialogue between the alliance and Moscow initially designed to ease the impact of NATO’s enlargement into Central and Eastern Europe on the West’s relations with Russia.23 But the experience of the NATO-Russia Council demonstrates the limits of such a body; while presumably it should be important as a crisis management mechanism during a major conflict, the NRC failed to perform that role during the 1999 Kosovo war, when Russia suspended its participation in the NRC’s predecessor, the Permanent Joint Council,24 and during the 2008 Russia-Georgia war, when NATO declared it could not “continue with business as usual” in the NRC.25 NATO proceeded to “[suspend] all practical cooperation” with Russia after the latter’s invasion of Ukraine in 2014, despite seeking to keep a channel for dialogue open.26 While a forum for NATO-China discussions could prove useful beyond the military-militarystaff talks that have been held previously, NATO needs an internal alliance forum to help member states develop greater cohesion in responding to the myriad challenges that Beijing poses, namely in areas like 5G and artificial intelligence.27 In their report,the NATO reflection group suggested forming a “consultative body modeled on the Coordinating Committee for Multilateral Export Controls” that operated during the Cold War.28 CoCom, as it was known, was a voluntary mechanism with no formal enforcement procedures that enabled allied conversations to develop joint policies restricting the exports of sensitive technologies to the Soviet Union, China, and other Eastern bloc nations.29 The Cold War fear of keeping advanced Western technology out of the hands of the Soviet Union was a different challenge than the current concern that Chinese technologies will prove attractive to Western nations, giving Beijing the ability to infiltrate targets and inhibit operations during a crisis. To develop a common assessment of the threat China poses to building common approaches to technology investments within allied nations, the internal NATO forum30 could serve as a platform to support key bodies such as the European Union, which will play a more important role than NATO in European decisionmaking on technology investment.31 NATO countries need to guard against falling prey to China’s divide and conquer strategy facilitated through Beijing’s own institutional mechanisms such as the Belt and Road Initiative32 (BRI) that China has pursued in Europe — primarily through the 16+1/17+1 format that includes countries throughout Central and Eastern Europe — and Beijing’s bilateral economic relations with European countries.33 (In 2019, Italy signed a Memorandum of Understanding to join the BRI, becoming the first G-7 country to do so.34) In one notable example of China’s economic power fracturing cohesion among democratic states, Athens blocked an EU statement criticizing China’s human rights abuses in the United Nations Human Rights Council just months after the state-owned China Ocean Shipping Company bought a 51% stake in Greece’s largest port, Piraeus.35Coordination on technology investment decisions requires building stronger NATO-EU and U.S.-EU ties. In May 2021, the EU agreed to include Canada, Norway, and the United States in the Permanent Structured Cooperation (PESCO) Military Mobility project, an important sign for future U.S.-EU defense cooperation.36 Building on a European Commission proposal,37 the United States and European Union at their June 2021 summit announced the creation of a U.S.-EU Trade and Technology Council to set joint standards on new technologies, “with the aim of promoting a democratic model of digital governance.”38 This council, which convened for the first time in September 2021, fits into a broader effort by the Commission to set forth an EU-U.S. agenda, creating a common framework for technology governance to ensure “secure 5G infrastructure across the globe and open a dialogue on 6G… part of wider cooperation on digital supply chain security done through objective risk-based assessments.”39 Others have proposed a NATO-EU collaboration to establish an AI Center of Excellence that would more proactively address Chinese advances in artificial intelligence.40 NATO has a ready-made framework for working with Indo-Pacific partners through its global partnership program, which includes Japan, South Korea, Australia, and New Zealand, among other nations.41 Foreign ministers from these four partners met at the North Atlantic Council (NAC) in December 2020 for the first time, and the NAC should hold such meetings on a regular basis to strengthen ties between NATO members and key U.S. democratic allies in Asia. The NATO 2030 expert group has suggested that NATO also seek a future partnership with India.42 Chinese deployments in the Euro-Atlantic area and increasing European (primarily U.K. and French) deployments in the Indo-Pacific will result in greater needs and opportunities for connectivity among U.S. allies across regions. Former U.S. Deputy Assistant Secretary of Defense for Europe and NATO Policy Ian Brzezinski has suggested that NATO could establish a small military headquarters in the Pacific through United States Pacific Command (PACOM) to help coordinate allied deployments in the region.43 One way to begin building more multilateral interoperability in the Indo-Pacific would be to build a defense college for civilian and military leaders in the region similar to the NATO Defense College in Rome.44 Such a college could include not just officers and political staff from America’s Asian allies but could serve to bring Europeans together with their Asian counterparts. The accelerating importance of the Quadrilateral Security Dialogue or Quad (made up of the Indo-Pacific powers Australia, India, Japan, and the United States), along with formats like the FranceIndia-Australia trilateral forum, creates opportunities for the U.S. and its allies to strengthen ties with India.45 The United States has long worked closely with the U.K., France, and Germany in a NATO Quad on matters of significance for the transAtlantic area. Under U.S. leadership, a Quad plus Quad arrangement could bring key American allies plus one key non-allied security partner, India, together from Europe and the Indo-Pacific, and is a natural outgrowth of the NATO global partnership mechanism. Such conversations would primarily be political in nature, as key allies from these two regions could discuss the growing challenges that China poses. A Quad plus Quad arrangement might also help ease the tensions with France that erupted with the announcement of the AUKUS trilateral security pact and submarine deal between the U.S., U.K., and Australia in September 2021.46 These partnership formats could secondarily allow allies to share information on any new European deployments in the Indo-Pacific. A British Carrier Strike Group visited the region in spring 2021, paying calls to India, Japan, South Korea, and Singapore, and the British have announced that they will be deploying two warships permanently in the region.47 Meanwhile, a French Amphibious Ready Group voyage transited in the South China Sea twice before its return to Toulon in July 2021.48 (The first German warship to cross the South China Sea since 2002, a mission that has been repeatedly postponed due to German sensitivities and limited naval capability, is now on the docket again for later this year, but German military activity in the region will remain minimal.49) French Minister of the Armed Forces Florence Parly described the significance of the region to her country in 2019: “France is not going anywhere, because we are part of the region. We have territories here, we have more than 1.6 million inhabitants, several islands with different statutes, vast exclusive economic zones, and the responsibility that goes with the territory. The evolving security order affects us too.”50 A Quad plus Quad mechanism could help the United States coordinate conversations among core European and Asian allies plus India on key political and economic challenges, and also provide a forum for discussion as France and the U.K. in particular become increasingly active militarily in the region. Coordination is also important given that a key U.S. goal should be encouraging European “strategic autonomy” to develop the capabilities necessary to address security challenges in Eastern Europe, the Middle East, and North Africa. While increased French and British military deployments in the Indo-Pacific appear inevitable given the perceived interests of those countries, Europe has significant need to strengthen its capacity to manage more of the crises in its own neighborhood, especially as the United States continues to rebalance its foreign policy toward Asia. U.S. efforts to “pivot” depend on a more capable Europe in regions that historically have led the United States to put off its rebalancing efforts in favor of dealing with pressing conflicts — as in the Balkans in the 1990s and the wider Middle East after 2001.51 While such European capabilities to take on greater responsibility for security along their periphery remain largely speculative to date, the U.S. and Europe not only have a stake in the development of those capabilities, but should seek to coordinate any prospects for a greater division of labor so that such activity does not weaken ties across the Atlantic. While the United States is seeking opportunities to get Europe on board with developing common approaches to addressing the China challenge, and will attempt to use the Strategic Concept process to sharpen NATO’s focus on the threats posed by Beijing, NATO is less important for addressing the Chinese economic and technological challenges than the European Union and key bilateral relationships across the Atlantic. As a result, any effort by the United States and its allies to respond to China will require going beyond NATO.

## DOS CP

### Solvency---2NC

#### Security assistance pins 5G to the best guidelines to ensure safety and efficacy

Kapko 22, Matt, reporter at Cybersecurity Dive, 7-8-2022, What to watch with 5G network security," Business Telegraph, <https://www.businesstelegraph.co.uk/what-to-watch-with-5g-network-security-cybersecurity-dive/> )//billy

5G operators and vendors have long claimed the latest generation of wireless network architecture delivers security improvements over 4G. However, it also introduces new features and services that expands the threat surface to systems previously untouched by wireless networks.

Efforts such as the virtualization of radio access networks and a push to open interfaces, allowing operators to integrate a wider pool of software and equipment from vendors, further complicates risk assessments.

The network architecture also allows carriers to deliver network slicing over shared physical infrastructure, private networks and mobile edge computing.

Three years after the first 5G networks went live, the Cybersecurity and Infrastructure Security Agency in May issued a five-step security evaluation to counter these threats, vulnerabilities and supply chain concerns facing enterprises and government agencies.

CISA provided guidelines and 5G configurations that federal agencies should implement to bolster security. It also placed 5G under the Risk Management Framework, a cybersecurity evaluation system developed by the National Institute of Standards and Technology.

CISOs, especially those engaged with government agencies on 5G networks, should consider CISA’s advice to follow zero-trust architecture principles and implement DevSecOps pipelines that integrate infrastructure as code capabilities, said Ron Westfall, senior analyst and research director at Futurum Research.

“CISOs need to adhere just as stringently to CISA guidelines and could stand out by helping U.S. government risk managers identify the best security assistance programs and best practice assessment frameworks,” he said via email.

CISA is effectively setting the bar high by pinning 5G security evaluations to NIST guidelines and aligning with what are generally considered best practices in any industry.

CISOs should follow those as a baseline for their own processes, said Michela Menting, research director at ABI Research.

The proposal marks the beginning of a long evaluation and response by the U.S. government, and it’s expected to be continuously revised as 5G technology advances and introduces new services that present additional risk.

“5G is still a nascent technology and common, full standalone deployment is still some years away,” Menting said. Most 5G networks today are anchored to 4G cores, which poses limits on what operators can deliver.

Standalone 5G networks, which effectively cut the cord with older systems, haven’t materialized as quickly as expected.

As that happens, 5G operators intend to deliver advanced services riding on cloud-native technologies and software that will extend network infrastructure to private enterprise networks and applications running at the edge.

How the next wave of 5G will be leveraged and deployed remains unclear and this makes security evaluation and risk assessment difficult, Menting said. New market players, including hyperscalers, cloud service providers, software and application developers, cybersecurity vendors, resellers and systems integrators are offering products and services within the telco space for the first time.

“The most prevailing security challenge in 5G infrastructure is the significant expansion of the attack surface in relation to pre-5G networks,” Westfall said.

The disaggregation of hardware and software and a larger vendor pool introduces new threats to virtual machines and container service platforms integrated across 5G network architecture. This includes the 5G core, radio access networks, mobile edge computing, network slicing, virtualization, and orchestration and management.

Potential threats cited by CISA include vulnerabilities and malicious code or systems across the supply chain that can occur during the provisioning and deployment of software and hardware in 5G networks and services.

### Solvency---Ext

#### Diplomacy allows avoiding perception of involvement over 5G

Daniel Voelsen 19, analyst on the intersection of technology and foreign policy, 6-28-2019, “5G and the US–China Tech Rivalry – a Test for Europe’s Future in the Digital Age” Stiftung Wissenschaft und Politik, <https://www.swp-berlin.org/en/publication/5g-and-the-us-china-tech-rivalry-a-test-for-europes-future-in-the-digital-age>) //billy

The analytical distinction between the two approaches is not meant to suggest that states strictly follow one or the other. In­deed, as the example of Germany shows, many states try to combine both. Still, the two approaches inform policy-making in different ways: The geopolitical approach leads to an emphasis on openly political measures; the “network security” approach, on the contrary, focuses more on technical solutions.

When a state approaches the issue of 5G within a geopolitical framework, it would be highly questionable – if not irrespon­sible – not to also include many of the tech­nical solutions proposed to increase net­work security. After all, if network secu­rity is seen as important enough to enter into serious inter-state confrontations, states should also do everything in their power to increase security through tech­nical measures.

In this context, it is quite remarkable that – at least in the short term – the recent decisions by the US administration may actually create new security risks. A number of rural telecommunication operators in the United States that rely on Huawei products will not be able to receive any software updates after the 90-day “grace period,” including security patches. Moreover, whereas Huawei never gained ground in the US consumer market, it is not clear what will happen to millions of Huawei mobile phone customers in Europe. They will likely not be able to update their phones with the newest versions of Alpha­bet’s Android mobile operating system. Indeed, most likely they will have to choose between using an outdated operating sys­tem or installing an Android variant (or “fork”) that builds on Android’s open source components but is combined with specifications and additions provided by Huawei.

On the other hand, it is possible to focus on network security without framing the issue as one of geopolitics. States can invest to create redundant and diverse network structures and increase the auditing and certification of the technology used by net­work operators – all without explicitly taking sides in the geopolitical struggle between the United States and China. Right now, it seems that the United Kingdom is trying to stick to this strategy. But this approach is also political on a higher level: It avoids geopolitics at the risk of creating vulnerabilities in interactions with states that very strategically pursue their own geopolitical interests.

Most crucial in this context is that China is massively financing, designing, and con­structing as well as gaining ownership and operating critical infrastructure on the Eura­sian landmass and beyond, namely through the BRI. In particular, the BRI explicitly comprises a digital component, the “Digital Silk Road.” The rationale behind this initiative is not just to promote Chinese high technology, but also to gain control over the flows of goods, services, and – most importantly – data. If one takes this Chinese ambition seriously, a short-term focus on network security might be seen as failing to address this more long-term strategic conflict.

In addition, not choosing a side in a con­text of increasing polarization could in it­self be perceived as choosing China’s side. The attempt to avoid geopolitics thus bears the risk of creating a serious rift with one of Europe’s closest allies.

It is not surprising, then, that many states in Europe appear to be attracted to a form of “geopolitics light,” combining an emphasis on network security with some more openly political measures (e.g., France, Germany). Indeed, this strategy is currently the most promising for Europe because it facilitates a degree of political and diplomatic maneuverability, allowing states the flexibility to address the perceived geo­political risks without fully getting drawn into the confrontation between the United States and China.

## Stop 5G CP

### Stop 5G CP---1NC

#### Text: The United States Federal government should:

#### stop deployment and use of fifth generation technology,

#### increase international efforts to stop deployment and use of fifth generation technology.

#### Countries say yes – already banning or restricting 5G due to health concerns.

Frank ’20 (Professor John William Frank MD, CCFP, MSc, FRCPC, FCAHS, FFPH, FRSE, LLD, Professor at the University of Toronto, at the Dalla Lana School of Public Health since 1983, holds a Chair in Public Health Research and Policy at the University of Edinburgh, Director of Knowledge Exchange and Research Impact for the Usher Institute at the University of Edinburgh, was named a Fellow of the Royal Society of Edinburgh in recognition of his scholarly contributions, founding Director of Research at the Institute for Work & Health in Toronto from 1991 to 1997, inaugural Scientific Director of the Canadian Institutes of Health Research - Institute of Population and Public Health from 2000-2008. “Electromagnetic fields, 5G and health: what about the precautionary principle?” 10/16/20 <https://olis.oregonlegislature.gov/liz/2021I1/Downloads/CommitteeMeetingDocument/250332>) ☺

Meanwhile, independent radiation and health scientists have published serious concerns about the current roll-out of 5G transmission systems.6–8 16–18 Their reasoning is twofold: (1) these systems have an unprecedented potential to create human and non-human RF-EMF exposures orders of magnitude more intense (eg, in terms of ‘power flux density’) than was the case only a few decades ago (16); (2) there is a remarkable dearth of evidence on the safety of 5G-specific EMF emissions, but a growing body of research suggestive of harms from other RF-EMF exposures, which have been studied for much longer.6–8 17 18 Moreover, a growing number of engineers, scientists, and doctors internationally have been calling on governments to raise their safety standards for RF-EMFs, commission more and better research, and hold off on further increases in public exposure, pending clearer evidence of safety.18–21 Some politicians have listened: France, Israel, Cyprus and Russia have banned WiFi in preschool and restricted its use in primary schools. Belgium has banned the sale of mobile phones to children under seven. In response to such concerns, several jurisdictions have recently blocked the installation of 5G antennae systems in their communities: Brussels, Florence, Rome, as well as Glastonbury, Frome and Totnes in the UK; and widespread anti-5G campaigns are now emerging in Australia, North America and elsewhere.

### Solvency---AT: Inevitable---2NC

#### Belgium already banned 5G in Brussels, the unofficial capital of the EU. Causes follow on.

Chamberlain ’19 (Kendra Chamberlain, journalist and analyst with over seven years’ experience covering issues about emerging technology. “Brussels halts 5G plans over radiation rules” 04/08/19 https://www.fiercewireless.com/5g/brussels-halts-5g-plans-over-radiation-rules) ☺

The Belgian government has decided to halt a 5G pilot project in Brussels over concerns that the new cellular standard cannot meet the city's strict radiation rules.

Brussels has some of the strictest radiation regulations for telecom equipment in the world, which has hampered the deployment of cellular technologies in the region, including 4G LTE and 5G.

The European Commission has asked each member state to select one city to be 5G-ready by 2020 as part of the EU’s [5G Action Plan for a Digital Single Market](http://www.europarl.europa.eu/legislative-train/theme-connected-digital-single-market/file-5g-action-plan). But, Brussels, the unofficial capital of the EU may be left behind if it cannot adapt its radiation standards.

Last year, three of Belgium’s telecom operators were able to strike a deal with the government to relax the radiation rules in Brussels in order to roll out a 5G pilot in the city, [according to local media reports](http://www.brusselstimes.com/business/technology/13441/orange-selects-brussels-as-first-belgian-city-to-receive-5g). In late 2018, Orange Belgium [announced](http://www.brusselstimes.com/business/technology/13441/orange-selects-brussels-as-first-belgian-city-to-receive-5g) it would deploy 5G networks in Brussels. But, environment minister Céline Fremault has decided to halt the project because it’s too difficult to measure the radiation exposure from the new service.

“I cannot welcome such technology if the radiation standards, which must protect the citizen, are not respected, 5G or not,” Fremault said, as reported in [The Brussels Times](http://www.brusselstimes.com/brussels/14753/radiation-concerns-halt-brussels-5g-for-now). “The people of Brussels are not guinea pigs whose health I can sell at a profit. We cannot leave anything to doubt.”

#### Empirics – Switzerland was a leader in 5G, but imposed a full-stop moratorium because of health concerns.

Jones ’20 (Sam Jones, Austria and Switzerland Correspondent at the Financial Times. “Switzerland halts rollout of 5G over health concerns” 02/12/20 <https://www.ft.com/content/848c5b44-4d7a-11ea-95a0-43d18ec715f5>) ☺

Switzerland, one of the world’s leaders in the rollout of 5G mobile technology, has placed an indefinite moratorium on the use of its new network because of health concerns.  The move comes as countries elsewhere around Europe race to upgrade their networks to 5G standards amid a furious rearguard diplomatic campaign by the US to stop them using Chinese technology provided by Huawei. Washington says the company, which is fundamental to most European networks’ upgrade plans, presents a grave security risk. Switzerland is relatively advanced in Europe in adopting 5G. The wealthy alpine country has built more than 2,000 antennas to upgrade its network in the last year alone, and its telecoms providers have been promising their customers’ imminent 5G coverage for most of the past year.  However, a letter sent by the Swiss environment agency, Bafu, to the country’s cantonal governments at the end of January, has now in effect called time on the use of all new 5G towers, officials who have seen the letter told the Financial Times.  The agency is responsible for providing the cantons with safety criteria against which telecoms operators’ radiation emissions can be judged. Under Switzerland’s highly federalised structure, telecoms infrastructure is monitored for compliance and licensed by cantonal authorities, but Bern is responsible for setting the framework. Bafu has said it cannot yet provide universal criteria without further testing of the impact of 5G radiation. The agency said it was “not aware of any standard worldwide” that could be used to benchmark recommendations. “Therefore Bafu will examine exposure through adaptive [5G] antennas in depth, if possible in real-world operational conditions. This work will take some time,” it said. Without the criteria, cantons are left with little option but to license 5G infrastructure according to existing guidelines on radiation exposure, which all but preclude the use of 5G except in a tiny minority of cases.  Several cantons have already imposed their own voluntary moratoria because of uncertainty over health risks.  Swisscom said that Bafu’s assessment process would not halt its ongoing work to build out 5G infrastructure, even if it meant that it would not be able to be used at full capacity. The operator said it could still achieve high speeds for customers of up to 2Gb/s without the full use of new masts. Swiss law on the effects of radiation from telecoms masts is broadly in line with that of European peers, but specifies the application of more stringent precautionary measures in certain cases. New 5G communications technology means individuals are exposed to more concentrated beams of non-ionising radiation, but for shorter periods. Bafu must determine which legal standards to apply to this. Swisscom, the country’s largest mobile operator, said it understood “the fears that are often expressed about new technologies”. “There is no evidence that antenna radiation within the limit values adversely affects human health,” the company added, pointing out that 5G is run on frequencies similar to the current 4G standard, which has been subject to “several thousand studies.” The company said Switzerland’s regulatory limits were “10 times stricter than those recommended by the World Health Organization in places where people stay for longer periods of time”. Switzerland already has a notable anti-5G lobby, with recent protests against its rollout in Bern, Zurich and Geneva. The Swiss Medical Association has advised caution on 5G, arguing that the most stringent legal principles should be applied because of unanswered questions about the technology’s potential to cause damage to the nervous system, or even cancers.  Five “popular initiatives” — proposals for legally binding referendums on 5G use — are already in motion in Switzerland. Two have already been formalised and are in the process of collecting the 100,000 signatures needed to trigger nationwide votes that if successful will amend Switzerland’s constitution.

### Competition---Stop---2NC

#### To stop something is to unequivocally prevent its continuance. Perms sever.

Dictionary.com ‘ND (dictionary.com, the world’s leading digital dictionary, proprietary source is the Random House Unabridged Dictionary, which is continually updated by a team of lexicographers and supplemented with trusted, established sources including American Heritage and Harper Collins. “Stop: Definition and Meaning” <https://www.dictionary.com/browse/stop#:~:text=definitions%20for%20stop-,stop,a%20car%3B%20the%20car%20stopped>) ☺

stop

/ (stɒp) /

verb stops, stopping or stopped

to cease from doing or being (something); discontinue; stop talking

to cause (something moving) to halt or (of something moving) to come to a halt; to stop a car; the car stopped

(tr) to prevent the continuance or completion of; to stop a show

(tr often foll by from) to prevent or restrain; to stop George from fighting

#### Stop means to suddenly come to an end, to cease an activity.

Merriam Webster ‘ND (Merriam-Webster Online Dictionary, America's leading provider of language information, backed by the largest team of professional dictionary editors and writers in America. “Definition of STOP” https://www.merriam-webster.com/dictionary/stop) ☺

1a: to cease activity or operation //his heart stopped //the motor stopped

b: to come to an end especially suddenly : [CLOSE](https://www.merriam-webster.com/dictionary/close), [FINISH](https://www.merriam-webster.com/dictionary/finish) //The talking stopped when she entered the room.

2a: to cease to move on : [HALT](https://www.merriam-webster.com/dictionary/halt)

# Kritiks

## Capitalism K

### Link---1NC

#### The Aff is a neoliberal façade to ensure Anglo-American technological supremacy.

Macfarlane 20 (Laura, economics editor at open Democracy and a fellow at the UCL Institute of Innovation and Public Purpose, 7-15-2020, "The tensions over Huawei are not about trade, but about global supremacy," https://www.theguardian.com/commentisfree/2020/jul/16/huawei-trade-global-supremacy-us-uk-china-liberal-capitalism, DOA: 7-11-2022//Smarx Ahsan---edited for spelling)

In 2015, George Osborne hailed the arrival of a “golden decade” of Sino-British relations. “Where some people are cautious about getting more involved in China, we say quite the reverse,” the chancellor remarked during a high-profile trip to Beijing. “We want to get more involved with China.”

Five years later, the mood has changed dramatically following Britain’s U-turn on its decision to allow the Chinese firm Huawei to develop its 5G network. Although the UK government has sought to play down accusations that the decision was politically motivated, insisting it was a “technical decision”, in reality it could scarcely be more political.

After repeatedly failing to convince British intelligence services that Huawei posed a national security risk, the US decided to force the UK’s hand by imposing new sanctions that cut off the company from international semiconductor supplies. This left the UK’s National Cyber Security Centre with little choice but to advise that Huawei equipment should not be used in the UK’s 5G network, souring relations between London and Beijing.

Washington’s fears about Huawei are genuine. But beneath the rhetoric about national security lies a deeper concern: that China’s economic model may have the potential to rival the productive power of liberal capitalism – and threaten the technological supremacy that has long underpinned US hegemony thanks to its world-leading university, military and tech sectors.

After Deng Xiaoping initiated China’s reforms and opening-up process in 1978, most western economists assumed that China would follow the path of other former communist societies: economic liberalization would be followed by political democratization, and China would join the club of liberal democracies. But not only has liberal democracy not arrived in the People’s Republic, the Chinese Communist party has developed a distinct economic model that has lifted nearly a billion people out of poverty and transformed China into one of the world’s largest and most dynamic economies.

Officially called “socialism with Chinese characteristics”, China’s economic model combines strategic state ownership and planning with market-orientated incentives and a one-party political system. In contrast to most western economies, the commanding industrial heights of the economy are owned and controlled by a vast state holding company that reports directly to China’s state council; the financial system is tightly controlled and subordinated to policy objectives; and long-term planning and investment decisions are overseen by the powerful National Development and Reform Commission.

Huawei has become the international poster child for the success of this model. Although not a state-owned enterprise, the company has received significant support from the Chinese state, including a $30bn line of credit from the China Development Bank. Thanks in part to this support, it has emerged as the unrivalled global leader in the development of 5G networks, and recently overtook Samsung as the world’s largest smartphone maker.

Although Huawei is the first Chinese tech company to become globally dominant, it is unlikely to be the last. Under the leadership of Xi Jinping, Beijing has made no secret of its ambition for China to achieve self-sufficiency in strategic technologies such as advanced information technology, robotics, aerospace, green vehicles and biotechnology. While the US was happy to encourage China’s economic development when it provided a cheap pool of labour for western supply chains, the goal of achieving technological self-sufficiency has set alarm bells ringing in Washington.

The influential thinktank, the Council on Foreign Relations, has described China’s plans as a “real existential threat to US technological leadership”, while the US trade representative Robert Lighthizer acknowledged they pose “a very, very serious challenge”. Strategists fear that allowing China to continue with these plans could lead to the US losing technological supremacy in key strategic sectors such as information technology, telecommunications and artificial intelligence – along with the economic, military and geopolitical power that comes with it.

For all the rhetoric about a trade war, rising tensions between the US and China have never really been about trade. From the beginning, the US has been concerned with preventing China’s rise as a rival technological power. In the case of Huawei, the Trump administration’s goal is clear: to crush one of the first Chinese tech companies to become globally competitive, and prevent it from gaining a dominant position in a key infrastructure of the future. This strategy is not without its risks, and could easily backfire. By pressuring countries not to do business with Chinese firms and cutting them off from global supply chains, Washington may end up inadvertently accelerating Beijing’s efforts to develop domestic capabilities in leading technologies, thus fueling these tensions even further.

While talk of a new “cold war” may be overblown, it’s no longer inconceivable to imagine a future where countries can use US technology or Chinese technology – but not both. In the longer term, a shift in this direction could fragment or even unwind the integration of our globalized economy.

It’s tempting to view the UK’s dilemma about Huawei as an unfortunate consequence of being caught in the crossfire between two superpowers. But in many ways the UK’s predicament can be traced to its own domestic policy failures. When Huawei was founded in the late 1980s, it was the UK – not China – that was a world leader in telecommunication technology. With homegrown firms such as STC, Racal, GEC, Marconi and Ferranti, the UK was second only to the US when it came to telecoms ingenuity. But in the following decades, successive UK governments allowed leading telecoms technology companies to be taken over and sold off to overseas firms. In thrall to free-market orthodoxy, British manufacturing and industry was sacrificed in the interests of the City of London and the financial sector.

While Huawei’s rise is undoubtedly a story of Chinese success, it is also a story of Anglo-American decline. The global financial crisis laid bare the underlying weaknesses of neoliberal capitalism, but without a clear alternative to take its place the response was to double down on a broken model. In the years since, stagnant wages and productivity, and spiraling inequality have fueled a surge of political discontent on both sides of the Atlantic.

If Anglo-American capitalism was already on life support, the catastrophic handling of the coronavirus crisis in the UK and the US has administered the lethal blow. Far from being viewed as successful models to emulate, the US and the UK are increasingly turning into cautionary tales to avoid.

None of this is to say that China’s variant of authoritarian capitalism is a desirable alternative, or that governments should turn a blind eye to the abuses of the Chinese state. But rebuffing Chinese technology and stoking anti-China sentiment will not cure the ills of Anglo-American capitalism. The roots of these problems, and therefore their solutions, can instead be found much closer to home.

### Link---2NC

#### 5G reinforces the digitization of capitalism

Meadway 19 (James Meadway, former political advisor to Shadow Chancellor John McDonnell, and former chief economist at the New Economics Foundation, 5-1-2019, "Are You Gonna Go Huawei? 5G and the Rise of AI Nationalism," Novara Media, https://novaramedia.com/2019/05/01/are-you-gonna-go-huawei-5g-and-the-rise-of-ai-nationalism/, DOA: 7-13-2022//Smarx Ahsan---edited for spelling---ableist language modified)

The economics of 5G.

Much of the world economy still runs on roughly this price-competitive basis, of course, but the scale of the digital economy is starting to ~~dwarf~~ exceed it, and even in manufacturing – where goods are most obviously still offered for sale at a specific price – data is coming to dominate, through the expanding use of digitized design and 3D printing, on one side, and the provision of in-service data after production. In aerospace, for example, Bombardier’s new C-series jetliner is expected to generate 844TB of data on a single 12-hour flight, roughly one-fifth of Facebook’s current daily global data usage. Aeroengine manufacturer Rolls Royce generates most of its revenue from post-production services, monitoring thousands of engines currently in use.

5G will further swell the deluge of data, with the proliferation of low-cost sensors in every electronic device, and the spread of massive, wireless communications capacity combining to further saturate both the economy and society. And it is the current models of artificial intelligence, reliant on machine learning from vast pools of data, that are poised to be exploit this, both to organize the enormous complexity of the ‘Internet of Things’, and to learn from it.

The economics of these two factors point, very strongly, to the reinforcement of existing tendencies in digital capitalism: that scale matters more than anything else, and that (as a result) it is control of access to infrastructure that determines who can grab any value generated. If you control access to the infrastructure, you can levy access charges.

But if AI reinforces these tendencies – and the kind of AI that we have, rooted in massive datasets, certainly does – and 5G reinforces them too, the logic of capitalist competition will be shifted further away from the textbook terrain of competition to offer the lowest price. The more the economy becomes digitized, the less it will be driven by price competition and the more competitive outcomes will depend on claims of ownership, access to revenue streams, and, ultimately, state power.

This is the logic spelled out in a thought-provoking essay by Songkick co-founder and angel investor Ian Hogarth, which he calls, rather bluntly, ‘AI nationalism’. Because the economics of AI are dependent on the scale of its operations, and because the social impact of AI will be so great, Hogarth predicts that an “accelerated arms race will emerge between key countries and we will see increased protectionist state action to support national champions, block takeovers by foreign firms and attract talent.” This isn’t an unfamiliar pattern of development for capitalism; indeed, the high period of globalization, from the 1990s to 2008, is historically weird in its rejection of this model, at least at the level of international governance. But since 2008, fusions of states and capital have proliferated.

#### Development of 5G exacerbates class divisions and makes the alt more difficult.

Corneliu Pivariu 22, Military Intelligence and International Relations Senior Expert, 7/9/2022, "From 5G to 6G, Crucial Developments for Mankind’s Future," Diplomat magazine, https://diplomatmagazine.eu/2020/01/05/from-5g-to-6g-crucial-developments-for-mankinds-future/, RMax

Yet the AI, 5 and 6G developments conceal challenges and threats that cannot be neglected or denied. The development of the said systems will lead to the disappearance of some professions and jobs. The redundant personnel have to be retrained and reformed so that unemployment will not be on the rise. There is also the danger that by amassing huge quantity of data some entities (private ones included) be tempted to use them for other purposes than those for which the respective systems were devised.

The possibility of exacerbating the social discrepancies and the poor and rich division more than we see today with difficult to foresee consequences is obvious. Mankind is developing a technology for which I’m afraid is not yet prepared to use it for the general good and using it for narrow purposes could have nefarious and difficult to predict consequences. As we inherited the pyramids, The Renaissance, The Enlightenment, will our descendants leave behind virtual reality only?

### Root Cause---2NC

#### We control root cause---Capitalism is the reason the US lags behind in 5G

Karam 20 (Amy Karam, thought leader, advisor, author and media commentator on 5G, Huawei, China trade challenges, geopolitics, innovation, global competitive strategy, technology evolution, 9-15-2022, "Did Free Markets Fail America in 5G? ,"LinkedIn, https://www.linkedin.com/pulse/did-free-markets-fail-america-5g-amy-karam, DOA: 7-17-2022//Smarx Ahsan---corrected spelling errors)

Western economic principles cost the USA a national security threat, a significant loss of global power in 5G and also enabled Huawei to grow into a leading 5G position.

There is much international debate about whether countries should allow Huawei’s equipment into their network infrastructure, particularly in developed nations and within the Five Eyes.

The USA has been aggressively lobbying allies to ban Huawei, citing national security concerns, and some ally nations have yet to make a firm decision. The UK made a pivotal decision this spring to remove and ban all Huawei equipment from its telecom 5G and legacy networks.

This summer I had the privilege of being a witness advisor to the UK parliamentary committee on 5G infrastructure strategy on what to do next given the recent decision to pull Huawei from their networks. Here are a couple of clips for insight. UK Parliament 5G Committee: advice on allies collaborating, industrial policy, China's system and UK Parliament committee advice on 5G, Huawei, what to do next

If Huawei is banned from 5G networks, it leaves two other primary 5G vendor choices – Ericsson and Nokia - with Samsung being a growing option.

However, the fact that only Huawei, Ericsson and Nokia are the top three 5G network equipment vendors at the moment begs the global competitiveness questions: why doesn’t the USA have a leading player in the 5G network equipment market?

Why isn’t there a USA 5G equipment vendor commanding a top-ranking position in the all-important future telecom technology of 5G, which influences national and economic security for years to come? How did the USA, a superpower and innovation giant, miss this market opportunity? Did free markets fail America in 5G?

The short answer is yes. Western economic principles and systems cost the USA a national security threat and a significant loss of global power in tech and also enabled Huawei to grow into a leading 5G position.

More specifically, free markets failed America in 5G leadership because of:

* Margin Greed
* Wall St. Rules
* Short-term Goals
* A hands-off government and a capitalism model that allows the private sector (free markets) to decide on investment directions. i.e. lack of industrial policy in critical industries

Margin Greed & Wall St. Rules

One primary factor contributing to the USA’s omission in the 5G networks space is that mobile wireless network equipment manufacturing costs are high and the margins are low in this business. Being a mobility, RAN (radio access network) vendor requires a long-term commitment, significant investment and a complementary revenue stream to support it as part of a companywide product offer strategy. It is not very lucrative.

Margin greed is likely a significant part of why America’s networking leader, Cisco, which was the natural likely vendor, chose not to invest in the mobile radio access network business.

Cisco vigorously protects its 65% profit margin targets, which shareholders love it for. Wireless mobility does not contribute well to that goal and it has a long-term sales cycle. Capitalism (free markets), high quarterly earnings expectations from Wall St., and short-term goals justified forgoing this market segment.

This is unfortunate for the USA’s long run global competitiveness position (which is not having a 5G position today), yet in the meantime, Cisco made a lot of people a lot of money for a couple of decades with this high-margin strategy.

Capitalism principles failed in the case of 5G networks. Free markets chose to pass on the 5G mobile wireless opportunity. The USA Government is now realizing that some elements of industrial policy relating to 5G are required for national security, as well as economic security reasons.

The US Government has demonstrated the beginning of a shift from defense to offense in 5G and are quickly working at establishing some form of a 5G play that would position the USA in the all-important future telecom technology of 5G.

“Capitalism will move money to the most efficient outcomes. And that is generally the right thing; we want that,” said Senator Rubio. “But from time to time, the most efficient outcome is not in our national interest. We can do industrial policy without abandoning capitalism.” He was referring to the PPE and pharmaceuticals shortfall at the onset of the COVID-crisis in March, however, this applies to the 5G gap today as well.

## Cybernetics K

### Link---1NC

#### 5G is the infrastructural basis of cybernetic capitalism

STRÖM 20 [TIMOTHY ERIK STRÖM, the author of Globalization and Surveillance Arena Magazine, "Antennas Aflame: Cybernetics, Conspiracies and 5G – Arena", December 2020, accessed 7-17-2022, https://arena.org.au/antennas-aflame-cybernetics-conspiracies-and-5g/] Lex IT

At the dawn of the 2020s, 5G takes this development further, allowing far higher speeds of data transmission, extremely low latency and greater network capacity. In terms of data transfer, if one gigabyte of data takes around 11 minutes to download on 3G, and 40 seconds on 4G, it takes 3.2 seconds on 5G. This technological infrastructure is seen as the necessary underpinning that will allow for a rapidly expanding ‘Internet of Things’—complex apparatuses like self-driving cars, increased machine-to-machine communication, and the proliferation of blockchain technologies. These emergent technologies are sure to create major ‘disruptions’ that will further entrench the abstracting power of cybernetic capitalism, with a pitched geopolitical struggle over the dominant form this takes. Australia has obediently followed the United States in escalating tensions with China by banning Huawei from making hardware for Australia’s 5G network, citing suspicions that Beijing may have control over the company. While this correctly recognises the power of infrastructure and surveillance, it applies extreme double standards with respect to the power the Pentagon has over the US-based tech industry.

5G requires three kinds of antenna to operate simultaneously and in parallel, with computers determining the optimal combination of signals and sources to ensure the highest data-transmission rate vis-à-vis the device and the network. Owing to its very limited signal range, the network requires far more nodes to be built, installed, powered and maintained, as well as entirely new sets of compatible machines, thus speeding up the slide of present technology towards its built-in obsolescence. Also, as the 5G nodes need to transmit far more intense electromagnetic frequencies, as well as doing the automated calculations to make the system work, such transmission requires significantly more electricity, both for the cell towers and for the receiving devices. Beyond mobile batteries being flattened faster, this also means that far more electricity will have to be generated and transmitted. We are already on track for the communication-technology sector to consume more than half of all electricity generated on earth by 2030. One fact captures this nicely: streaming one hour of high-definition video consumes the same amount of energy as running a refrigerator for two weeks. Considering the vast amount of on-demand audiovisual data being streamed, this has shocking ecological implications.

Suffice to say, 5G will undoubtably mean that far more data will be moved around, hence far more energy will be burned, far more pollutants released, far more technologies fabricated in toxic and exploitative conditions, far more rare-earth mining undertaken and far more e-waste exported to the poorest corners of the world. With grim irony, we live in a moment where there have never been more compelling arguments to consume less, to lead less energy-intensive lives, yet here we are, at the beginning of a vastly expanded energy usage.

Amid collapsing ecosystems, roiling social decay and fragmented consciousness, the captains of industry maintain that the long march towards a glorious future must progress. This ‘inevitable’ course of development is championed by the one-dimensional cheers of techno-utopians, be they free marketeers, techno-fascists, academic celebrants of posthumanism, or ‘fully automated luxury communists’. They all envision lifestyles of increasing technological mastery, infinite on-demand consumption and disembodied integration, all promoted through the mantras of ‘efficiency’, ‘convenience’ and ‘connectivity’, each term increasingly separated from any kind of social or ecological grounding.

Yet, while some of the most powerful actors on the planet push for these kinds of futures, not everyone is thrilled.

A burning antenna is a striking image: flames engulfing a 5G antenna spewing foul smoke, dripping melting plastics, shooting high-voltage sparks, burning away at the infrastructural basis of cybernetic capitalism. The image is more striking still when the antenna is immolated by politically motivated arsonists acting on conspiracy theories. In just one month, arsonists in the United Kingdom burnt seventy-seven 5G antenna towers, and many other towers were incinerated across Europe, while the US Department of Homeland Security has issued warnings to its telecom industry advising it to take steps to prevent such attacks. The plot thickens when it turns out that the attackers were motivated by a conviction that the communication towers are bound up with the coronavirus pandemic. There are variations on the 5G conspiracy, as discussed below, but the main claims are that 5G either causes or intensifies COVID or that the virus is being used by elites as a way to tighten control via biotech surveillance.

Much of mainstream liberal commentary on the 5G conspiracy consists of snide dismissals that blame credulous individuals for inaccurate beliefs. Yet, given how widespread the 5G conspiracies have become, it is not enough to dismiss them; likewise, myth busting and fact checking aren’t an adequate response. This approach is ill-suited to understanding the nature of the problem and formulating a political response to it, and it seems ineffective at changing minds. While conspiracies might be various shades of false, knowledge has a variety of social functions and is not reducible to a purely rationalistic logic. Perhaps it is more fruitful to examine the conspiracies that drive actions such as 5G-tower burning and to speculate about what they mean as a reflection of our present historical conjuncture. This doesn’t mean agreeing with all the claims of conspiracists, but it does suggest a need to interpret them in their relation to the deeper structural crises that afflict our world.

Conspiracists connect COVID-19 and 5G in a number of ways, each offering a different glimpse of the societies in which these conspiracies have found fertile ground. They can in part be understood as representative of different factions, sometimes in competition with one another for adherents, and sometimes able to be bundled together. 5G conspiracies are also bound up with sprawling networks of other conspiracies that cover an extraordinarily large range of preoccupations: the knights templar, 9/11 truthers, chemtrails, anti-vax, Creationism, fluoride mind control, ‘white genocide’, Elvis lives, Roko’s Basilisk, and flat earthers. From the benign to the vile, mixing elements of the occult, the paranoid, the plausible and the actual, they are stitched together often with heroic levels of cognitive dissonance, yet sometimes containing important kernels of truth. Conspiratorial beliefs seem to thrive in the fringes, yet they are decidedly not limited to such outliers. The conspiratorial claim that climate change is a hoax has been thoroughly accepted by many of the most powerful states and corporations on the planet, with planet-burning consequences. Conspiracy theories seem to require a degree of plausibility, and this may well reflect the increasingly large void that separates everyday experience and what might count as real or true from our techno-scientifically reorganised world. People intuitively disturbed by these developments may find the explanatory power of the 5G conspiracies a way to make sense of our chaotic world.

The crudest version of the 5G conspiracy—that electromagnetic frequencies emitted from 5G antennas directly cause the virus—is a belief that departs from any possible basis in scientific knowledge of the material universe, both the knowledge of the physicist and that of the physician. Perhaps this understanding of the conspiracy rests, at least in part, on the fact that 5G and SARS-CoV-2 are both new, frightening and poorly understood outside of specialist knowledges. Curiously, here and elsewhere, some conspiracy theorists seek to make their anti-scientific argument using pseudo-scientific terms. An example of this is the various maps circulating online that plot the density of 5G towers over the number of COVID-19 cases—a geospatial data analysis—and assert that there is a causal relation between the two (as opposed to seeing both as proxies for population density). Despite the cherry picking and logical fallacy at the heart of this, the conspiracy here adopts elements of a scientific discourse to make claims that run counter to the mainstream scientific explanation, drawing on empirical data and plotting it in abstract projections to create what looks like truth. When conspiracists couch their claims in pseudo-scientific terminology it suggests both the hegemonic social power of science—where even its enemies must argue at least superficially in its terms—as well as a profound weakness: how scientific discourse is so abstracted from many people’s experience of the world and how fundamentally political today’s scientific enterprise is.

Building on the claim that 5G causes coronavirus, the social effects of the pandemic are seen as a giant cover-up—a ‘plandemic’—with its adherents preferring to believe that it is a manufactured product of mass propaganda and systemic corruption rather than the health crisis explained by epidemiology and virology. While claims that the pandemic was ‘planned’ are impossible to substantiate in any meaningful way, claims of mass propaganda and systemic corruption are harder to dismiss. It is certainly true that governments are using the pandemic as an excuse to ram through all sorts of dubious policies. For example, Australia has seen waves of deregulation to ‘cut red and green tape’, tax cuts for the rich, wage freezes, increased defence spending, university-fee restructuring and massive investments in coal-seam gas, and all this as public-interest journalism continues to collapse and endless corruption scandals corrode governments’ legitimacy.

And, while 5G didn’t cause COVID, cybernetic technologies did drastically accelerate the virus’s global spread. A mere three months separated the first recorded case of coronavirus and its spread to 114 countries and the declaration of a pandemic. Such extreme speed of transmission is unimaginable without cybernetically enabled globalisation. On far lower frequencies than 5G, older forms of radio-wave technologies such as radar have been essential to mass air travel. Today radar is automated via the fully cybernetic systems that surveil and control the world’s vast fleets of aircraft; it has been essential to the ‘everyday’ air travel of the last decades, along with the cheap oil that powered planes made by aerospace military corporations such as Airbus and Boeing and globalised production. These various factors have created a hypermobility of bodies that reaches deep into what were hitherto relatively closed societies—in short, perfect conditions for the rapid distribution of pathogens, and anxieties about them.

### Link---Smart Cities---2NC

#### Smart cities enable government surveillance and control.

Robert Muggah 21, principal at the SecDev Group and co-founder of the Igarape Institute; and Greg Walton, fellow at the SecDev Group and a researcher at the Oxford Internet Institute, 4/17/2021, "‘Smart’ Cities Are Surveilled Cities," Foreign Policy, <https://foreignpolicy.com/2021/04/17/smart-cities-surveillance-privacy-digital-threats-internet-of-things-5g/>, RMax

That’s because “smart” is increasingly a euphemism for surveillance. Cities in at least 56 countries worldwide have deployed surveillance technologies powered by automatic data mining, facial recognition, and other forms of artificial intelligence. Urban surveillance is a multibillion-dollar industry, with Chinese and U.S.-based companies such as Axis, Dahua, Hikvision, Huawei, and ZTE leading the charge. Whether they are in China or elsewhere, smart cities are usually described in benign terms with the soothing promise of greener energy solutions, lower-friction mobility, and safer streets. Yet in a growing number of places from New York to Hong Kong, there are growing concerns about the ways in which supercharged surveillance is encroaching on free speech, privacy, and data protection. But the truth is that facial recognition and related technologies are far from the most worrisome feature of smart cities.

Part of what supposedly makes cities smarter is the deployment and integration of surveillance technologies such as sensors and biometric data collection systems. Electronic, infrared, thermal, and lidar sensors form the basis of the smart grid, and they do everything from operating streetlights to optimizing parking and traffic flow to detecting crime. Some cities are adopting these platforms more quickly than others. China, for example, is home to 18 of the top 20 most surveilled cities in the world. Shanghai, which achieved full 5G coverage in its downtown area and 99 percent fiber-optic coverage across the city, is covered by a veritable thicket of video surveillance. Identity collection devices are commonplace, having exploded across public and private spaces. Shanghai recently installed Alibaba’s City Brain public surveillance system, which oversees over 1,100 biometric facial recognition cameras. A combination of satellites, drones, and fixed cameras grab over 20 million images a day. The bus, metro, and credit cards of local residents are also traced in real time. And these tools are spreading. Chinese firms are busily exporting surveillance tech to Latin America, other parts of Asia, and Africa, helping enable what some critics call digital authoritarianism.

Surveillance technologies are hardly confined to China. They are also widespread in U.S. cities. Throughout the 1990s and 2000s, law enforcement agencies and private companies deployed surveillance tools, ostensibly to improve public and private safety and security. The 9/11 attacks and subsequent U.S. Patriot Act dramatically accelerated their spread. Yet support for facial recognition systems appears to be ebbing. San Francisco was the country’s first major city to ban its agencies from using them in 2019. San Francisco was among the top five most surveilled cities in the United States when eight of the nine members of its Board of Supervisors endorsed the Stop Secret Surveillance Ordinance. Rolling back surveillance has proved difficult—digital rights advocates recently detected over 2,700 cameras still in use for police surveillance, property security, and transportation monitoring. In 2000, campaigners sued the city for tapping into private cameras to surveil mass protests, in defiance of the new ordinance.

Across North America and Western Europe, the tensions over smart cities can be distilled to concerns over how surveillance technology enables pervasive collection, retention, and misuse of personal data by everything from law enforcement agencies to private companies. Debates frequently center on the extent to which these tools undermine transparency, accountability, and trust. There are also concerns (and mounting evidence) about how facial recognition technologies are racially biased and inaccurate when it comes to people of color, discriminating particularly against Asian and African Americans. This helps explain why in the two years since San Francisco banned facial recognition technologies, 13 other U.S. cities have followed suit, including Boston; Berkeley and Oakland in California; and Portland, Oregon. By contrast, in China, racial bias seems to be a feature, not a bug—patented, marketed, and baked into national policing standards for facial recognition databases. What’s more, Chinese companies are bringing their technologies to global markets.

## Empire/Imperialism K

### Link---1NC

#### 5G key to media imperialism which has a direct impact on US globalization, capitalism, and empire building

Tang 20 [Min Tang, writer at University of Washington Bothell, International Journal of Communication, "Huawei Versus the United States? The Geopolitics of Exterritorial Internet Infrastructure ", 2020, accessed 7-17-2022, https://ijoc.org/index.php/ijoc/article/viewFile/12624/3204] Lex IT

After historicizing the Huawei case in the entanglement of information systems and geopolitics, this article situates the case in the media imperialism discourse and examines its contemporary relevance. This article connects the case to the debate on multistakeholderism versus multilateralism in global Internet governance and reconceptualizes the framework through the role of nation-states. This case is not solely a matter of bilateral trade disputes, but rather about the intensifying geopolitics surrounding global Internet infrastructure—5G technology, in this specific case, where a self-interested logic of neoliberal imperialism surfaces in the U.S. approach that contradicts what it holds as a multistakeholder model in Internet governance. Methodologically, the study takes a critical political economy approach, drawing on document analysis of primary and secondary sources. It starts with an overview of the United States’ use of diplomatic devices—be they political, economic, or military—to steer the global communication system, practices of which some scholars term media imperialism. The article then situates Internet governance in the broader history of struggles in the global information order and examines the key debate on conceptualizing states, followed by a section on the rise of China’s digital industries, resulting in increasing intercapital tensions and state efforts in seeking influences on exterritorial Internet. To understand the continuities, changes, and trajectories of these intertwined processes, the Huawei indictment is used as a case study. Global Communication, Geopolitics, and Media Imperialism From Britain’s dominance on submarine cables in the 19th century and German leaders’ ambition to shape world communication through wireless telegraphy news, to the rise of the United States rivaling the United Kingdom over exterritorial networks after World Wars I and II and the early development of the global Internet system, control of global information infrastructures has always been a priority for imperial states (D. Schiller, 2011a; Tworek, 2019). Global media scholars have cast light on the relations between communication and empire of various periods. Boyd-Barrett and Rantanen (1998) examine the role of news agencies in the developments of capitalism and globalization as “an outstanding but neglected feature of the past 150 years” (p. 2). Tworek (2019) takes Germany at the turn of 20th century and especially during and after World War I to explain how it had built a global news network to support “political, economic and military power at home and abroad” (pp. 5–7). Winseck and Pike (2007) further the links between communication and empire, suggesting complicated power axes of nation-states, corporations, and technologies in these processes in the early 20th century. The U.S. government has long used diplomatic leverage, including trade, to steer communication policies to promote national interests. Hills’ (2002, 2007) historical work argues that the history of U.S. imperial expansion is a history of the struggle in controlling the global information network. Guback (1969) illustrated how U.S. foreign policy in the decade post–World War II helped reduce restrictions on American films in Europe and expand Hollywood’s overseas markets, thereby sustaining U.S. political interests. Into the second half of the 20th century, U.S.-based transnational media corporations rose to dominate global cultural industries (Herman & McChesney, 1997; H. Schiller, 1992). Through these processes, a natural alliance between the U.S. state media industries was forged. The overseas expansion of American broadcasting, advertising, and media systems, together with the military, were the pillars of the U.S.’s global dominance (H. Schiller, 1992, p. 37). These highly integrated American media conglomerations also exerted strong influences on U.S. economic and foreign policies to allow their further consolidation and greater media power over other countries (Boyd-Barrett, 2006; Herman & McChesney, 1997, p. 4). This laid the foundation for the media/cultural imperialism paradigm. Many scholars pinpoint the onset of media imperialism discourse to Herbert Schiller’s (1976) study on the relationship between media and the U.S. empire, where he used cultural imperialism to describe the sum of the processes by which a society is brought into the modern world system and how its dominating stratum is attracted, pressured, forced and sometimes bribed into shaping social institutions to correspond to, or even promote, the values and structures of the dominating center of the system. (p. 9) In his initial work, Schiller was mostly concerned with the neoliberal expansion of U.S. mass media as a major vehicle to build, maintain, and exercise imperialistic national power. Boyd-Barrett (2015) refined the concept and articulates three key aspects of the multilayered empire-making processes in and through media: Firstly, processes of imperialism are in various senses executed, promoted, transformed or undermined and resisted by and through media. Secondly, the media themselves, the meanings they produce and distribute and the political-economic processes that sustain them are sculpted by and through ongoing processes of empire building and maintenance, and they carry the residues of empires that once were. Thirdly, there are media behaviors that in and of themselves and without reference to broader or more encompassing frameworks may be considered imperialistic. (p. 1) With more scholars taking on this concept, media imperialism gradually became a critical discourse encompassing various theories that embrace multifaceted relations between communication systems and imperialism (Boyd-Barrett, 2015; Tomlinson, 2002). Some notable elements in this field of inquiry are the transnational expansion of media corporations, the entanglement of state entities, the rhetorical and narrative vehicle, and the dialectical interrelations among these different parts. This discourse became a primary intellectual source for the New World Information and Communication Order (NWICO), a series of policy debates that addressed the media and geopolitical struggles in the 1970s between the North and the South (Nordenstreng, 2013). At first a political movement by developing countries to resist cultural imperialism, NWICO evolved into critiques on structural matters of information flow, media policies, and infrastructure governance, which continued at the World Summit on Information Society (WSIS; Chakravartty, 2006). Since the early 1980s, information and communication technologies (ICT) have developed into new sites of reproduction and control for U.S. imperialism (H. Schiller, 1981, 1984). The neoliberal policies gave birth to an array of U.S.-based ICT monopolies, such as IBM, Cisco, Apple, Microsoft, and Google, which spearheaded U.S. global expansion through proprietary systems of technical standards, patents, and copyright law and through networked cloud computing (McChesney, 2013; D. Schiller, 2014). Meanwhile, a “military-digital complex” (McChesney, 2013, pp. 158–171) has surfaced, assisting the U.S. government with data collection for strategic exterritorial interests (D. Schiller, 2011a). This was evident in the participation of U.S social networks in the Arab uprisings and with Edward Snowden’s revelation of the National Security Agency’s global surveillance programs (Aouragh & Chakravartty, 2016; Greenwald, 2014). As Aouragh and Chakravartty (2016) observe, “it is painfully apparent that telecommunications and social media companies alike comply, co-operate and bend to state power—whether Egyptian military regimes or U.S. imperial interests” (p. 565). The growth of U.S. digital giants as the new engine for geopolitical conquest bear much resemblance to media imperialism. The conflicts over the global communication order, especially the management of Internet infrastructures, are as much alive as in the era of NWICO and WSIS (Nordenstreng, 2013; Pickard, 2007). This study reconceptualizes Internet governance within the longer history of struggles in the global communication systems and benefits from the media imperialism discourse that takes a holistic view of state power and the dialectical relation between the state and private actors.

## Security K

### Security---1NC

#### Huawei and other 5g telecom companies in China have become a pawn for the greater domestic and international macro-securitization of China by the US

Friis and Lysne 21 [Karsten Friis - Senior Research Fellow and head of NUPIs Research group on security and defense, Olav Lysne - director of Simula Metropolitan, and professor of Communication Systems at the Oslo Metropolitan University, Wiley Online Library, "Huawei, 5G and Security: Technological Limitations and Political Responses", 10-3-2021, accessed 7-17-2022, https://onlinelibrary.wiley.com/doi/full/10.1111/dech.12680] Lex IT

Securitization theory is about the social construction of a threat and the response to it. The theory emerged in the 1990s as a reaction to and rejection of rationalist notions in the then dominant theories in International Relations of dangers and risks as objective givens (Buzan et al., 1998). Instead, securitization theory emphasizes the political processes that make something a security issue. The theory has since evolved in many directions, but the key idea is that ‘an issue is given sufficient saliency to win the assent of the audience, which enables those who are authorized to handle the issue to use whatever means they deem most appropriate. In other words, securitization combines the politics of threat design with that of threat management’ (Balzacq et al., 2016: 495).

The theory comprises a securitizing actor (e.g. an individual or a state), securitizing moves (e.g. speeches and practices), an audience (e.g. a society or a parliament), and a referent object (that which is being securitized, e.g. terrorism or migration). In this article, we use a simple model to enhance an empirical study of the row over 5G in the West. We define the United States as the securitizing actor that securitized 5G through speeches and diplomatic practices in an attempt to convince Europe (the audience) to follow suit.

Applying the theory to processes taking place between states rather than inside them has been labelled macrosecuritization by Buzan and Wæver (2009). This aspect of securitization theory has not been explored as broadly as many other facets of the theory. Buzan and Wæver's model is complex and multidimensional, including level of analysis (local to global), degree of comprehensiveness (from niche to inclusive), and degree of success in convincing the audience. Macrosecuritizations, they write, ‘are necessarily launched as candidates for top-rank threats’, such as ‘geo-economics, terrorism, [and] nuclear proliferation’ (ibid.: 258–59). Niche securitizations, on the other hand, ‘get onto the agenda as accepted threats, but do not rise to top priority’; examples include ‘environmental threats, epidemic diseases, organised crime, [and] drugs’ (ibid.). Buzan and Wæver also point out that macrosecuritizations are more vulnerable to breakdown than mid- or micro-level securitizations, as the mid-level units (states) may pull out or reject the securitizing move. A reason for this could be that there are usually weaker relations between the securitizing actor and the audience on the macro/global level than in mid- or micro-level cases.

Inspired by Buzan and Wæver's model, we borrow some of its concepts for our empirical study, but do not apply it in its full complexity. In our case, the US government was not dependent upon European consent to implement restrictions on Chinese 5G suppliers on American soil. This was a domestic securitization process. The securitizing move we study, however, happened after the initial US securitization and was about convincing other states to undertake their own national securitizations of the 5G rollout. This was an American attempt at comprehensive macrosecuritization of China, with a niche securitization of 5G.

Another dimension of the theory that we engage with here is the material or technological dimension. As Buzan and Wæver (2009: 255) point out: ‘In principle, securitizing actors can attempt to construct anything as a referent object. In practice, however, the constraints of facilitating conditions mean that they are much more likely to be successful with some types of referent object than with others’. In our case we argue that the features of 5G technology — its weaknesses and vulnerabilities as well as its expected role as a critical infrastructure in our societies — are important to understanding securitization processes. In other words, these processes were constrained and impacted by the material ‘realities’ of 5G technology. Understanding, for instance, if the dangers pointed to by the securitizing actor (such as espionage) can be addressed or resolved through technological solutions, is crucial. Such understanding can help us navigate the political terrain and enhance our understanding of securitization processes. This does not mean that the technological specificities of 5G telecoms in any way determine political outcomes — but they do affect them. In short, if a simple technical solution could mitigate all the concerns raised by the securitizing actor, securitization would fail.

AMERICAN SECURITIZATION OF CHINESE TELECOMS

Voices calling for the securitization of Chinese telecommunications companies in the US can be traced back to at least 2010. At that time, the FBI, politicians and US experts repeatedly pointed out that Chinese companies could pose a security threat to the United States (Barboza, 2010). In 2012 Congress warned that the ‘United States should view with suspicion the continued penetration of the US telecommunications market by Chinese telecommunications companies’ (US House of Representatives, 2012: vi).

At the time, these warnings did not gain too much traction. The overall political mood when it came to China was one of inclusion. Since the 1990s, the US and the West had had a clear strategy to bring China (and others, such as Russia) into the existing world order. In practice, this meant that they were invited into existing regimes, such as the World Trade Organization, and that trade and dialogue were promoted with the hope that authoritarian regimes would open up and gradually democratize. This policy had been questioned and criticized for a while, but as the Trump administration took office in 2016, a distinct shift in both rhetoric and practices could be noted. Trump embarked upon a confrontational approach towards China in many areas, not least in trade, tariffs and industrial production, but also in security. The argument was that the strategy of inclusion and change had failed, and that China had abused American openness to subsidize its industry, manipulate currency, steal technology and position itself in global markets. Increasingly authoritarian political developments in China and growing pressure on neighbouring countries were also referred to by US government officials. The securitization of Chinese 5G must therefore be seen in this broader context of American securitization of China in general.

It was the Chinese telecoms company Huawei that became a particular target (referent object) of securitization in the US. As a world leader in 5G technology, and a provider of the 4G networks in many Western countries, Huawei was a strong candidate to secure many 5G contracts. However, the Trump administration took a robust stance against the company, citing the risks of espionage from China. They claimed that Huawei and other Chinese technology companies represented a serious threat to national security, as their 5G systems could be misused for the purpose of espionage or even sabotage by China (Cartwright, 2020).

Questions were asked about its ownership structure and the influence the Chinese Communist Party had over Huawei (Hawes and Li, 2017; Rühlig, 2020). In particular, critics of Huawei referred to the 2017 Chinese Intelligence Law, which requires Chinese companies to turn over information to, and comply with, China's intelligence and security services (Rühlig and Björk, 2020: 9). As a result, in 2018 the US decided to ban the use of Huawei and ZTE, another Chinese telecommunications company, in the Armed Forces (US Congress, 2018). Furthermore, in May 2019 the US put Huawei on its ‘Entities List’, a list of companies not allowed to buy American products (Federal Register, 2019). This meant that Huawei could no longer use US-made chips and other components in its products.

In April 2020, the then Secretary of State, Mike Pompeo, announced that the United States would introduce a ‘5G Clean Path’ system that would ensure that no correspondence from US embassies would go through Chinese networks or systems. This was later extended to the ‘Clean Network’, whose purpose was to ‘secure national resources, including citizens’ computer security and the company's most sensitive information from aggressive intrusions by malicious actors, such as the Chinese Communist Party’ (US Department of State, 2020a). The Clean Network included ‘Clean Apps’, ‘Clean Carrier’, ‘Clean Store’, ‘Clean Cable’, ‘Clean Cloud’ and ‘Clean Path’. The purpose was to exclude Chinese companies from app stores, remove American apps from Chinese app stores, and refrain from using Chinese networks, cloud services and cables.

At the same time that Huawei was securitized domestically, the Trump administration embarked upon a global campaign to make other countries follow suit. The language used by US officials was forthright, with no diplomatic filters. For instance, in 2020 the then Secretary of Defense, Mark Esper, stated that: ‘If countries choose to go the Huawei route, it could well jeopardize all the information sharing and intelligence sharing we have been talking about, and that could undermine the alliance, or at least our relationship with that country’ (quoted in Sanger and McCabe, 2020). In short, the securitization of Huawei consisted of rhetoric focused on risks and dangers, restrictive legislation and a global campaign, which we will return to below.

However, the campaign against Huawei was not restricted to telecoms security. The company was accused by US authorities of racketeering and theft of trade secrets. The conflict peaked in 2019 when Huawei and its chief financial officer, Meng Wanzhou, were indicted for fraud and sanctions evasion. The arrest of Meng Wanzhou in Canada and subsequent — seemingly retaliatory — arrests of Canadian citizens in China contributed to a strained political climate between China, the US and Canada (Blanchfield, 2020). However, none of this had anything to do with 5G security. According to Sanger and McCabe (2020), ‘The Huawei fight is just one part of a bigger US–China battle, as Washington tries to contain Beijing's influence and power and ensure that the world's second-largest economy does not come to dominate advanced industries that could give it an economic and military edge’. Furthermore, they hold, ‘The United States is also trying to limit China's access to American technology more broadly and is considering restricting sales of microchips, artificial intelligence, robotics and some types of advanced software, along with preventing tech companies from teaming up — or even sharing research — with Chinese firms’ (ibid.). Hence, the securitization of Huawei was about more than just 5G security; geopolitics and economic rivalry were also important factors (Inkster, 2019; Mascitelli and Chung, 2019). The securitization of 5G and Huawei was therefore part of a broader US policy of confronting and securitizing China across a spectrum of issues. It was part of a comprehensive and global macrosecuritization of China.

This broader American macrosecuritization of China raises some important questions: is the niche securitization of primarily Chinese 5G a subset of this? Were the 5G security concerns inflated or used as a fig leaf to cover for economic interests and geopolitical rivalry? Was, for instance, Mark Esper's concern that the 5G network may be exploited for espionage or sabotage exaggerated to cover for a political agenda? We cannot know the exact motivations for the US's 5G securitization. There were probably several overlapping agendas at play. However, we can get a better idea of the technical security risks associated with 5G, and thus at least be able to assess whether the securitization could be substantiated on technological grounds or not. In theoretical terms this means exploring the technical–material foundation on which the securitizing act is based, without arguing that securitization had to happen. It will, however, indicate the strength of the arguments that the securitizing actors relied on in the process.

# Solvency

## General

### Solvency---Spectrum---1NC

#### Coordination fails – lack of spectrum harmonization prevents investment and hampers interoperability

Norin et al ’22 [Mats, Norin holds an M.Sc in Mechanical Engineering from the Royal Institute of Technology, Stockholm, April 2022, "Whitepaper on 5G spectrum for industrial networks," Ericsson, <https://www.ericsson.com/en/reports-and-papers/white-papers/5g-spectrum-for-local-industrial-networks>, St. Mark’s, AM]

Spectrum harmonization – a challenge

Harmonizing the use of spectrum bands across geographies is essential to achieving mass-market conditions which in turn enables cost-efficient and competitive industrial devices. Many countries have already begun to assign spectrum for 5G wide-area cellular networks, and quick regulatory actions and decisions have proven to be highly positive for all ecosystem parties, benefiting service providers and device makers with the ability to make technology investments as well as consumers with the possibility for earlier enjoyment of new generations of technology. Some countries have also begun to consider licensed/leased spectrum as part of industrial digitalization and industrial applications (see Figure 2). Germany, for example, allocated local licensed spectrum in 3700-3800 MHz band range to industries for their applications already in 2019, while Japan similarly announced the allocation of the 28 GHz band. Some nations, like Czech Republic and Denmark, have chosen an alternative way to dedicate spectrum to industries. They are including obligations in selected 5G bands for CSPs national licenses to offer local spectrum leasing to industries at a pre-defined price.

The approaches taken differ widely between regulators, and the allocated bands are in many cases shared with incumbents.

Discussions on spectrum for industries are ongoing or dedicated local spectrum is assigned. Includes spectrum made available by regulators through leasing obligations.

Mid band - Brazil, Chile, China, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Japan, Netherlands, Norway, Poland, Republic of Korea, Sweden, Taiwan, UK, US

High band, mmW - Australia, Denmark, Finland, Germany, Greece, Hong Kong, Japan, Republic of Korea, Sweden, UK

Figure 2. Discussions on spectrum for industries are ongoing or dedicated local spectrum is assigned. Includes spectrum made available by regulators through leasing obligations.

Regarding the locally licensed/leased spectrum considered by administrations, these diverse allocations pose challenges to building a device ecosystem for industrial applications. Device chipsets need to be supported not only by an ecosystem of traditional mobile broadband (MBB) devices but also by an ecosystem that includes industrial devices of varying complexity on different spectrum bands. These ecosystems, however, are still under formation.

## Status Quo

### Inherency---1NC

#### Status quo solves---US has cautioned NATO about 5G security.

Eskrine ’22 [Andrew; 2/4/2022; research analyst at the NATO Association of Canada, researcher for the Consortium of Indo-Pacific Researchers, political analyst for The New Global Order, analyst director for the NATO Research Group, M.A. of Global Affairs, Global and Regional Orders, Hegemony and Polarity from the University of Prince Edward Island; "The Western Flank: The Geosecurity Periphery NATO Forgot It Had," https://www.airuniversity.af.edu/JIPA/Display/Article/2964827/the-western-flank-the-geosecurity-periphery-nato-forgot-it-had/]

Geosecurity Gravity of China’s Unconventional Power

In a similar fashion to how former US Secretary of State Dean Rusk alerted NATO to the potential geosecurity challenges of a nuclear China in 1964, the United States—predominantly under the Trump administration—has been momentous in cautioning its NATO allies of the dangers posed by Chinese cyber, digital, and economic power. After these assertive announcements, NATO exclaimed that “China is coming closer to us. We see them in Africa, in the Arctic, investing in infrastructure in Europe and also in cyberspace.”25

Almost overnight, the Alliance was fractured over the United States’ insistence that Europeans “over-relied” on Chinese economic investments and 5G technologies.26 However, this case has legitimate grounds for geosecurity concern. In 2012 Central and Eastern European (CEE) states were overwhelmingly enthralled over China’s decision to establish a format for mutual economic cooperation with the 17+1 initiative—now the 16+1 initiative after Lithuania withdrew from the partnership in May 2021. For many of the CEE states participating in the 16+1 initiative, the extraregional engagement of China did not raise any cause for geosecurity anxiety, seeing as their proximity to Russia and the direct threat it posed was more concerning.27 Moreover, many of the CEE states regarded any geosecurity threat from China as more of a Western European issue.28

The assertiveness of the United States to broadcast China as a geosecurity challenge became a reality when China began to use its economic investments to attain its “core interests”—the Taiwan quagmire, Tibet, Xinjiang, the South China Sea disputes, and state-owned enterprises, such as Huawei—being excluded from the CEE markets.29 Showcasing its unconventional power to impact the economic stability of NATO’s European members, China has initiated trade sanctions, investment restrictions, tourism bans, widespread boycotts, and restrictions on official travel when it does not get its way on diplomatic matters. China recently recalled its ambassador from Lithuania, limited trade, and suspended rail services between the two countries after Lithuania authorized Taiwan to open a representative office in Vilnius and Taiwan reciprocated with plans to open a similar office in Taipei.30 China has also exerted unconventional hard power through state-issued threats and arbitrary detention of NATO allies’ state officials.31

NATO’s European members have begun to acknowledge China’s growing geosecurity challenges in cyberspace. According to the Atlantic Council’s China Plan, the People’s Liberation Army (PLA) has ongoing missions to maximize its ability to conduct multiple cyber operations, including but not limited to cybertheft, cyber-reconnaissance, cyberwarfare, and cyberattacks on information and military systems and civilian electric grids.32 What is more, NATO’s 2020 “reflection process” report condemned China’s ongoing “disinformation campaign” against its members, “widespread intellectual property theft” that presents geosecurity threats on allies’ prosperity, and “cyberattacks” on NATO governments and societies.33

Geosecurity Gravity of China’s Conventional Power

China is due to have the second-largest military globally by 2050, a distinct great-power feature that will enable China to project its security and defense interests outside its regional jurisdiction. China has also made it clear that it yearns for the People’s Liberation Army Navy (PLAN) to evolve its green-water maritime capabilities into an efficient blue-water oceanic force. With a powerful blue-water navy, it can be anticipated that the PLAN will seek out new military dimensions in extraregional jurisdictions to promote, protect, and procure its geoeconomic and—by default—geosecurity interests.

### Inherency---2NC

#### Squo solves – new DoD contracting and innovation

OSD ’21 [OSD A&S INDUSTRIAL POLICY, January 2021, “INDUSTRIAL CAPABILITIES,” DoD Congressional Report, <https://www.businessdefense.gov/docs/resources/USA002573-20_ICR_2020_Web.pdf>, St. Mark’s, AM]

Department of Defense Recently, DoD announced the award of over $600 million in contracts to 15 prime contractors to perform testing and evaluation of 5G technologies at five military installations across the United States. Work on the test sites will last approximately three years, with the sites expected to be set up within the first year and full-scale experimentation planned by year two. The photograph in Figure 8.13 is the AN/FPS-117 engineering facility at Hill Air Force Base, Utah – one of the 5G testing sites.122   
There are three key thrust areas that the military is pursuing in regards to 5G networking: Accelerate, Operate Through, and Innovate. Accelerate includes the hastening of DoD’s use of 5G technologies; Operate Through ensures that DoD networks are secure and will have the ability to operate wherever and whenever the military goes; and Innovate focuses on next generation technologies (6G, 7G, etc.) to position the U.S. for the future. 5G technology is vital to maintaining the U.S. military and is a transformational technology critical to DoD modernization.124 The economic advantages of 5G technology will be the advent of ubiquitous connectivity, and the connectivity of everything, everyone, everywhere through wireless communications.

#### Squo solves – JADC2 solves interoperability in 5G with NATO

Zurat ‘22 [Michael, 3-7-2022, "Why 5G Is a Top DoD Priority," General Dynamics, <https://www.gdit.com/perspectives/latest/why-5g-is-a-top-dod-priority/>, St. Mark’s, AM]

While 5G and “next G” is currently getting a lot of attention in the commercial space, it’s been a top DoD priority for several years. Why? Because along with aircover, secure and reliable signal and communications are critical for warfighters. Yet today, NATO partners and even each of the different services often use different networks and devices that are not interoperable to communicate. This is the impetus for the DoD’s JADC2 initiative, which consolidates signal communications among joint forces and makes everything more interoperable.

JADC2 and 5G Complement

JADC2 is a replacement for the constellation of legacy purpose-built tools that add additional complexity and – from a cybersecurity perspective – unintentionally broaden the threat landscape on which our adversaries will look to attack. But the signal issue is not unique to the Defense arena. Managing spectrum traffic and devices is a critical way to minimize potential interference amid legacy radio usage within the aerospace, telecom, and healthcare industries.

### Inherency---Ext

#### Congress mandated DOD 5G outreach to international allies and partners.

DoD ’22 (U.S. Department of Defense. “DOD Establishes 5G and Future Generation Wireless Cross-Functional Team” 03/09/22 <https://www.defense.gov/News/Releases/Release/Article/2960806/dod-establishes-5g-and-future-generation-wireless-cross-functional-team/>) ☺

The Department of Defense announced today the establishment of a 5G and FutureG cross-functional team that will accelerate the adoption of transformative 5G and future generation wireless networking technologies to ensure its forces can operate effectively anywhere, including in contested networks. Congress mandated the establishment of the CFT in the 2021 National Defense Authorization Act to enrich collaboration and integration across the DoD and with the private sector to accelerate the delivery of new capabilities to the warfighter.

“Today’s operational requirements call for the acceleration of 5G technology with at-scale prototyping and experimentation,” said Amanda Toman, Acting Principal Director of the DoD’s 5G to Future Generation Initiative. “The 5G and Future Generation CFT will play a critical role in advancing the Department’s 5G and Future generation capabilities.”

The CFT will carry out the DoD’s responsibilities for policy, guidance, research and development, and acquisition related to 5G and Future generation wireless technology.  The CFT will also strengthen DoD’s external relationships and ensure interoperability by coordinating outreach with industry, interagency, and international partners.

Under Secretary of Defense for Research and Engineering Heidi Shyu chairs the CFT, which consists of senior officials from across the Office of the Secretary of Defense, the Joint Staff, the Services, and Combatant Commands. Shyu’s recent designation of future generation wireless as one of DoD’s fourteen critical technology areas underscores the need for the 5G and Future Generation CFT to act quickly in building the ecosystem necessary to rapidly deliver requirements to the warfighter and innovate for 6G and beyond.

#### Squo Solves the military advantage - the DoD has already allocated $600 million towards it.

DoD 20 ["DOD Announces $600 Million for 5G Experimentation and Testing at Five Installations"; 10-8-2020; https://www.defense.gov/News/Releases/Release/Article/2376743/dod-announces-600-million-for-5g-experimentation-and-testing-at-five-installati/]//AShah

Today, the Department of Defense announced $600 million in awards for 5G experimentation and testing at five U.S. military test sites, representing the largest full-scale 5G tests for dual-use applications in the world. Each installation will partner military Services, industry leaders, and academic experts to advance the Department’s 5G capabilities. Projects will include piloting 5G-enabled augmented/virtual reality for mission planning and training, testing 5G-enabled Smart Warehouses, and evaluating 5G technologies to enhance distributed command and control.

“The Department of Defense is at the forefront of cutting edge 5G testing and experimentation, which will strengthen our Nation’s warfighting capabilities as well as U.S. economic competitiveness in this critical field. Through these test sites, the Department is leveraging its unique authorities to pursue bold innovation at a scale and scope unmatched anywhere else in the world. Importantly, today’s announcement demonstrates the Department’s commitment to exploring the vast potential applications and dual-use opportunities that can be built upon next-generation networks,” said Michael Kratsios, Acting Under Secretary of Defense for Research and Engineering.

## Say No

### Say No---1NC

#### Say no---allies don’t like to be pressured and will only listen if the US can provide alternatives.

David Sanger 20, National Security Correspondent and Security Writer at The New York Times, author of *The Perfect Weapon: War, Sabotage, and Fear in the Cyber Age*; and Mary Brooks, Associate Producer at Ark Media, Spring 2020, "Battlefield 5G," *The Wilson Quarterly*, Vol. 44, No. 2, https://www.wilsonquarterly.com/quarterly/who-writes-the-rules/battlefield-5g, RMax

1) Threatening allies doesn't work. Devising a credible alternative might.

Unsurprisingly, other governments don't like to be threatened, and many see resisting Washington on this point as a way of pushing back on an "America First" agenda. But NATO allies, and allies in Asia, seem more likely to respond to a positive incentive: A Western supply chain with the reach, effectiveness, and affordability of Huawei.

There are many ideas floating around about how to do this. One is to combine Nokia and Ericsson, two European suppliers that do not enjoy Huawei's market reach, to create a more competitive alternative. A second is to combine them with an American partner--or even acquire a controlling American stake, as was recently floated by Attorney General William Barr. Congress also seems to be moving this way, including with the recent introduction of a bill by Senators Warner and Burr that calls for a fund designed to develop "5G alternatives to Huawei." But whatever the corporate configuration, it is clear that the United States and its partners need a Western champion of their own.

The question is whether the U.S. is ready to go further than simply protecting companies from takeover to assure that the country's own technological base is not hollowed out? For decades, such "industrial policy" was a political issue that divided Democrats and Republicans.

Of course, the United States has never been as hands-off as it advertises. DARPA has long financed promising defense technologies. In-Q-Tel has long served as a small-scale venture capitalist for the intelligence community. Defense Innovation Unit (formerly Defense Innovation Unit-Experimental, or DIUx) has been particularly successful at finding commercial firms and products that could be useful for warfighters--and it has invested in a few.

Yet all these have survived by flying under the radar. Their work has not been tied together as part of a national strategy.

### Say No---Poland---2NC

#### Poland’s president wants Huawei.

Puls Biznesu 21, reporter for TELKO.in, 9/13/2021, “PB: President Duda can help Huawei with 5G,” https://www-telko-in.translate.goog/pb-prezydent-duda-moze-pomoc-huawei-z-5g?\_x\_tr\_sl=pl&\_x\_tr\_tl=en&\_x\_tr\_hl=en&\_x\_tr\_pto=sc, RMax

The lobbying struggle to find out who will be able to provide 5G network equipment in Poland is entering a decisive phase. Investments counted in billions cannot start until the government allocates frequencies for next-generation networks in a delayed auction - and until it is clear whether telecommunications companies operating in Poland will be able to use the services of Chinese suppliers, especially Huawei , which is very strong on this market. . Business is waiting for decisions. Chinese equipment suppliers, which may be eliminated from the market by the government amendment to the regulations, have found an ally in the presidential palace - says Puls Biznesu .

The fate of Chinese companies will be determined by the amendment to the Act on the National Cybersecurity System (KSC), the provisions of which are intended to prevent signing contracts with "high-risk suppliers" , i.e. Chinese in practice. There has been a fierce lobbying fight around the draft amendment for over a year, in which Huawei and representatives of Chinese and American diplomacy are very active behind the scenes. The president also became active on the final straight.

According to Puls Biznesu, the president's interest in the bill, the amendment of which has been in the freezer for over six months, goes beyond the sphere of general declarations at public events - and goes against the position presented by the government. An anonymous interlocutor of the newspaper from the President's Chancellery assures that the president will not agree to laws that will discriminate against Chinese companies.

The representative of the Chancellery of the Prime Minister, with whom the newspaper talks, distances itself from this and emphasizes that the shape of the regulations will be determined by security considerations. And he adds that work on KSC will be accelerated (they are to start within a few weeks), for which President Andrzej Duda recently appealed during the Cybersec forum.

# Commercial Advantage

## Mechanics

### China Lost---1NC

#### China lost the 5G race.

Hal Brands 21, Distinguished Professor of Global Affairs at the Johns Hopkins School of Advanced International Studies (SAIS) and a scholar at the American Enterprise Institute, 9-19-2021, "Huawei’s Decline Shows Why China Will Struggle to Dominate," Bloomberg, <https://www.bloomberg.com/opinion/articles/2021-09-19/huawei-s-decline-shows-why-china-will-struggle-to-dominate> //billy

One of the biggest geopolitical developments of the last two years has been the quiet decline of Huawei Technologies Co. In 2019, the Chinese telecommunications behemoth was racing toward dominance of the world’s 5G networks. It was a symbol of Beijing’s apparent rise to technological primacy. Today, however, Huawei isn’t thinking about supremacy: “Our aim is to survive,” its chairman has announced.

Since 2020, Huawei has been caught in the global blowback against Chinese belligerence. It has been pummeled by a U.S. diplomatic and sanctions campaign. Barring an unexpected rescue, its prospects will worsen next year, when Huawei exhausts its limited supply of state-of-the-art semiconductors — the vital components for modern electronics. For years, many experts believe, Huawei has been tightly linked to the Chinese Communist Party. Now, it is becoming a casualty of America’s intensifying technological conflict with Beijing.

Huawei’s decline is instructive for several reasons. It shows how China is often its own worst enemy, as its global assertiveness makes its rivals multiply. It represents bipartisan effectiveness: President Joe Biden has prosecuted the assault against Huawei by refining policies that President Donald Trump initiated with strong congressional support. Not least, it shows that the U.S. has the tools, and can assemble the strategy, to win a high-tech rivalry with China — provided Washington can avoid losing crucial near-term battles first.

Huawei became a telecommunications giant thanks to a unique combination of advantages. It received generous government subsidies, totaling perhaps $75 billion, which allowed it to develop quality products while undercutting its competitors’ prices. Unlike its foreign competitors, Huawei had unfettered access to China’s vast domestic market, which allowed it to operate at a scale that further drove down costs. And it benefitted from the political and diplomatic support of the Communist Party, which viewed 5G telecommunications as a critical arena in the struggle for global power — at a time when America was, one Trump-era official acknowledged, “asleep at the switch.”

By 2020, Huawei controlled 31% of the global telecommunications infrastructure market and had more contracts to build 5G networks than any other company. Its customers were not just cost-conscious developing countries: Roughly half of Huawei’s 91 contracts for 5G were in Europe, and even close U.S. allies such as the U.K. had chosen to include Huawei’s gear in their networks. Meanwhile, the U.S. response was fitful.

If Huawei built the world’s 5G networks, U.S. officials feared, Beijing could cite its National Intelligence Law to demand access to sensitive information flowing through them. China would reap enormous geopolitical leverage, much as the U.K. had by dominating the world’s undersea communications cables in the late 19th and early 20th centuries. Beijing’s vision of the future, in which advanced technologies turbocharge autocratic capitalism, would move closer to reality. And because 5G networks feature infrastructure that is costly and difficult to replace, countries that chose Huawei now might have to rely on its upgrades for years to come. “The race for 5G is on, and America must win,” Trump declared.

Through 2019, however, a divided Trump administration struggled to respond. The potentially punishing sanctions the president leveled against the company were, in practice, patchy and inconsistent. Trump launched an anti-Huawei diplomatic campaign, enlisting Australia, Japan and countries that relied heavily on American protection, such as Poland. Yet the president undermined his own efforts by suggesting that Huawei was just a bargaining chip in the broader U.S.-China dispute.

An “America First” administration also had trouble with the daunting task of developing affordable, non-Huawei options. When Secretary of Defense Mark Esper warned European elites not to rely on Chinese technology in February 2020, a response from the crowd — “are you offering an alternative?” — produced laughter and applause.

Huawei seemed to be running away with the race to wire the world for the next generation. In fact, its fortunes were about to fade.

China’s own behavior is partly to blame. Beijing had already shown a capacity to unintentionally undercut Huawei’s prospects, as when it alienated Canada by effectively kidnapping two Canadian citizens in 2018. The outbreak of Covid-19, and the way China attempted to exploit the pandemic, forced countries around the world to reconsider ties to the regime.

A slew of European countries walked away from Huawei; China’s overall global favorability ratings dropped sharply. Similarly, after Chinese forces clashed with India high in the Himalayas in June 2020, the Indian government effectively barred Huawei from the country’s 5G networks.

The U.S. has been well-positioned to profit from this blowback, because a three-pronged strategy — begun by Trump and continued by Biden — has begun to cohere.

First is a renewed diplomatic push. Pressure from Trump, including threats to curtail intelligence sharing, ultimately helped sway Britain and other close allies to distance themselves from Huawei. The U.S.-sponsored Clean Network, a coalition of countries that have pledged to exclude high-risk vendors, gathered more adherents during 2020 as American officials consistently drove home the dangers of working with Huawei.

In 2021, the fact that U.S. policy has become less gratuitously antagonistic toward allies under Biden has also made it easier to rally international support. Yan Xuetong, dean of the Institute of International Relations at Tsinghua University, acknowledges that the president’s “multilateral club strategy” has taken a toll.

Second, Washington has used powerful sanctions to starve Huawei of vital inputs. By ending Trump’s ambivalence about China, Covid accelerated his anti-Huawei campaign. By the close of the Trump years, Huawei was prohibited from doing business with Google, Facebook and other U.S. firms that provided key software for its phones. More important, Washington had cut off Huawei from the highly sophisticated semiconductors on which its products rely.

Washington’s success came from exploiting asymmetric strengths — the reach of the U.S. financial system, America’s unmatched geopolitical influence, and the ubiquity of U.S. and allied technology at the highest ends of the semiconductor value chain — to turn its policy toward a global prohibition on providing advanced semiconductors or semiconductor technology to China. The U.S. does not, for example, produce the world’s most advanced chip-making equipment; a Dutch firm, ASML, does. But Washington has used its leverage to prevent ASML from exporting specialized chip-making equipment to China, and to stop foreign chipmakers, such as Taiwan Semiconductor Manufacturing Company, from selling their top products to Huawei. Even in highly globalized industries, the arm of American power is long.

The U.S. thus struck at an asymmetric Chinese weakness: It remains unable, despite massive investments, to design and produce cutting-edge semiconductors itself. “The fact that core technology is controlled by others,” President Xi Jinping has admitted, “is our greatest hidden danger.” Here, too, Biden has picked up where Trump left off, limiting Huawei’s ability to raise capital in the U.S. and otherwise intensifying the sanctions campaign.

The damage has been substantial. U.S. restrictions have created new uncertainty around Huawei’s supply chain. They have also raised the likelihood that Huawei will soon have to rely on less-sophisticated semiconductors, which consume more power and ultimately make the networks that feature them more expensive to operate over time. American sanctions are thus giving countries an economic motive to shun Huawei, in addition to longstanding security concerns.

### China Lost---2NC

#### Countries are successfully blocking China without bans---plan not key.

Hal Brands 21, Distinguished Professor of Global Affairs at the Johns Hopkins School of Advanced International Studies (SAIS) and a scholar at the American Enterprise Institute, 9-19-2021, "Huawei’s Decline Shows Why China Will Struggle to Dominate," Bloomberg, <https://www.bloomberg.com/opinion/articles/2021-09-19/huawei-s-decline-shows-why-china-will-struggle-to-dominate> //billy

These measures are buying time for a third aspect of U.S. strategy: the multilateral development of alternatives to Huawei. The International Development Finance Corporation is offering financing to countries that choose non-Chinese options for their 5G networks. If Huawei can be stymied, then firms in democratic countries will have a better shot at setting the technological standards that will shape the telecommunications industry in the future. The Biden administration is also betting on something called Open Radio Access Networks, or O-RAN, an effort to develop common standards that promote greater compatibility between different types of telecommunications equipment. In effect, O-RAN allows different companies to plug and play in a single network, making it harder for Huawei or any other firm to dominate global telecommunications infrastructure. O-RAN has yet to be deployed commercially at any scale. Feasibility and affordability remain significant concerns; it may work better for big countries than for small ones. Yet the pace of deployments is predicted to accelerate rapidly over the next three to five years, so Biden has put it high on the agenda for U.S. diplomacy with key countries (South Korea, Japan, India) as well as institutions such as the European Union and the Quadrilateral Security Dialogue. America’s strategy, then, is about running faster as well as slowing its rival. Washington aims to break Huawei’s momentum until the U.S. and its friends can develop alternatives that will limit the Chinese firm’s global appeal. The effects of U.S. policy are starting to accumulate. As of 2021, eight of the world’s 10 largest economies, countries representing over 60% of the world’s cellular equipment market, and nearly all members of the European Union, had either banned or restricted Huawei from their 5G networks. Many countries that have not imposed formal restrictions, such as Germany and Canada, have subtly made it very difficult for Huawei. The company’s sales of network gear fell 14.2% between mid-2020 and mid-2021. Its overall revenue fell roughly 29% and earnings have slumped in regions from the Middle East to the Americas. Huawei’s founder, Ren Zhengfei, has declared that there is “no chaos within the company,” but the numbers tell a different story. Huawei’s predicament could get much worse. Probably next year, the company will run out of the advanced semiconductors it stockpiled as U.S. hostility grew. That will force it to fulfill existing contracts with older, less efficient components — or not fulfill them at all. Huawei may be too important for the Communist Party to let it fail. But its global expansion will become increasingly problematic. Meanwhile, there has been less collateral damage from the anti-Huawei campaign than some observers initially feared. U.S. and foreign chipmakers worried that the sanctions would crush their sales, given that Huawei was the world’s third-largest chip purchaser.

Allied governments chafed at Washington’s push to make its sanctions extraterritorial. But the chipmakers have not been massacred, in part because Huawei’s now-thriving competitors are buying more, and in part because the U.S. has allowed Huawei to purchase older chips not suitable for its 5G business. And American policies have often benefited major foreign firms, such as Samsung Electronics Co., Ericsson AB and Nokia Oyj, by hobbling their principal rival.

O-RAN remains the least developed part of U.S. strategy. But even here, there are encouraging signs. This year, several major European telecom firms agreed to build O-RAN networks spanning the continent. Major mobile carriers in India have also decided to invest in the technology for their domestic networks and develop products for export.

As they do so, O-RAN will start to profit from scale effects of the sort Huawei enjoyed. And because the Indian telecom market has a low average revenue per user, an approach that is economically viable there could be viable almost anywhere. If that happened, Huawei’s price advantage in developing markets — so far, its trump card — may become a thing of the past.

Two years ago, Huawei was a symbol of China’s global tech ambitions. Today, it is an example of persistent Chinese vulnerability, as well as a marker of how America has begun to fuse the unilateral coercion and multilateral construction necessary to wage a technological cold war. Yet Huawei’s story also underscores a final lesson, on the need for speed in U.S. strategy.

The 5G network is a classic example of a technology with first-mover advantages. Companies that build and install the hardware on which 5G networks sit will enjoy lasting influence over the countries those networks serve. The U.S. nearly waited too long to meet the threat — and even as Huawei struggles, the battle isn’t through.

Washington is just beginning to promote alternatives to Huawei, and to make the generational investments needed to keep America and its allies far ahead in designing and producing top-shelf semiconductors. Beijing isn’t conceding defeat: It is quadrupling down on indigenous innovation in hopes of becoming the world’s leader in advanced semiconductors by 2030.

Other battles await. China is bidding for control of the world’s data, through investments in cloud computing, data centers and fiberoptic cables. AI, biotech and quantum computing loom large. The U.S. has begun, albeit belatedly, to address the challenge of Chinese-dominated 5G networks. The lesson for the broader tech competition is not to wait until it is too late.

### China Won---1NC

#### The U.S. has already exhausted its capabilities to contain China’s 5G dominance---U.S. can’t keep up

David Sacks 21 [David Sacks is a research fellow at the Council on Foreign Relations, where his work focuses on U.S.-China relations, U.S.-Taiwan relations, Chinese foreign policy, cross-Strait relations, and the political thought of Hans Morgenthau, 3/31/21, “U.S., China ‘race to 5G’ rages on,” <https://www.fiercewireless.com/5g/race-to-5g-alive-and-well-for-u-s-china>] //mh

In response to growing concerns about Huawei’s reach, the Trump administration leveraged U.S. dominance in advanced semiconductors to bar sales of essential computer chips to the company without a specific license. Access to U.S. chips, particularly 5G-related semiconductors that enable wireless communications, network management, and data storage, is crucial to Huawei, which is reported to be running out of supply. The Trump administration also pressured countries not to use Chinese components in their 5G infrastructure.

As part of a CFR Independent Task Force on BRI, we analyzed every country’s official policy toward Huawei 5G and the extent to which this pressure campaign has succeeded. We found that in addition to the United States, eight countries have issued outright bans of the company. Almost all of these are close U.S. allies such as Australia, Japan, and the United Kingdom.

More countries have taken a quieter approach, attempting to simultaneously allay U.S. concerns and not provoke a Chinese response. Some have taken measures that amount to a de facto ban without actually barring Huawei. For example:

* India has not formally banned the company but has begun to phase out the use of Huawei equipment in future projects, and is reportedly weighing a formal ban.
* France announced telecommunications operators would not be able to renew licenses for Huawei equipment when they expired, effectively phasing out the company’s presence in the country.
* Vietnam has not barred Huawei, but its service providers have avoided using its equipment in both their 4G and 5G networks.
* Italy’s government vetoed a deal between Huawei and telecommunications provider Fastweb that would have used Huawei as the sole supplier of its 5G network.
* Canada has put off a decision on Huawei for so long that its companies have chosen to exclude Huawei from their 5G networks due to the risk that they will be forced to replace the equipment in the future.
* Still, others have chosen to use Huawei’s competitors without taking a public stance against the company. The largest telecommunications firms in Belgium, Croatia, Finland, Greece, Norway, Portugal, Singapore, and Spain have all contracted with Ericsson or Nokia to build their 5G networks

While the U.S. pressure campaign has had some success, it is likely meeting its limits. The threat of the loss of intelligence sharing and security partnerships is unlikely to persuade countries that are not formal allies or close security partners with Washington.

Moreover, the United States has been unable to persuade all of its allies to avoid Huawei. The company is involved in 5G networks in NATO members Hungary, Iceland, the Netherlands, and Turkey. Some of the United States’ closest partners in the Middle East, including Saudi Arabia and the United Arab Emirates, are also using Huawei.

A principal reason that the United States has not had more success in persuading countries not to use Huawei equipment is that it cannot offer an alternative. The United States does not and will not have a company that is competitive in the full stack of 5G equipment.

### China Won---2NC

#### China won---at best the US can work towards 6G.

David Sacks 21, research fellow at the Council on Foreign Relations, where his work focuses on U.S.-China relations, U.S.-Taiwan relations, Chinese foreign policy, cross-Strait relations, and the political thought of Hans Morgenthau. He was previously the Special Assistant to the President for Research at the Council on Foreign Relations, March 29th, 2021, https://www.cfr.org/blog/china-huawei-5g//tyei

A principal reason that the United States has not had more success in persuading countries not to use Huawei equipment is that it cannot offer an alternative. The United States does not and will not have a company that is competitive in the full stack of 5G equipment.

To make it easier for countries to avoid Huawei, our Task Force recommends that the U.S. Development Finance Corporation partner with its counterparts in Finland, South Korea, and Sweden to co-finance Nokia, Samsung, and Ericsson 5G projects.

The United States should also work with its partners to develop the nascent open radio access network, or Open RAN, architecture. While Huawei offers a full 5G stack, Open RAN allows multiple companies to supply different parts of a modular 5G network. The hope is that 5G networks built on an Open RAN architecture can better compete with Huawei on price. In addition, while no U.S. company offers an end-to-end 5G solution, they can better compete by specializing in individual components of a modular network, like end-user devices.

In the longer term, the United States must be better prepared for the arrival of 6G, which is likely to replace 5G within 15 years. U.S. policy-makers should fund R&D centers at universities that focus on 6G technologies, and consider tax breaks and other incentives to support private sector investment in 6G, so that there is at least one competitive U.S. company in this space.

Finally, recognizing that some U.S. allies and partners will adopt Huawei 5G despite U.S. pressure, the United States will need to develop mitigation plans for possible Chinese disruption of telecommunications infrastructure in those countries. In the words of one Pentagon-advisory group study, the U.S. military will need to “assume that all network infrastructure will ultimately become vulnerable to cyber-attack” and adopt a “zero-trust” network model.

Washington cannot expect countries to sit on the sidelines and forego upgrades to their networks while the United States gets its act together. Instead, the United States should work with allies and partners to offer a viable alternative and prepare for a future in which China controls a large part of the 5G infrastructure.

### Alt Causes---1NC

#### 5G rollout fails---tons of alt causes to deployment

Taylor ’19 (Margaret Taylor, senior editor and counsel at Lawfare, fellow in Governance Studies at the Brookings Institution, former Democratic Chief Counsel and Deputy Staff Director for the Senate Foreign Relations Committee (2015-2018). “What Congress Is (And Isn’t) Doing on 5G” 08/28/19 https://www.lawfareblog.com/what-congress-and-isnt-doing-5g) ☺

But it is doubtful that the 116th Congress will muster any [broad-based response](https://www.nytimes.com/2019/07/01/business/dealbook/huawei-5g-national-security-trade.html) that will materially change the trajectory of the United States’s deployment of 5G technology or the security of the network. Because 5G will remain a private-sector-led initiative in the United States, the government’s role is limited largely to debating regulatory issues. There is no broad consensus on whether or how federal regulation should preempt local regulations on sensitive local issues like infrastructure installation, nor any consensus on how to make available the resources necessary to bridge the financial gap so that rural areas in the United States get 5G coverage. And while most observers agree that the aggressive implementation of 5G by Chinese companies around the world poses serious security concerns for the United States, Congress is still holding out hope that simple moves like banning the Chinese company Huawei will solve the security problem. It will not.

More broadly, the reality is that adequate political will does not exist on Capitol Hill to tackle the complicated, multifaceted and resource-intensive issue of 5G in a meaningful way. In the current political environment, it may take a Sputnik moment—when the Soviet Union launched the first satellite into space, spurring the United States to redouble efforts to catch up in the space race—to capture the interest and concern of everyday Americans and, by extension, their elected representatives.

Meanwhile, the Trump administration has employed impressive rhetoric on 5G but has no real plan and lacks both leadership and interagency coordination on the issue. The executive branch is also making moves—like trying to reduce regulations at the local level and using the Chinese technology company Huawei as a tool in a trade war with China—that have uncertain outcomes and could end up hurting the effort to deploy 5G quickly and securely.

The 116th Congress will accomplish the minimum incremental steps needed to make the claim that Congress is doing something on 5G. But it likely will not unlock the resources needed to securely deploy 5G in the United States in a timely way or to assure a technological edge over international competitors on 5G. Instead, Congress’s principal achievements this year and next will be to provide oversight of the Trump administration’s actions related to 5G and lay the groundwork for serious consideration of this issue in 2021.

Background

Several [useful](https://www.nytimes.com/2018/12/31/technology/personaltech/5g-what-you-need-to-know.html) [primers](http://www.politico.com/sponsor-content/2018/11/5g-explained) have been published explaining what, exactly, 5G is and [why it poses new and different challenges](https://www.brookings.edu/research/5g-in-five-not-so-easy-pieces/) compared to older-generation networks. Mobile service providers are currently in the process of deploying 5G networks throughout the United States, and some providers have already launched 5G services in certain cities. Some telecommunications companies [estimate](https://www.wsj.com/articles/the-downside-of-5g-overwhelmed-cities-torn-up-streets-a-decade-until-completion-11561780801) the full rollout of 5G will take a decade or longer. The Congressional Research Service offers research on various [technical aspects](https://crsreports.congress.gov/product/pdf/IF/IF11251) of the 5G challenge as well as broader contextual [analyses](https://crsreports.congress.gov/product/pdf/R/R45485) for congressional consideration. Meanwhile, my Brookings colleagues have outlined a number of 5G challenges and opportunities, including how 5G could be used to [advance environmental sustainability](https://www.brookings.edu/research/achieving-sustainability-in-a-5g-world/?utm_campaign=Governance+Studies&utm_source=hs_email&utm_medium=email&utm_content=38469658) and help cities [manage scarce resources efficiently](https://www.brookings.edu/blog/techtank/2016/11/30/5g-technologies-will-power-a-greener-future-for-cities/), how 5G will [impact the future of health care](https://www.brookings.edu/blog/techtank/2016/07/14/how-5g-networks-can-shape-the-future-of-health-care/), and how 5G rollout [could impact communities of color](https://www.brookings.edu/research/enabling-opportunities-5g-the-internet-of-things-and-communities-of-color/) in the United States.

In addition, Lawfare has published multiple articles addressing the security challenges associated with 5G. Jim Baker [summarized](https://www.lawfareblog.com/5g-networks-must-be-secure-and-reliable) the situation:

5G promises to revolutionize how people use technology. From transportation to health care to entertainment, the way people interact with wireless internet devices will change substantially. And as 5G enables data to be transmitted much more quickly, the number of devices connected to the internet will likely explode, producing massive economic benefits for those who can quickly take full advantage of the new technology.

But 5G poses huge risks for society as well. As people become more dependent on wireless communications and generate even more data about what they are doing, the adoption of 5G will bring with it substantial national security, cybersecurity and privacy risks. These risks must be mitigated appropriately in order to protect the interests of the United States and its allies.

[Others](https://www.lawfareblog.com/huawei-and-managing-5g-risk) on Lawfare [debated](https://www.lawfareblog.com/risks-huawei-risk-mitigation) the [best way](https://www.lawfareblog.com/risk-mitigation-and-huawei-response) to manage the technical security risks presented by Huawei’s dominant position in 5G. My colleagues Tom Wheeler and Robert Williams [pointed out](https://www.lawfareblog.com/keeping-huawei-hardware-out-us-not-enough-secure-5g) that the Trump administration’s imposition of export restrictions on Huawei and other Chinese companies will not be sufficient to stem the security threat from China, and that the Trump administration has in fact killed or missed opportunities to increase the security of the network.

Congress began taking a serious look at 5G issues in 2018 and passed a number of laws in the prior Congress aimed at facilitating aspects of 5G—including, for example, laws aimed at making [more spectrum](https://matsui.house.gov/news/documentsingle.aspx?DocumentID=1752) (the range of radio waves used for communications purposes) [available](https://matsui.house.gov/news/documentsingle.aspx?DocumentID=1752) to telecommunications companies to support 5G. How countries make spectrum available to telecommunications providers plays an important role in how, and on what timeline, new networks and services are rolled out. In the United States, spectrum traditionally is auctioned to telecommunications providers, and the money goes to the U.S. Treasury.

Spectrum issues will be a perennial issue and will [continue to percolate](https://matsui.house.gov/news/documentsingle.aspx?DocumentID=1876). But Congress is also considering a range of other issues related to 5G and is weighing a range of approaches—some of which have more merit than others.

Bipartisan Pushback on Nationalization of 5G

In theory, government control of the 5G network could increase security and ensure that 5G reaches rural markets where there is currently little profit incentive for private industry to build infrastructure and provide services. Congressional responses to proposals to nationalize parts of the 5G network offer a window into the political aspect of the 5G issue.

The nationalization idea has been advanced twice, each time for a different reason. First, in early 2018, a [leaked National Security Council memo](https://www.axios.com/trump-team-debates-nationalizing-5g-network-f1e92a49-60f2-4e3e-acd4-f3eb03d910ff.html) proposed that the U.S. government pay to build a single 5G network—an unprecedented nationalization of private infrastructure—in order to compete with China and protect the system from malicious cyber actors. Second, in March 2019, Politico [reported](https://www.politico.com/story/2019/03/01/trump-campaign-5g-1230276) that Trump 2020 campaign officials supported a proposal—which reportedly “spark[ed] wireless industry fears of nationalization”—under which the government would take over spectrum designated for 5G and develop a system to share the spectrum with wireless providers on a wholesale basis. According to [Politico](https://www.politico.com/story/2019/03/01/trump-campaign-5g-1230276), this was a bid by Trump campaign officials to woo rural voters who have lacked adequate internet service in the absence of financial incentives for wireless companies to offer affordable broadband. The plan was [reportedly](https://www.fiercewireless.com/5g/confusion-reigns-trump-2020-s-5g-wholesale-vision) backed by Trump 2020 Campaign Manager Brad Parscale and Adviser [Newt Gingrinch](https://www.facebook.com/newtgingrich/videos/newt-live-the-american-5g-failure/2262549377351710/).

Congressional pushback was clear and bipartisan. Sens. Ted Cruz, R-Texas, and Catherine Cortez-Masto, D-Nev., twice introduced the thoroughly named [Eliminate From Regulators Opportunities to Nationalize The Internet in Every Respect (EFRONTIER) Act](https://www.congress.gov/bill/116th-congress/senate-bill/918/text?q=%7B%22search%22%3A%5B%22e+frontier%22%5D%7D&r=2&s=3). It would prohibit the president and federal agencies from constructing, operating, or offering wholesale or retail service on a broadband network “unless a duly enacted Act of Congress signed into law by the President provides the President or the agency … with that authority.” An [identical bipartisan bill](https://www.congress.gov/bill/116th-congress/house-bill/2063/text?q=%7B%22search%22%3A%5B%22e+frontier%22%5D%7D&r=1&s=3) was introduced on the House side. And [another](https://www.congress.gov/bill/116th-congress/senate-bill/893/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=3&s=2) [pair](https://www.congress.gov/bill/116th-congress/house-bill/2881/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=2&s=1) of bipartisan, bicameral bills calling for the Trump administration to produce a strategy report contains an explicit limitation that the report “shall not include a recommendation or a proposal to Federalize 5th or future generations mobile telecommunications systems or infrastructure.” Yet another [bipartisan Senate bill](https://www.congress.gov/bill/116th-congress/senate-bill/1625/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=1&s=1) is broader in scope but includes a statement that it is the policy of the United States that “the Federal Government should … support but not build or operate 5G networks.”

The pushback worked. Some commentators [speculated](http://fortune.com/2019/04/12/trump-ajit-pai-5g-wireless-auction-rural-internet/) that the real reason the administration hastily put together a 5G event in April 2019—purportedly to announce two Trump administration efforts to promote 5G—was so the president could publicly calm fears about nationalization. And Trump did, [stating at the event](https://www.whitehouse.gov/briefings-statements/remarks-president-trump-united-states-5g-deployment/), “In the United States, our approach is private-sector driven and private-sector led. Government doesn’t have to spend lots of money…. We had another alternative of doing it that would be through government investment and leading through the government. We don’t want to do that because it won’t be nearly as good, nearly as fast.” Bipartisan congressional opposition, along with opposition by the major telecommunications providers, seemed to have forced the president to publicly rebut his presidential campaign and state his position clearly.

Bipartisan Agreement About the Threats Posed by China

The most common issue addressed in proposed legislation is the challenge posed by China both as an economic competitor to the United States in the “race” to deploy and dominate 5G and as a national security espionage and cyberattack threat. China is the current leader in less expensive technologies for 5G and is likely to deploy the world’s first 5G wide-area network. According to the [Congressional Research Service](https://crsreports.congress.gov/product/pdf/IF/IF11251), Huawei has signed contracts for the construction of 5G infrastructure in around 30 countries, including U.S. allies like Turkey and Iceland. American companies, which lack the technology and the financial incentive to seek these contracts, are not currently joining the competition.

The 5G national security issue for the United States is [multifaceted](https://www.ft.com/content/8b48f460-50af-11e9-9c76-bf4a0ce37d49). In April, four former high-level military officials issued a [statement](https://www.lawfareblog.com/document-former-military-and-intelligence-officials-letter-5g-risks) expressing “grave concerns about a future where a Chinese-developed 5G network is widely adopted among our allies and partners.” The concerns were threefold: espionage, the security of future military operations, and the vulnerability of democracy and human rights around the world.

A number of legislative proposals have sought to articulate the problem. A bipartisan Senate [concurrent resolution](https://www.congress.gov/bill/116th-congress/senate-concurrent-resolution/10/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=11&s=2) states that “Chinese telecommunications companies such as Huawei and ZTE pose serious threats to the national security of the United States and allies of the United States” and that “the United States should reiterate to countries that are choosing to incorporate Huawei or ZTE products in their new telecommunications infrastructure that the United States will consider all necessary measures to limit the risks incurred by entities of the United States Government or Armed Forces from use of such compromised networks.” Among other things, it finds that “the United States should work with the private sector and allies and partners of the United States, including the European Union, in a regularized bilateral or multilateral format, to identify secure, cost-effective, and reliable alternatives to Huawei or ZTE products.”

Other bills seek to gather information about national security threats to 5G. The Senate Intelligence Committee’s authorization bill, [S. 1589](https://www.congress.gov/bill/116th-congress/senate-bill/1589/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=6&s=2), and the similar House bill, [H.R. 3678](https://www.congress.gov/bill/116th-congress/house-bill/3678/text?q=%7B%22search%22%3A%5B%22network%22%5D%7D&r=1&s=7), require the director of national intelligence to submit a report to Congress addressing “(1) the threat to United States national security posed by the global and regional adoption of fifth-generation (5G) wireless network technology built by foreign companies; and (2) the effect of possible efforts to mitigate the threat.” [Another](https://www.congress.gov/bill/116th-congress/senate-bill/987/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=4&s=2) [pair](https://www.congress.gov/bill/116th-congress/house-bill/2565/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=5&s=2) of bipartisan, bicameral bills, called the U.S.-China Economic and Security Review Act of 2019, address select 5G issues as part of a broader bill to address problems posed by the rise of China as identified by the [U.S.-China Economic and Security Review Commission](https://www.uscc.gov/sites/default/files/annual_reports/Executive%20Summary%202018%20Annual%20Report%20to%20Congress.pdf). One section requires the administration to submit an annual report to Congress on supply-chain vulnerabilities related to China, including an “assessment of the existing procurement and security policies and guidance of each Federal agency with respect to cybersecurity, operations security, physical security, information security, and data security that may affect information and communications technology, fifth generation mobile networks (commonly known as ‘5G networks’) and the Internet of Things.” Another section requires a one-time report from the Federal Communications Commission (FCC) and the Commerce Department on steps required to ensure the rapid and secure deployment of 5G networks in the United States, with a particular focus on the threat posed by equipment and services designed or manufactured in China, as well as information on any new statutory authorities that may be required to ensure the security of domestic 5G networks.

A pair of [bipartisan](https://www.congress.gov/bill/116th-congress/senate-bill/893/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=3&s=2), [bicameral](https://www.congress.gov/bill/116th-congress/house-bill/2881/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=2&s=1) bills sponsored by John Cornyn, R-Texas, in the Senate and Abigail Spanberger, D-Va., in the House, called the Secure 5G and Beyond Act of 2019, goes a small step further, requiring the administration to produce a strategy in six months that would: (1) “ensure the security of 5th and future generations mobile telecommunications systems and infrastructure within the United States”; (2) assist allies and strategic partners “in maximizing the security of 5th and future generations mobile telecommunications systems and infrastructure inside their countries”; and (3) “protect the competitiveness of United States companies, privacy of United States consumers, and integrity of standards setting bodies against political influence.” The bill outlines 17 elements to be included in the strategy, including a “description of such legislative or administrative action as may be necessary to carry out the strategy.”

A more comprehensive, bipartisan bill offers some concrete ideas. The [United States 5G Leadership Act of 2019](https://www.congress.gov/bill/116th-congress/senate-bill/1625/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=1&s=1), introduced by Sens. Roger Wicker, R-Miss., Mark Warner, D-Va., Tom Cotton, R-Ark., and Ed Markey, D-Mass., prohibits the purchase—from any of the universal service funds outlined in section 254 of the Communications Act of 1934 ([47 U.S.C. § 254](https://casetext.com/statute/united-states-code/title-47-telecommunications/chapter-5-wire-or-radio-communication/subchapter-ii-common-carriers/part-ii-development-of-competitive-markets/section-254-universal-service))—of communications equipment and services from Chinese companies, any other entity that poses a national security risk, and “any company that is subject to extrajudicial direction from a foreign government.” It also aims to subsidize smaller providers (6 million customers or fewer) with a new $700 million Supply Chain Trust Fund (funded from the sale of spectrum) to ensure that such providers are purchasing uncompromised equipment and services. It requires a one-time report from the administration on steps to ensure the secure deployment and availability of 5G networks and “any new statutory authority required to ensure the security of 5G networks in the United States.” Finally, it establishes a “joint program to share information regarding security, risks, and vulnerabilities with United States communication providers and trusted suppliers” including small businesses and companies serving rural areas and directs the prioritization of federal funds “to enhance representation of the United States at international forums that set standards for 5G networks and for future generations of wireless communications networks.”

Several other bills begin to address the particular security challenges that the Department of Defense will face if 5G networks are not secure. The Senate Armed Services Committee’s National Defense Authorization Act (NDAA), [S.1790](https://www.congress.gov/bill/116th-congress/senate-bill/1790/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=9&s=2), includes two sections that address 5G directly. Section 212 requires the secretary of defense to establish secure 5G wireless network components and capabilities “at no fewer than two Department of Defense installations.” One, at the Nevada Test and Training Range, would allow the Department of Defense “to explore and demonstrate the utility of using fifth-generation wireless networking technology to enhance combat operations.” A second installation would “explore and demonstrate infrastructure implementations of high bandwidth, scalable, and low latency fifth-generation wireless networking technology” and “[a]pplications for secure fifth-generation wireless network capabilities for the Department.” On the House side, the House Armed Services Committee’s NDAA, [H.R. 2500](https://www.congress.gov/bill/116th-congress/house-bill/2500/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=7&s=2), requires the secretary of defense to develop a strategy for harnessing 5G technologies to enhance military capabilities, maintain a technological advantage on the battlefield, and “accelerate the deployment of new commercial products and services enabled by 5G networks throughout the Department of Defense.” It proposes a $175 million increase in funds for such research.

One bipartisan bill in the Senate, introduced by Martin Heinrich, D-N.M., and Rob Portman, R-Ohio, focuses on training personnel in the Armed Forces in light of new technology challenges like 5G. [S.1471](https://www.congress.gov/bill/116th-congress/senate-bill/1471/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=8&s=2), the Armed Forces Digital Advantage Act, seeks to “promote and maintain digital engineering as a core competency of the Armed Forces” and charges the under secretary of defense for personnel and readiness to carry out “the recruitment, development, and incentivization of retention in and to the Armed Forces of individuals with aptitude, experience, proficient expertise, or a combination thereof in digital engineering.”

Finally, some bills address head-on the challenges posed by international economic competition. A Senate [resolution](https://www.congress.gov/bill/116th-congress/senate-resolution/259/text?q=%7B%22search%22%3A%5B%22AIRWAVES%22%5D%7D&r=1&s=1) “deems it a national priority for the United States to lead the world in the development and deployment” of 5G techology and “strongly urges all entities, including Federal agencies, to work cooperatively with the Federal Communications Commission to advance the goal of United States leadership in 5G technology, including at the upcoming World Radiocommunication Conference 2019.” Section 103 of the bipartisan [H.R.3407](https://www.congress.gov/bill/116th-congress/house-bill/3407/text?q=%7B%22search%22%3A%5B%225G%22%5D%7D&r=8&s=4) would require the Export-Import Bank to establish a Program on China and Transformational Exports specifically to support the extension of loans, guarantees and insurance to American companies that are fully competitive with how China and other countries that use subsidies to increase exports treat their domestic companies. The explicit aims are to “directly neutralize export subsidies for competing goods and services financed by official export credit, tied aid, or blended financing provided by the People’s Republic of China or by a covered country” and “advance the comparative leadership of the United States with respect to the People’s Republic of China, or support United States innovation, employment, and technological standards, through direct exports” in a number of areas, including “[w]ireless communications equipment (including 5G or subsequent wireless technologies).” [H.R. 3679](https://www.congress.gov/bill/116th-congress/house-bill/3679/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=1&s=2) directs the director of national intelligence, through the director of the Intelligence Advanced Research Projects Agency, to carry out a prize competition worth up to $5 million to competitively stimulate research and development relevant to 5G technology.

At this point, it is difficult to say which of these many bills may become law. The yearly NDAA is probably the most important single item to follow: Unlike smaller stand-alone bills, the NDAA will almost certainly become law.

Lack of Consensus on How to Address State and Local Impediments to Small Cell Deployment

The timely rollout out 5G in the United States faces significant hurdles. Rollout of 5G across the United States [could take a decade or longer](https://www.wsj.com/articles/the-downside-of-5g-overwhelmed-cities-torn-up-streets-a-decade-until-completion-11561780801?mod=mhp) due to a lack of investment in low-density areas as well as a lack of cooperation at the local level. The United States trails other countries, most notably China, in site density of 5G infrastructure. Many Asian countries already have far denser infrastructure for their 4G network and, as a result, have a head start on the density required for 5G. One Chinese company called China Tower has a total of approximately 1.9 million wireless sites in China, [compared to](https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf) a total of approximately 200,000 in the United States across all companies. China has installed 350,000 cell sites since 2015, whereas the United States has installed fewer than 30,000 during the same time period. That means China is deploying an average of 460 cell sites a day within the country—12 times the United States’s pace.

The importance of speedy deployment of 5G in the United States is the subject of some debate. Some observers [hold the view](https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf) that network effects—in which the value of a product or service is dependent on a high number of users—could grant a first-adopter sustained advantage and the potential to capture a greater share of the economic potential of 5G. Put another way, countries with the largest and most reliable networks will have a head start in developing the technologies enabled by faster speeds that can then be exported to other 5G markets. Others [make the point](https://www.brookings.edu/blog/techtank/2018/09/25/the-real-5g-race-is-to-serve-all-americans/) that the United States was not the first to roll out 1G, 2G, 3G or 4G but nonetheless is currently the world leader in the chips, operating systems and software applications that run on 4G; and that the United States should instead “race” to make 5G both secure and available to all Americans.

The arduous and intense installation requirements for 5G mean that many more workers—[including engineers, planners, trench diggers and antenna installers](https://www.wsj.com/articles/the-downside-of-5g-overwhelmed-cities-torn-up-streets-a-decade-until-completion-11561780801?mod=mhp)—will need to be trained in related skills if 5G is to take place in a competitive time frame. To address this problem, one bipartisan bill in the House, titled the [Communications Jobs Training Act of 2019](https://www.congress.gov/bill/116th-congress/house-bill/1848/text?q=%7B%22search%22%3A%5B%225g%22%5D%7D&r=10&s=2), focuses on educational training requirements to support 5G deployment and implementation. The bill amends the Communications Act of 1934 ([47 U.S.C. § 301](https://casetext.com/statute/united-states-code/title-47-telecommunications/chapter-5-wire-or-radio-communication/subchapter-iii-special-provisions-relating-to-radio/part-i-general-provisions/section-301-license-for-radio-communication-or-transmission-of-energy) et seq.) to require the FCC, in consultation with the secretary of education, to carry out a grant program to establish or expand job training programs in community, vocational and technical schools for communications tower service, construction, maintenance and structural modification. Whether this bill gains any traction remains to be seen.

But a far more important and controversial issue looms. There is a major question of how the United States’s federalist system will handle the challenge posed by the sheer volume and density of the infrastructure needed to fully deploy 5G. Under China’s system of government, there are no similar impediments based on local rules or control. If the rollout of 5G is a proxy for a great power competition between China and the United States, China has a distinct advantage in this regard.

Earlier generation technologies like 3G and 4G required the installation of large 200-foot cell towers spaced relatively far apart and were the subject of much regulatory oversight at the local level. 5G requires high-volume, pizza-box-sized small cells that are more compact but must be much more densely installed for 5G to achieve its full potential.

In September 2018, the FCC issued an [order](https://docs.fcc.gov/public/attachments/FCC-18-133A1.pdf) titled “Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment,” requiring localities to consider applications for siting of “small cell” equipment—a key component of 5G deployment—quickly and on a limited number of criteria. Twenty-five states refused to adopt the FCC’s rule. Generally speaking, these states oppose the preemption of state and local regulations, particularly state and local fees, time frames for cell-siting decisions, and aesthetic requirements. A number of municipalities [filed petitions for review](https://fas.org/sgp/crs/misc/LSB10265.pdf) in the U.S. Court of Appeals for the Ninth Circuit, alleging, among other things, that the FCC’s order exceeds the commission’s statutory authority. (Several mobile service providers, including AT&T, Verizon and Sprint, also filed petitions for review in federal appellate courts with various other complaints.)

While some members of Congress support the administration’s effort to cut through state and local regulatory frameworks to facilitate quicker 5G deployment, others oppose taking regulatory decision-making away from local officials. A January [House bill](https://www.congress.gov/bill/116th-congress/house-bill/530/text?q=%7B%22search%22%3A%5B%22Accelerating+Wireless+Broadband+Deployment+by+Removing+Barriers+to+Infrastructure+Investment%22%5D%7D&r=1&s=5) sponsored by 50 Democrats (no Republicans were involved) [aims to](https://eshoo.house.gov/news-stories/press-releases/eshoo-introduces-legislation-to-restore-local-control-in-deployment-of-5g/) restore local regulatory control in the deployment of 5G by causing the administration’s order to have “no force or effect.” Many localities are encouraging their representatives in Congress to support local control. Cities in Ventura County, [for example](https://www.vcstar.com/story/news/local/communities/conejo-valley/2019/05/31/ventura-county-ca-5-g-fcc-kamala-harris-dianne-feinstein-julia-brownley/1224775001/?mod=article_inline), are urging California Sens. Dianne Feinstein and Kamala Harris to introduce their own legislation or support the House bill.

### EU Solves---1NC

#### Squo solves 5G ecosystems - the EU has allocated funding towards ensuring effective rollout

Lago 21 [Cristina Lago was associate editor of *Tech Monitor*. *Tech Monitor* provides data-driven insight and authoritative analysis for business, digital and policy leaders in a world disrupted and inspired by technology;"Will the EU’s recovery package be enough to close the 5G gap?"; 6-3-2021; https://techmonitor.ai/technology/networks/5g-investment-eu]//AShah

The EU this week approved its proposed [Covid-19 recovery plan](https://www.euronews.com/2021/05/28/after-months-of-delay-eu-nations-finally-ratify-750bn-recovery-fund), a €750bn investment package designed to revive the European economy in the wake of the pandemic. Ensuring that recovery is ‘digital and green’ is one of the EU’s strategic objectives, and €150bn is earmarked for digital investments. One aim of this investment is to develop Europe’s 5G infrastructure: the continent currently trails both North America and Asia-Pacific for 5G penetration. But will it be enough?

In its [Digital Decade strategy document](https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en), unveiled earlier this year, the European Commission set out the target of making sure “all populated areas” of the bloc are covered by 5G by 2030. It has allocated “a significant share” of its €150bn digital budget to finance 5G network infrastructure.

The European Investment Bank (EIB), investment arm of the EU, has already funded numerous 5G infrastructure projects across Europe. This week, for example, it [announced](https://www.eib.org/fr/press/all/2021-178-italy-eib-confirms-support-for-tim-s-plan-to-develop-5g-fibre-optic-network-and-data-centres?utm_source=twitter&utm_medium=Social&utm_campaign=PressRelease&utm_content=na&mtm_campaign=PressRelease&mtm_keyword=na_Italy&mtm_source=twitter&mtm_medium=Social&mtm_content=na&mtm_cid=2021-05-31_02_en) a further €120m investment in Italian telecoms company TIM to support its 5G infrastructure roll-out, part of a €350m total investment package.

Thanks in part to this investment, Europe saw a growing number of commercial 5G launches in 2020. Although it ranks a distant second in 5G subscriptions behind Asia-Pacific, it is expected to surpass the 400,000 subscriptions by 2025, according to a forecast by business intelligence provider GlobalData.

### EU Solves---2NC

#### Current EU efforts solve 5G standard setting.

EC 22 [The European Commission helps with EU strategy, its role in setting priorities, and its implementation through EU policy; "5G Action plan"; 06-07-22; Shaping Europe’s digital future; https://digital-strategy.ec.europa.eu/en/policies/5g-action-plan; Accessed on 07-13-22]//AShah

5G Action plan

The 5G Action Plan is a strategic initiative that will make 5G a reality for all citizens and businesses across the EU.

Very high-capacity networks like 5G will be a key asset for Europe to compete in the Global market, with worldwide 5G revenues for mobile operators expected to reach €225 billion annually by 2025.

The Commission launched a plan to boost EU efforts for the deployment of 5G infrastructures and services across Europe in September 2016. The action plan set out a clear roadmap for public and private investment on 5G infrastructure in the EU.

To achieve that, the Commission proposes the following measures:

* align roadmaps and priorities for a coordinated 5G deployment across all EU Member states, targeting early network introduction by 2018, and moving towards commercial large scale introduction by the end of 2020 at the latest;
* make provisional spectrum bands available for 5G ahead of the 2019 World Radio Communication Conference (WRC-19), to be complemented by additional bands as quickly as possible, and work towards a recommended approach for the authorisation of the specific 5G spectrum bands above 6GHz;
* promote early deployment in major urban areas and along major transport paths;
* promote pan-European multi-stakeholder trials as catalysts to turn technological innovation into full business solutions;
* facilitate the implementation of an industry-led venture fund in support of 5G-based innovation;
* unite leading actors in working towards the promotion of global standards.

#### Existing Franco-German funding and EU initiatives solve

Sid Venkataramakrishnan 22 [Media and communication professional with a Master's degree in the Social Science of the Internet from University of Oxford., and an MS from Columbia Journalism School, 2/6/22, “China, US and Europe vie to set 5G standards,” <https://www.ft.com/content/0566d63d-5ec2-42b6-acf8-2c84606ef5cf>] //mh

Europe is seeking to play a role in establishing connectivity standards. Making 5G available everywhere, and setting the standards for it, are among the “Digital Decade Principles” announced in January by the European Commission, in order to guide digital transformation in the EU.

Also in January, the French and German governments announced €17.7mn in funding for four 5G projects. These included open 5G networks in business parks and 5G solutions for operating theatres, to improve telesupport.

Bruno Le Maire, French minister for the economy, finance and recovery, said the Franco-German ecosystem “will play a key role to position Europe at the forefront of innovation in 5G and its evolutions”.

But 5G standards are not only a question of international geopolitics, says DeNardis. She points to the question of airline flight disruption in the US.

In January, the largest US airlines warned that the imminent introduction of 5G threatened to ground flights across the country by interfering with equipment needed for take-off and landing.

US lawmakers have expressed concern over the rollout of new 5G wireless services and their effect on aviation © Bloomberg

“In no advanced society should the issue of 5G antenna placement be making the news,” DeNardis says. “This should be behind the scenes, not mediated by social media mobs. This is not how tech policy should be done in any way.”

The effect of the fracas, she warns, is to fuel public distrust in 5G, which had previously been more pronounced in Europe.

“This is yet another area of anxiety and lack of trust in institutions,” DeNardis says. “This serves to raise the importance of technical standards in society and how they are rules and structures which bleed into important social issues.”

As debate about 5G standards continues, discussions are already under way about its successor, 6G.

“It’s not surprising that this is happening — as standards evolve, they’re recognised as opportunities for nations to prioritise their indigenous companies,” DeNardis adds.

### Security Fails---1NC

#### 5G security is futile---China will still leapfrog us.

David Sanger 20, National Security Correspondent and Security Writer at The New York Times, author of *The Perfect Weapon: War, Sabotage, and Fear in the Cyber Age*; and Mary Brooks, Associate Producer at Ark Media, Spring 2020, "Battlefield 5G," *The Wilson Quarterly*, Vol. 44, No. 2, https://www.wilsonquarterly.com/quarterly/who-writes-the-rules/battlefield-5g, RMax

No one knows what the internet will look like in a decade. Yet even if the United States is wildly successful--if it keeps Huawei and other Chinese firms out of the core of its 5G networks, and if it builds a Western champion of its own to compete--that won't be enough. China didn't need 5G to steal the plans for the F35. It didn't need it to steal the most sensitive personal information of twenty-two million Americans--including our country's national security elite, military, top academics, and contractors--which was contained in security clearance files held by the Office of Personnel Management.

Even if America learns to lock down its domestically-held data, we will need to learn to live with dirty networks.

### Security Inev---1NC

#### 5G systems are resilient---resiliency prevents any chance of an impact from critical infra attacks

Mikko Karikytö 22 [Mikko is the Chief Product Security Officer (CPSO) & Head of Product Security Miko has also engaged in industry collaboration through organizations like ETIS, FIRST and EU Commission work groups. He has also provided Subject Matter Expertise for committee hearings of the UK parliament and the German Bundestag in 5G Security, 1/19/22, “Resilient 5G systems,” <https://www.ericsson.com/en/5g/resilient-5g-systems>] //mh

Critical infrastructure relies on 5G network resilience and security

Governments and enterprises are adopting advanced technologies through 5G, relying on predictable performance and security assurance of mission and business critical processes. 5G is powering everything, from factory automation to remote control of assets and more. When it comes to security and high performance, the 5G platform is a truly resilient system.

A resilient 5G system is always available, reliable, performs as expected, and recovers quickly when facing disturbances or attacks. The technical capabilities of a resilient 5G system include a combination of reliability, availability, robustness and security, whilst protecting privacy. These fundamental properties are inherent within telecom networks today and are extended even further with new technologies and capabilities.

Day by day, existing critical functions in society are being moved into the digital domain, becoming dependent on telecom networks. At the same time, new capabilities are enabling new use-cases to be realized. This is driving the evolution of traditional telecom networks into the primary innovation platform for both industry and society. This has led to various new demands on the 5G system, particularly mission and business critical use cases.

### Security Inev---2NC

#### Existing U.S. sanctions solve---Chinese tech companies are the largest target of measures and sanctions

Dingding Chen and Wang Lei 22 [Dingding Chen is Professor of International Relations at Jinan University, Guangzhou, China and Non-Resident Fellow at the Global Public Policy Institute and Wang Lei is an assistant research fellow at Intellisia Institute, 5/2/22, “Where Is China-US Technology Competition Going?,” <https://thediplomat.com/2022/05/where-is-china-us-technology-competition-going/>] //mh

In recent years, as part of its strategy to contain or delay the rise of China, the U.S. government has taken a series of measures and sanctions against Chinese technology companies. According to a study by the China Development Institute, from January 2017, when the Trump administration took office, to June 2021, when the Biden administration passed the United States Innovation and Competition Act of 2021 (USICA), the U.S. Congress, the government, and key think tanks have released 209 bills, policies, and reports concerning science and technology policies toward China. Such policies include sanctions on China’s high-tech companies, regulations over key cutting-edge technologies, and restrictions on the training of STEM talents.

As one of China’s most prominent communications equipment manufacturers, Huawei bears the brunt. It’s one of the biggest targets of U.S. sanctions to influence technology competition through trade policy. Huawei’s name is among the buzzwords in those documents, alongside general terms like artificial intelligence, innovation, technology, and Cold War.

U.S. Sanctions Against Huawei Keep Escalating

The United States has been cracking down on Huawei for over a decade since its proposed acquisition of 3Com Corporation failed to pass review by the Committee on Foreign Investment in the United States (CFIUS) in 2008. Since then, Huawei’s equipment sales contracts or R&D partnerships with several U.S. companies, including AT&T and Google, have been terminated. Starting in 2018, the U.S. government’s crackdown on Huawei escalated abruptly. In addition to introducing various restrictive policies itself, the U.S. government has also called on Western countries, including Australia, Japan, and European Union countries, to remove Huawei from 5G network construction projects and stop buying its equipment.

In May 2019, the U.S. Department of Commerce decided to place Huawei on the Entity List for export controls. Huawei began to receive comprehensive sanctions from the United States. After that, the U.S. Department of Commerce expanded the scope of export restrictions on Huawei, requiring foreign semiconductor chip producers that rely on U.S. equipment and software to obtain U.S. approval before exporting chips to Huawei in May 2020. Three months later, the U.S. Department of Commerce revised its ban on Huawei, further restricting Huawei’s products made with U.S. technology and software and adding 38 of Huawei’s subsidiaries in 21 countries to the Entity List. Ultimately, the ban had been escalated on September 15, 2020, with a new regulation that prohibited any entity from supplying chips with U.S. technology components to Huawei.

So far, the Biden administration has primarily followed the series of punitive measures taken against China under the Trump administration. The United States Innovation and Competition Act of 2021 (USICA), which has been passed by the Senate, includes a provision that prohibits the Department of Commerce from removing Huawei from the Entity List without demonstrating that it no longer poses a threat. Craig Singleton, a senior fellow at the Foundation for Defense of Democracies, also said the U.S. Congress might reintroduce the Neutralizing Emerging Threats from Wireless OEMs Receiving direction from Kleptocracies and Surveillance states Act (NETWORKS Act) to impose additional sanctions or export controls on Chinese entities.

#### Existing and incoming bans on Chinese tech companies check cyber backdoors

Associated Press 22 [the AP is a cooperative unincorporated news agency, 5/20/22, “Canada bans China's Huawei Technologies from 5G networks,” <https://www.npr.org/2022/05/20/1100324929/canada-bans-chinas-huawei-technologies-from-5g-networks>] //mh

Wireless carriers in Canada won't be allowed to install Huawei equipment in their high-speed 5G networks, the Canadian government said Thursday, joining allies in banning the giant Chinese technology company.

Canada had been the only member of the Five Eyes intelligence-pooling alliance not to bar or restrict use of equipment from Huawei Technologies Co. Ltd. in its 5G networks. The U.S. and the other members — Britain, Australia and New Zealand — previously banned Huawei.

"We are announcing our intention to prohibit the inclusion of Huawei and ZTE products and services in Canada's telecommunications systems," Industry Minister François-Philippe Champagne said.

Canada's ban also includes ZTE Corp., one of China's biggest tech companies and one that is state-owned.

Champagne added that "providers who already have this equipment installed will be required to cease its use and remove it." He said Canada's wireless companies won't be offered compensation.

Canada's major wireless companies already had started working with other providers.

"There are many hostile actors who are ready to exploit vulnerabilities in our defenses," Public Safety Minister Marco Mendicino said.

Mendicino said the government did an extensive review and is redoubling efforts to protect Canadians.

China condemned the move against one of its national champions as a form of "political manipulation" carried out in coordination with the U.S., which was aimed at "suppressing" Chinese companies in violation of free market principles.

"China will comprehensively and seriously evaluate this incident and take all necessary measures to safeguard the legitimate rights and interests of Chinese companies," the Chinese Embassy in Canada said in a statement posted on its website.

China commonly employs such language in commercial disputes, which often does not lead to a firm response from Beijing.

The U.S. government has been lobbying allies like Canada for years to exclude Huawei from new ultra-fast 5G mobile networks over worries that China's communist rulers could compel the company to help with cyberespionage. The U.S. has warned it would reconsider intelligence sharing with any countries that use Huawei gear.

### AT: Emerging Tech---1NC

#### No emerging tech impact---their ev is alarmism and tech decreases likelihood of nuclear conflict

Michael Onderco 21, Associate professor at Erasmus University Rotterdam, Ph.D. in Political Science from Vrije University Amsterdam; and Madeline Zutt, research associate at Erasmus University Rotterdam, 5/23/2021, “Emerging technology and nuclear security: What does the wisdom of the crowd tell us?” Contemporary Security Policy, Vol. 42, No. 3, pp. 286-311, <https://doi.org/10.1080/13523260.2021.1928963>, RMax, HGVs = hypersonic gliding vehicles

Some of the decision-makers felt that some of the threats commonly associated with emerging technologies in the scholarly discourse are overblown. There was, for example, skepticism about whether nuclear launch decisions will ever be delegated to an entity other than humans, or whether HGVs are anything other than fancy missiles. Our interviewees were concerned about cyber risks, but they also felt that the use of cyber technologies for strategic purposes is most likely not going to happen. These findings underline that in spite of the growing attention given to emerging technologies among thinktankers and academics alike, decision-makers are less concerned about these technologies. This means that either the experts are alarmist, or that they need to build better epistemic communities to convey to decisionmakers the risks that these technologies pose. Furthermore, the centrality attached to nuclear weapons in strategic thinking and planning appears to undermine any idea of weakening. Our survey and interviews showed that while the respondents could imagine that emerging technologies will have a more prominent role in deterrence by denial; nuclear weapons will remain dominant in deterrence by punishment. This is rather curious since recent work in thinking about long-range conventional strikes highlights that these technologies might change the calculus and appear to affect deterrence by punishment (Montgomery, 2020). However, when it comes to technologies like HGVs or cyberwarfare, the scholars are much more skeptical.

When referring to the positive applications of emerging technologies, many of those surveyed reported that technologies can be used to enhance nuclear safeguarding and verification measures. In this respect, decisionmakers felt that if there is one contribution that emerging technologies can make to nuclear disarmament, it would be here. Curiously, our experts were quite skeptical about the prospects for global nuclear disarmament. The majority of the experts did not think that nuclear disarmament was going to happen in the next 50 years, and a large portion of the experts did not think that nuclear disarmament would make us safer. This seems to support the realist view that nuclear proliferation is a result of the security dilemma, and the removal of nuclear weapons would not resolve the underlying calculus but might make conflict more likely (Waltz, 1981). This is doubly curious, since the majority of our experts came from European countries, where civil society pressure for nuclear disarmament is growing. Therefore, we observe that both the general public and civil society are out of step with the experts. The perception that nuclear disarmament is unachievable (in a reasonable timeframe) and that it would not make the world safer might explain why nuclear disarmament is not a policy priority for numerous experts. As Pelopidas (2020) recently remarked, if elites believe that nuclear weapons are eternal, then the motivation for doing something about disarmament is not as much of a priority for them.

### AT: China 5G Bad---1NC

#### China 5G exports don’t cause digital authoritarianism---their goals are purely economic.

Michael Ceci 22, Ph.D. candidate in the Sam Nunn School of International Affairs at the Georgia Institute of Technology, Major in the United States Air Force; and Lawrence Rubin, associate professor at the Sam Nunn School of International Affairs at the Georgia Institute of Technology, associate fellow at the International Institute for Strategic Studies, 2022, “China’s 5G networks: A tool for advancing digital authoritarianism abroad?” *Orbis*, Vol. 66, Issue 2, pp. 270-288, https://doi.org/[10.1016/j.orbis.2022.02.013](https://doi-org.proxy.lib.umich.edu/10.1016/j.orbis.2022.02.013), RMax

Rethinking China’s “export strategy.”

On the other hand, China’s export strategy is more complicated in practice. Surveillance technology is provided by liberal democracies and authoritarian regimes alike.[36](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn36) Therefore, China is not simply propagating a digital authoritarian model to export an alternative form of governance. As its actions depend on political context, [bilateral relations](https://www-sciencedirect-com.proxy.lib.umich.edu/topics/social-sciences/bilateral-relations), and mutual economic interests, China appears more opportunistic than strategic with respect to exporting advanced surveillance technologies.

Beijing may not be linking these technologies to a specific political use. The adoption of Chinese surveillance technology in strong liberal democracies across Europe shows that regime type is not a good predictor of countries that will adopt artificial intelligence (AI) surveillance technology.[37](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn37) The demands for these technologies (e.g., controlling migration, tracking terrorist activity) are diverse and often not clearly connected to China’s geopolitical goals—including the promotion of authoritarian practices. For example, in France, domestic terrorist threats appear to drive the need for these technologies.[38](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn38) In Greece, however, the use of advanced surveillance technologies in automated border control (ABC) systems are a priority to process passengers more efficiently, as well as to screen the influx of migrants at Europe’s borders.[39](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn39)

A closer look at the demand for China’s technology exports reveals that customers’ agency and local dynamics may complicate the logic that Chinese surveillance technologies lead to greater authoritarianism in practice. Huawei’s presence in Thailand—a country considered repressive regarding internet freedoms—does not appear to reveal a clear Chinese agenda to push monitoring systems. Additionally, one of the major selling points for this technology—Huawei’s Safe City—has garnered skepticism.[40](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn40) As new crime data from deployed Huawei Safe City and Smart City projects suggests, “the perception of Chinese surveillance technology as particularly effective and sophisticated is not matched by the actuality of its chaotic implementation.”[41](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn41) The success of Huawei’s Safe City and Smart City projects in China, which largely forms the marketing narrative to foreign customers, is based not only on the technology itself, but on supporting policies and resources (e.g., trained security personnel to transform data into actionable information).[42](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn42) The policies and resources must develop alongside these technologies. Of course, such a supportive framework varies across countries—seventeen in Africa alone—with Huawei Safe City and Smart City projects.[43](https://www-sciencedirect-com.proxy.lib.umich.edu/science/article/pii/S0030438722000138" \l "fn43)

#### Increasing competition and constraining China pushes them towards using 5G militarily.

Michael V. Ceci and Lawrence Rubin 22 [Michael V. Ceci is a Ph.D. student in the Sam Nunn School of International Affairs, Georgia Institute of Technology, and is a Major in the United States Air Force and Dr. Lawrence Rubin is an associate professor in the Sam Nunn School of International Affairs at the Georgia Institute of Technology and an associate fellow at the International Institute for Strategic Studies, February 2022, China’s 5G networks: A tool for advancing digital authoritarianism abroad?, Orbis, Volume 66, Issue 2, Pages 270-288] //mh

The United States’ relationship with the People’s Republic of China (PRC) is largely defined by competition. The meeting of U.S. and Chinese foreign officials in Anchorage just three months after the Biden administration took office showed that both nations remain “fundamentally at odds” in key areas (e.g., economic practices, territorial disputes, and human rights).1 Geopolitical competition between these two global powers risks direct and indirect armed conflict and injects volatility into financial markets that could weaken the global economy.

Secretary of State Antony Blinken’s December 2021 trip to Jakarta, Indonesia, reflected the U.S.’s competitive spirit. By appealing to a broad set of shared interests (e.g., democratic values and commerce through open seas) with Indo-Pacific nations, the United States sought to highlight itself as a more reliable and transparent strategic partner than China.3 Blinken’s mention of the United States and Republic of Korea’s (ROK) investments in research and development on secure 5G and 6G networks served as a reminder that the U.S. and its partners are working to provide viable alternatives to Chinese investments in the region.

A myriad of official U.S. documents shows that China is the U.S.’s main geopolitical rival. Militarily, China’s rise challenges America and its allies’ interests in the Asia-Pacific region and Europe. 5 Both the United States’ and China’s technological sectors remain formidable tools for advancing and defending against each other’s military, political, economic, and social objectives.6 In particular, the United States is concerned that China seeks to gain long-term allies and influence across these domains by promoting its advanced communications and information technologies through investing in several nations’ digital infrastructures.

China’s efforts to promote its 5G networks have sparked policy debates in Washington and among its allies. Many in the West are concerned that China’s foothold in a nation’s digital economy and communications could affect a country’s political future, as well as security cooperation with the U.S. and its allies. In fact, a large part of China’s growing influence across much of the developing world—fueled by its narrative as a non-colonial power and strategic goals encompassed in “Made in China 2025”—is through its advancements in (and successful marketing of) telecommunications technology. For example, China dominates Africa’s telecommunications infrastructure by supplying approximately 70 percent of the continent’s 4G networks. 7 Alongside China’s state-backed financing, its success in this sector across Africa and much of the Global South is partly due to the United States’ increased pressure. This pressure includes banning Chinese-made equipment, restricting access to U.S.- based technology, and persuading allies to ban Chinese-made equipment to curb Chinese companies’ global reach. All of these measures are due to security concerns largely emanating from within China (i.e., the Chinese Communist Party’s [CCP’s] historical support of cyber espionage).8

On the other hand, some scholars argue that economic interests drive China’s motivation for selling repressive technologies (let alone 5G network infrastructure). “China’s motivation . . . is based more on economic interests than a grand strategy to impose authoritarian values and alternate governance systems in host states.” 9 China’s geopolitical interests and authoritarian “instincts” are not the only viable explanations of its motivation to build 5G networks abroad. The consumer in the local environment has a say and may have different motivations.

This article argues that the bark of China’s digital authoritarianism may be worse than its byte. China’s promotion of its advanced communication technologies is subject to local political, social, and economic forces. More specifically, this article finds that the combination of geopolitical dynamics and local economic considerations challenge China’s capacity to dominate digital infrastructures. We contend that Chinese 5G networks abroad do not advance digital authoritarianism or negatively affect countries’ internet governance norms any more than non-Chinese network providers. Other local factors include leadership incentives, technological capacity, and political norms and practices that largely determine how Chinese technologies are applied. While there are legitimate concerns regarding espionage and network security, these concerns should be analytically separate from issues of digital authoritarianism due to distinct differences in the required level of participation—or complicit behavior—from host governments. This paper focuses on how Chinese 5G networks impact the relationship between host governments and their citizens, not how China in pursuit of its geostrategic objectives may be influencing foreign populations directly.

### AT: China 5G Bad---2NC

#### China doesn’t want to supplant the U.S. as a global power

Paul Heer 20 [Dr. Heer served for 30 years as an analyst in the U.S. government, having worked as an analytic manager and member of the Central Intelligence Agency’s Senior Analytic Service prior to becoming NIO for East Asia, 10/10/20, “Understanding US-China strategic competition,” <https://cis.mit.edu/publications/analysis-opinion/2020/understanding-us-china-strategic-competition>] //mh

Determining the right prescription for how the United States should respond to strategic competition with China depends on having the right diagnosis of the problem. Unfortunately, much of the prevailing analysis and commentary on the subject has gotten the diagnosis wrong by misunderstanding or misrepresenting the nature of the challenge that China poses. Let us examine what it is, and what it isn’t.

The US contest with China is a full scale, full-spectrum strategic great-power competition for wealth and power and influence, both within East Asia and globally. It features competing models for political governance and economic development, as well as competing views on the structure and rules of the international order. This competition is being driven primarily by historic changes and structural shifts in the wake of the US-Soviet Cold War and—more recently and perhaps more importantly—the Global Financial Crisis of 2008–9. These events and their consequences have altered the global balance of power and especially the relative strategic trajectories of the United States and China. This new status quo has inevitably fueled tensions, suspicions, and competition between the world’s two biggest powers. Each side is determined to maximize its position and its freedom action relative to the other.

This competition, however, is not automatically or necessarily an adversarial relationship, or a zero-sum or winner-take-all contest. It is not, or at least should not be, exclusive of bilateral cooperation—which in fact will be necessary and vital to both countries and for the sake of the rest of the world. And contrary to many prevailing views, it is not a product of Chinese leader Xi Jinping’s personality or personal ambitions. The historical and structural drivers of the competition largely predated his rise to power in 2012.

Perhaps most importantly, this is not an existential ideological struggle, like that between the United States and the Soviet Union. The ideologies and strategic objectives of the two sides are not mutually exclusive, or at least need not be. China is not seeking to destroy the US system or to supplant the United States as the global hegemon. Indeed, Beijing has almost certainly calculated that global hegemony is unachievable, unnecessary to secure China’s interests, and not something to be particularly wished for. Chinese leaders probably recognize that pursuing global hegemony would be counterproductive, and destabilizing in ways that would not be conducive to China’s interests or its security. They probably also calculate—based in part on having observed the US example—that possessing it would be both burdensome and unsustainable. Given this cost-benefit analysis, Beijing is prepared to settle for something less than global predominance, which is why Chinese leaders talk a lot about global “multipolarity.”

It is within this framework of pursuing and promoting multipolarity that China is seeking to legitimize its model of governance and development, not impose it upon other countries. This is part of what Beijing is referring to when it routinely invokes a “community of common destiny for mankind.” Rather than being the expansionist and aggressive Sino-centric vision that some scholars have attributed to the phrase, this is actually a relatively benign slogan that hearkens back to the “five principles of peaceful coexistence.” Its core emphasis is on mutual respect for—or at least tolerance of—alternative governing systems, and mutual pursuit of solutions to shared global challenges and imperatives. Similarly, when Chinese leaders talk about the “reform of global governance,” they are clearly talking about reform—not replacement of the international system with one of China’s making or wholly in China’s image. Indeed, Beijing sees the existing international system trending in its favor. But it wants to adjust and update the system to make it even more reflective and representative of the twenty-first-century balance of power in the world. And obviously the Chinese would like to maximize the extent to which the system serves China’s agenda and endorses its preferred ways of doing business.

Much commentary has deemed the US-China strategic competition to be a new Cold War. But is only a “cold war” to those commentators who choose to define the term in a way that serves that purpose. But that comparison is inappropriate because, again, the US-China contest is not an existential ideological struggle. The world today is not characterized by two opposing ideological camps aligned with Beijing and Washington; and the United States is integrated and interdependent with China in ways that it never was with the Soviet Union. Indeed, the competition with China is unprecedented because Washington has never faced a strategic or ideological rival that had its act together while being competitive in various realms.

#### Concerns about 5G are overblown---Huawei doesn’t have malicious intentions

Lyu Jinghua 20 [Jinghua is a scholar with Carnegie’s Cyber Policy Initiative. Her research focuses primarily on cybersecurity and China-U.S. defense relations, 9/18/20, “The Race of Chinese Companies in the 5G Competition,” <https://www.ispionline.it/en/pubblicazione/race-chinese-companies-5g-competition-27511>] //mh

All the declared concerns supporting the ban of Huawei, including the risks of surveillance and data collection and the potential vulnerabilities to cyberattacks or installed kill switches, sound reasonable at first. However, it is fair to say that these are inherent risks embedded in all ICT products. Why is Huawei so alarming, then? The frequently heard answer is that Huawei has much closer relations with the Chinse government than the usual ones, with three main accusations. Are they convincing enough?

The first and most primary accusation is that Huawei is forced to obey the laws, such as the National Intelligence Law and Cybersecurity Law, to transmit data to the government. There indeed are regulations about the obligation of cooperation and assistance for national security reasons, but according to a leading Chinese professor in cybersecurity law, Shenkuo Wu, the interpretation of how it affects Huawei’s overseas operations is not accurate. It is stipulated that such obligations should only be fulfilled by the ICT companies directly operating within Chinese territory rather than their overseas subsidiaries. The latter, on the other hand, are clearly required by The Code of Conduct for Overseas Investment and Operation of Private Enterprises to comply with the laws and regulations of the host countries (regions). Clifford Chance, a global law firm headquartered in London, also concluded that "nowhere does Chinese law give Beijing the authority to compel telecommunication equipment firms to install backdoors or listening devices—or to engage in any behavior that might compromise network security.”

The second argument is that the Chinese government has given Huawei as much as $75 billion in subsidies, which gives it incomparable advantages in the 5G market. It is a common practice for companies to receive government grants supporting high tech research and development. Moreover, audited data shows that in the 10 years from 2009 to 2018, the total amount of direct grants Huawei received from the Chinese government – mostly in R&D incentives – was just 0.3% of Huawei's total sales of $514 billion over the same period. The high volume of investment by Huawei in R&D, which was $15 billion in 2018 as shown by The 2018 EU Industrial R&D Investment Scoreboard, apparently contributed more to its success. Huawei is listed as the 5th among 50 companies in this report, while its main competitors such as Cisco, Nokia, and Ericsson are respectively listed as the 25th, 27th, and 43rd.

The third one suggests Huawei’s close connection with the government because of the military background of its founder, Ren Zhengfei, and some other employees. It is well known that China has the largest amount of military personnel. The active force is currently 2 million, 2.3 million in late 2015, and even larger before. A report from PLA Daily shows there were altogether 5.7 million retired military personnel as of July 2018. Most of them retired at an early age and sought a second career as civilians. It is also very common for companies around the world to hire retired military personnel, but there is little suspicion of them working for the government behind the scenes.

### AT: IP Theft---1NC

#### U.S. is taking steps to combat IP theft now---there’s a push to curb it

Kate M. Growley, Gabriel M. Ramsey, Sari Schreiber & Suzanne Trivette 20 [Kate is a Certified Information Privacy Professional (CIPP) for both the U.S. private and government sectors, Gabe has handled a broad range of technology-related litigation matters regarding computing environments, platforms, data access and usage, Internet law, intellectual property, cybersecurity and regulatory issues, Schreiber is a Staff Attorney at Labaton Sucharow LLP, Suzanne Trivette is an associate in Crowell & Moring's New York office and a member of both the Advertising & Media and Intellectual Property groups as well as the State Attorney General practice, 2/25/20, “Is Chinese IP Theft Coming to an End?,” <https://www.crowelltradesecretstrends.com/2020/02/is-chinese-ip-theft-coming-to-an-end/>] //mh

Chinese entities have been alleged to steal IP from foreign companies using methods such as trading with or forming joint ventures with the companies and then gaining access to their sensitive or proprietary information. Businesses have also willingly allowed Chinese partners to access this information in exchange for accessing China’s immense market. Some examples of alleged Chinese IP theft include a conspiracy to hack into U.S. defense contractors’ computer networks to steal sensitive military data and the fact that the Chinese military has infrastructure that can look suspiciously similar to that used by the United States. In the context of urging NATO allies to ban Chinese 5G equipment, Defense Secretary Mark Esper warned at the Department of Homeland Security’s National Cybersecurity Summit last September that China is committing “the greatest intellectual property theft in human history.”

Due to the clear costs of these and other alleged thefts, there has been a strong bipartisan push by the U.S. government to curb it. Earlier this month, following the China Initiative Conference [1], the Attorney General and federal prosecutors told the public that they plan to be more aggressive in combating theft of U.S. IP by or on behalf of the Chinese government. They plan to do this by prosecuting companies and individuals for IP theft and also through education and awareness programs. One important prong will be educating American academic institutions of the risk. Prosecutors noted that academic institutions create a lot of IP, but do not protect it as well as private institutions do, making it more susceptible to theft.

Aside from federal prosecutors ramping up their enforcement, the U.S. Department of Justice (DOJ) is also acting to protect U.S. IP. On February 13th, the DOJ brought additional charges against Chinese telecommunications company, Huawei, including charges for conspiracy to steal trade secrets. The DOJ alleged that the company and its subsidiaries had either stolen, or directed others to steal on its behalf, trade secrets and copyrighted information through various creative means over decades in an effort to benefit itself and cut costs.

### AT: Warming

#### No impact to warming

Jay Lehr 19, Ph.D. in Groundwater Hydrology from the University of Arizona, and Tom Harris, Executive Director of the International Climate Science Coalition, “Global Warming Myth Debunked: Humans Have Minimal Impact on Atmosphere’s Carbon Dioxide and Climate”, Western Journal, 2-14, <https://www.westernjournal.com/global-warming-myth-debunked-humans-minimal-impact-atmospheres-carbon-dioxide-climate/> [language modified]

Global warming activists argue carbon-dioxide emissions are destroying the planet, but the climate impacts of carbon dioxide are minimal, at worst. Activists would also have you believe fossil-fuel emissions have driven carbon-dioxide concentrations to their highest levels in history. The Obama-era Environmental Protection Agency went so far as to classify carbon dioxide as a toxic pollutant, and it established a radical goal of closing all of America’s coal-fired power plants. Claims of unprecedented carbon-dioxide levels ignore most of Earth’s 4.6-billion-year history. Relative to Earth’s entire record, carbon-dioxide levels are at historically low levels; they only appear high when compared to the dangerously low levels of carbon dioxide that occurred in Earth’s very recent history. The geologic record reveals carbon dioxide has almost always been in Earths’ atmosphere in much greater concentrations than it is today. For example, 600 million years ago, when history’s greatest birth of new animal species occurred, atmospheric carbon-dioxide concentrations exceeded 6,500 parts per million (ppm) — an amount that’s 17 times greater than it is today. Atmospheric carbon dioxide is currently only 410 parts per million. That means only 0.04 percent of our atmosphere is carbon dioxide (compared to 0.03 percent one century ago). Only one molecule in 2,500 is carbon dioxide. Such levels certainly do not pose a health risk, as carbon-dioxide levels in our naval submarines, which stay submerged for months at a time, contain an average carbon-dioxide concentration of 5,000 ppm. The geologic record is important because it reveals relationships between carbon-dioxide levels, climate, and life on Earth. Over billions of years, the geologic record shows there is no long-term correlation between atmospheric carbon-dioxide levels and Earth’s climate. There are periods in Earth’s history when carbon dioxide concentrations were many times higher than they are today, yet temperatures were identical to, or even colder than, modern times. The claim that fossil-fuel emissions control atmospheric carbon-dioxide concentrations is also invalid, as atmospheric concentrations have gone up and down in the geological record, even without human influence. The absurdity of climate alarmism claims gets even stranger when you consider there are 7.5 billion people on our planet who, together, exhale 2.7 billion tons of carbon dioxide each year, which is almost 10 percent of total fossil-fuel emissions every year. However, we are but a single species. Combined, people and all domesticated animals contribute 10 billion tons. Further, 9 percent of carbon-dioxide emissions from all living things arise not from animals, but from anaerobic bacteria and fungi. These organisms metabolize dead plant and animal matter in soil via decay processes that recycle carbon dioxide back into the atmosphere. The grand total produced by all living things is estimated to be 440 billion tons per year, or 13 times the amount of carbon dioxide currently being produced by fossil-fuel emissions. Fossil-fuel emissions are less than 10 percent of biological emissions. Are you laughing yet? Every apocalyptic pronouncement you hear or read is [totally wrong] ~~nothing short of insanity~~. Their primary goal is not to save plants, humans, or animals, but rather to use climate “dangers” as a justification for centralizing power in the hands of a select few.

### AT: Warming Wars

#### Warming won’t cause global conflict

Dr. Ian Cook 20, Senior Lecturer in Global Politics and Policy at Murdoch University, PhD in Political Theory from the University of Queensland, The Politics of the Final Hundred Years of Humanity (2030-2130), Springer Singapore, Kindle Edition

Yet another problem with the assumption that catastrophic human-caused environment change simply causes civil war, as Salehyan and Hendrix noted, is that violence at the scale of a civil war requires significant resources. In their view, civil wars are more likely to occur in times of relative abundance. While “riots and protests, may emerge from conditions of scarcity,” they argue, “sustaining a militant organization requires considerable planning and resources” (Salehyan and Hendrix 2014, p. 240). Reasons to fight might exist. For this to turn into civil war, however, people “also need the capability to do so, and environmental scarcity may limit such capability, thus undermining the resource base necessary for mobilizing armed violence” (Salehyan and Hendrix 2014, p. 240).

A related debate concerns what Adams and colleagues have claimed to be a sampling bias in studies of the connection between environment change and armed conflict (Adams et al. 2018). Levy accepts the existence of some sampling bias but rejects the view that this bias results in an overstatement of the connection between environment change and conflict. “Knowing that case selection is biased is useful, but not a reason to lower our estimate of the climate’s impact on conflict” (Levy 2018, p. 441).

In responding to Levy’s criticism, authors claiming bias wrote that they did not “deny a link between climate change and conflict in principal. Indeed, some of our own recent work indicates that such a link exists, but it is highly conditional.” Their problem with the research being done in this field was that “sampling biases… increase the risk that such links are overstated, that crucial world regions do not receive sufficient attention and that little knowledge is produced on peaceful adaptation” (Ide et al. 2018, p. 442– 3).

After reviewing the literature on the relationship between climate change and violent conflict, Sakaguchi, Varughese and Auld concluded that the “current literature offers mixed evidence. This makes it difficult to render a definitive statement about the climate-conflict relationship” (2017, p. 640). While they pointed out that just over 60% of the studies they reviewed found “that climate change variables are positively correlated with higher levels of violent conflict,” Sakaguchi, Varughese and Auld also argued that “many subtleties and countertrends underlie this overall pattern” (2017, p. 640). Thus, even though “a majority of reviewed studies envision climate variables influencing conflict through a causal pathway, … these pathways are often theoretically underspecified and have only weak empirical support” (Sakaguchi et al. 2017, p. 641).

As Koubi put it, the research that has been done on this question “provides some evidence that climatic changes could act as a ‘threat multiplier’ in several of the world’s regions. In particular, the extant literature shows that climatic conditions can lead to conflict in agricultural-dependent regions and in combination and interaction with other socioeconomic and political factors” (Koubi 2018, p. 200). After having claimed that, to their knowledge, “no one in the field of climate research has suggested that climate change could be the ‘sole cause’ of war, violence, unrest or migration”, Butler and Kefford recommended “viewing climate change instead as a risk multiplier, influencer or co-factor … In this way of thinking, environmental and ecological factors interact with social determinants, including those that are economic, demographic and political, to produce phenomena such as migration, conflict and famine” (2018, p. 587).

There can be no doubt that conflict will increase during the final hundred years of humanity. But it will result from a complex interaction of socio-political factors and a catastrophically changed environment. It may not go beyond conflict between different groups or between the government and opposition groups and become civil war. This depends on the capacity of those opposition groups. In many cases, they will lack the resources to conduct a civil war. The Syrian war is itself a good illustration of the problem, as the groups opposed to the Syrian government have only been able to conduct the extended civil war in which they have been engaged with the support of outside groups. (Mazzetti and Apuzzo 2016).

The question of whether civil war will break out is something that can only be answered “region by region” and the answer must be based on “knowledge of pre-conflict geographies, such as drivers of resilience and vulnerability” (Farbotko 2018). Sometimes governments may abandon territory and opposition groups can seize control of that land. But it is likely to be land that is suffering worst from the effects of catastrophic human-caused environment change and will not be habitable. To replace an existing government or take control of a region within a country through civil war is no simple thing. It may happen. But it will not happen on the scale that some people have predicted. And it will not happen just because of the weather.

#### No climate wars

Erik Gartzke 11, Associate Professor of Political Science at UC-San Diego, March 16, 2011, “Could Climate Change Precipitate Peace?,” online: <http://dss.ucsd.edu/~egartzke/papers/climate_for_conflict_03052011.pdf>

An evolving consensus that the earth is becoming warmer has led to increased interest in the social consequences of climate change. Along with rising sea levels, varying patterns of precipitation, vegetation, and possible resource scarcity, perhaps the most incendiary claims have to do with conflict and political violence. A second consensus has begun to emerge among policy makers and opinion leaders that global warming may well result in increased civil and even interstate warfare, as groups and nations compete for water, soil, or oil. Authoritative bodies, leading government officials, and even the Nobel Peace prize committee have highlighted the prospect that climate change will give rise to more heated confrontations as communities compete in a warmer world.Where the basic science of climate change preceded policy, this second consensus among politicians and pundits about climate and conflict formed in the absence of substantial scientific evidence. While anecdote and some focused statistical research suggests that civil conflict may have worsened in response to recent climate change in developing regions (c.f., Homer-Dixon 1991, 1994; Burke et al. 2009). these claims have been severely criticized by other studies (Nordas&Gleditsch 2007; Buhaug et al. 2010: Buhaug 2010).1 In contrast, long-term macro statistical studies find that conflict increases in periods of climatic chill (Zhang et al. 2006, 2007; Tol& Wagner 2010).2 Research on the more recent past reveals that interstate conflict has declined in the second half of the twentieth century, the very period during which global warming has begun to make itself felt (Goldstein 2002; Levy et al. 2001; Luard 1986, 1988; Hensel 2002; Sarkees, et al. 2003; Mueller 2009).3 While talk of a ''climatic peace” is premature, broader claims that global warming causes conflict must be evaluated in light of countervailing evidence and a contrasting set of causal theoretical claims.4

### AT: Disease

#### No extinction.

Ord ’20 [Dr. Toby; 2020; Senior Research Fellow in Philosophy at Oxford University, DPhil in Philosophy from the University of Oxford; Hachette Books, “The Precipice: Existential Risk and the Future of Humanity,” p. 124-126]

Are we safe now from events like this? Or are we more vulnerable? Could a pandemic threaten humanity’s future?10

The Black Death was not the only biological disaster to scar human history. It was not even the only great bubonic plague. In 541 CE the Plague of Justinian struck the Byzantine Empire. Over three years it took the lives of roughly 3 percent of the world’s people.11

When Europeans reached the Americas in 1492, the two populations exposed each other to completely novel diseases. Over thousands of years each population had built up resistance to their own set of diseases, but were extremely susceptible to the others. The American peoples got by far the worse end of exchange, through diseases such as measles, influenza and especially smallpox.

During the next hundred years a combination of invasion and disease took an immense toll—one whose scale may never be known, due to great uncertainty about the size of the pre-existing population. We can’t rule out the loss of more than 90 percent of the population of the Americas during that century, though the number could also be much lower.12 And it is very difficult to tease out how much of this should be attributed to war and occupation, rather than disease. As a rough upper bound, the Columbian exchange may have killed as many as 10 percent of the world’s people.13

Centuries later, the world had become so interconnected that a truly global pandemic was possible. Near the end of the First World War, a devastating strain of influenza (known as the 1918 flu or Spanish Flu) spread to six continents, and even remote Pacific islands. At least a third of the world’s population were infected and 3 to 6 percent were killed.14 This death toll outstripped that of the First World War, and possibly both World Wars combined.

Yet even events like these fall short of being a threat to humanity’s longterm potential.15

[FOONOTE]

In addition to this historical evidence, there are some deeper biological observations and theories suggesting that pathogens are unlikely to lead to the extinction of their hosts. These include the empirical anti-correlation between infectiousness and lethality, the extreme rarity of diseases that kill more than 75% of those infected, the observed tendency of pandemics to become less virulent as they progress and the theory of optimal virulence. However, there is no watertight case against pathogens leading to the extinction of their hosts.

[END FOOTNOTE]

In the great bubonic plagues we saw civilization in the affected areas falter, but recover. The regional 25 to 50 percent death rate was not enough to precipitate a continent-wide collapse of civilization. It changed the relative fortunes of empires, and may have altered the course of history substantially, but if anything, it gives us reason to believe that human civilization is likely to make it through future events with similar death rates, even if they were global in scale.

The 1918 flu pandemic was remarkable in having very little apparent effect on the world’s development despite its global reach. It looks like it was lost in the wake of the First World War, which despite a smaller death toll, seems to have had a much larger effect on the course of history.16

It is less clear what lesson to draw from the Columbian exchange due to our lack of good records and its mix of causes. Pandemics were clearly a part of what led to a regional collapse of civilization, but we don’t know whether this would have occurred had it not been for the accompanying violence and imperial rule. The strongest case against existential risk from natural pandemics is the fossil record argument from Chapter 3. Extinction risk from natural causes above 0.1 percent per century is incompatible with the evidence of how long humanity and similar species have lasted. But this argument only works where the risk to humanity now is similar or lower than the longterm levels. For most risks this is clearly true, but not for pandemics. We have done many things to exacerbate the risk: some that could make pandemics more likely to occur, and some that could increase their damage. Thus even “natural” pandemics should be seen as a partly anthropogenic risk.

### AT: Pollution

#### No pollution impacts

**Kareiva and Carranza, 18**—Institute of the Environment and Sustainability, University of California, Los Angeles (Peter and Valerie, “Existential risk due to ecosystem collapse: Nature strikes back,” Futures, available online January 5, 2018, ScienceDirect, dml)

Another hypothesized planetary boundary entails the conversion of natural habitats to agricultural land. The mechanism by which too much agricultural land could cause a crisis is unclear—unless it is because land conversion causes so much biodiversity loss that species extinctions are the proximate cause of an ecocatastrophe. Excessive chemical pollution and excessive atmospheric aerosol loading have each been suggested as planetary boundaries as well. In the case of these pollution boundaries, there are well-documented mechanisms by which surpassing some concentration of a pollutant inflicts severe human health hazards. There is abundant evidence linking chemical and aerosol pollution to higher mortality and lower reproductive success in humans, which in turn could cause a major die-off. It is perhaps appropriate then that when Hollywood envisions an unlivable world, it often invokes a story of humans poisoning themselves. That said, it is doubtful that we will poison ourselves towards extinction. Data show that as nations develop and increase their wealth, they tend to clean up their air and water and reduce environmental pollution (Flörke et al., 2013; Hao & Wang, 2005). In addition, as economies become more circular (see Mathews & Tan, 2016), environmental damage due to waste products is likely to decline. The key point is that the pollutants associated with the planetary boundaries are so widely recognized, and the consequences of local toxic events are so immediate, that it is reasonable to expect national governments to act before we suffer a planetary ecocatastrophe.

### AT: Smart Cities---1NC

#### Smart cities are inevitable – population growth makes it impossible to avoid

Butler ’21 [Georgia, 10-18-2021, "Why smart cities are both incredible and inevitable," Data Center Dynamics, <https://www.datacenterdynamics.com/en/marketwatch/why-smart-cities-are-both-incredible-and-inevitable/>, St. Mark’s, AM]

When we look into the future, we have a terrible habit of underestimating it. We look at the last 10 years, how far technology has come in that time, and expect this development to be mirrored in the decade coming.

This couldn’t be further from the truth. In reality, progress follows the law of accelerating returns and the last 10 years saw significantly more growth than the decade before.

Explained as simply as possible, the ‘law of accelerating returns’ is based on the principle that as we develop more technology, further growth becomes easier to conceive. We learn from experience, and faster due to the resources available to us.

When we think about this velocity, smart cities seem just around the corner, and as a concept are heavily reliant upon data centers for their success.

“The world population presently stands at approximately 7.7 billion people, with nearly four billion or 54 percent living in cities today. By 2050, it's projected that more than two-thirds of the world population will live in urban areas, with seven billion of the expected 9.7 billion people occupying cities globally.”

Marc Cram, the director of new market development for Server Technology, a brand from Legrand, sees these population densities as directly related to the development of smart cities. This is, in part, due to necessity. As the population expands, we need to find a way to manage it effectively in the highly dense areas. Resources will be stretched and become reliant on efficiency.

### AT: Smart Cities---AT: 5G---2NC

#### 5G implementation fails – transmission range and delays

Castro ’19 [Daniel, Castro is the vice president of the Information Technology and Innovation Foundation (ITIF) and director of the Center for Data Innovation, January 2019, "5G Can Enable Smart Cities — If Policymakers Allow It," GovTech, <https://www.govtech.com/fs/infrastructure/5g-can-enable-smart-cities-if-policymakers-allow-it.html>, St. Mark’s, AM]

For cities to reach this potential sooner rather than later, however, they will need to accelerate the deployment and adoption of 5G. One way is for cities to streamline their permitting processes. 5G uses small cells that can transmit data faster but not as far as the towers of past wireless networks. As a result, the number of small cell installations needed to fully implement 5G is expected to be 10 to 100 times the number of existing cell towers. This means that delays, inefficiencies and high costs in the permitting process take a heavy toll on 5G deployment.

While the Federal Communications Commission generally requires cities to approve or deny 5G installations in 60 or 90 days depending on the type of application, cities can make themselves more attractive to firms installing 5G by setting shorter timelines. For example, Austin, Texas, has self-imposed a 40-day limit to approve or deny applications after a slow application review process led to the city falling behind its peers.

## Turn---China Good

### China Good---1NC

#### China’s 5G beats the US in every aspect---solves green energy, AI, biotechnology, and disease.

Allison & Schmidt 22 (Graham Allison, Douglas Dillon Professor of Government, Harvard Kennedy School, Member of the Board for the Belfer Center, Former Director of the Belfer Center, Faculty Affiliate for the Future of Diplomacy Project, Eric Schmidt, an American businessman and software engineer known for being the CEO of Google from 2001 to 2011, 2-16-2022, "China’s 5G Soars Over America’s," Belfer Center for Science and International Affairs, https://www.belfercenter.org/publication/chinas-5g-soars-over-americas, DOA: 7-5-2022//Smarx Ahsan---Ableist language modified)

In some U.S. cities, it’s slower than the old 4G system. Washington should make it a priority.

At this point, football fans have seen so many ads from AT&T and Verizon claiming to have the fastest and most reliable 5G service on the planet that those without a 5G smartphone might think they are really missing something. Don’t be misled. Unless you are traveling internationally, you won’t enjoy faster speeds with a new 5G-enabled smartphone than you’d get on a 4G phone streaming games from New York, Los Angeles or many other U.S. cities. AT&T’s and Verizon’s new 5G networks are often significantly slower than the 4G networks they replace. America is far behind in almost every dimension of 5G while other nations—including China—race ahead.

America’s average 5G mobile internet speed is roughly 75 megabits per second, which is abysmal. In China’s urban centers 5G phones get average speeds of 300 megabits per second. Though that’s not quite the fastest 5G in the world—South Korea claims that title at over 400 Mbps—it’s still fast enough to download a high-definition movie in two minutes. Mobile internet speed is a central advancement of 5G, which enables a new domain of breakthrough applications with potent economic and national-security implications. American 5G upload speeds are slower than those of many developed countries, including Israel, Singapore and Canada. In Boston, Chicago and New York City, AT&T’s 5G speeds are at least 10% slower than its 4G; in Washington, Los Angeles and Austin, Texas, Verizon’s 5G speeds are at least 20% slower than the company’s 4G.

The U.S. also trails China in the global market for 5G-related services. Although American sanctions have hurt Huawei, China’s national champion is still the global leader in supplying 5G infrastructure with 30% of the market, while no U.S. firms sell 5G infrastructure abroad. Strategically significant countries including Russia, Saudi Arabia, South Africa and Turkey have installed Huawei infrastructure and are already using it to deliver 5G services.

While Beijing has prioritized broadening its 5G network, Washington has a dysfunctional relationship with the U.S. mobile industry—as typified by the Federal Aviation Administration’s hysterics over the proximity of American airports to 5G services, which operate near scores of airports around the world with no problem. For its part, China has been rapidly allocating the most efficient part of the wireless spectrum, called midband, to 5G service providers. China has deployed at least three times as much midband to 5G providers as the U.S. has. AT&T and Verizon are using the same spectrum bands for both their 4G and 5G networks. As a result, as one industry analyst aptly put it, their 5G networks are “just 4G with sprinkles on it.”

Washington’s dithering has left America well behind China in the race to build 5G infrastructure. Because 5G signals have short wavelengths, reliable service requires proximity to many wireless base stations. China has installed more than one million 5G base stations, while the U.S. has built only 100,000. The American fiber-optic network is also less dense than that of many developed countries like Japan, making it more difficult for mobile operators to deploy these small cell sites.

China’s investment in 5G also ~~dwarfs~~ [is much better than] America’s. The Innovation and Competition Act, which Senate Majority Leader Chuck Schumer hailed as “the key to preserving America’s position on the world stage as a current and future technological leader in the 21st century,” would authorize $1.5 billion in spending on 5G mobile networks through 2026. China has already spent $50 billion to build out its 5G network and is on track to spend an additional $100 billion on 5G over the next five years.

The pathetic U.S. performance in the 5G race is a sign of America’s larger failure to keep up with China on strategically important technologies. China is also ahead of America in high-tech manufacturing, green energy and many applications of artificial intelligence. On current trajectories, by 2030 it will likely lead the U.S. in the number of semiconductor chips it produces and in applications of biotechnology to defeat diseases like cancer.

In 2019 the Pentagon’s Defense Innovation Board tried to sound the alarm, stating bluntly: “China is on a track to repeat in 5G what happened with the U.S. in 4G.” The transition from 3G to 4G made possible a previously unimaginable world of mobile computing, smartphones and applications from Google Maps and Uber to Facebook and Instagram. The step up to real 5G speeds will lead to analogous breakthroughs in autonomous vehicles, virtual-reality applications like the metaverse, and other areas that have yet to be invented. Applications abound that could advantage a country’s intelligence agencies and enhance its military capabilities.

It will take far more than an additional $1.5 billion investment from Congress to change this. The Biden administration should make 5G a national priority and take the lead in building digital highways across the country as the government did in creating our national highway system. Otherwise, China will own the 5G future. – Via The Wall Street Journal.

#### Xi is determined to ensure technological dominance---successful containment causes lashout.

Blanchette 21 (Jude Blanchette s Freeman Chair in China Studies at the Center for Strategic and International Studies.; “Xi’s Gamble The Race to Consolidate Power and Stave Off Disaster”; Foreign Affairs; July/August 2021; <https://www.foreignaffairs.com/articles/china/2021-06-22/xis-gamble//Smarx> Ahsan)

Xi Jinping is a man on a mission.

Next on Xi’s agenda was the need to assert China’s interests on the global stage. Xi quickly began land reclamation efforts in the South China Sea, established an air defense identification zone over disputed territory in the East China Sea, helped launch the New Development Bank (sometimes called the BRICS Bank), unveiled the massive international infrastructure project that came to be known as the Belt and Road Initiative, and proposed the Asian Infrastructure Investment Bank.

Xi continued to slash his way through the status quo for the remainder of his first term and shows no signs of abating as he approaches the end of his second. His consolidation of power continues uninterrupted: he faces no genuine political rivals, has removed term limits on his tenure in office, and has installed allies and loyalists in key positions. New research centers are dedicated to studying his writings and speeches, party officials publicly extol his wisdom and virtue, and party regulations and government planning documents increasingly claim to be based on “Xi Jinping Thought.” He has asserted the CCP’s dominance over vast swaths of Chinese society and economic life, even forcing influential business and technology titans to beg forgiveness for their insufficient loyalty to the party. Meanwhile, he continues to expand China’s international sphere of influence through the exercise of hard power, economic coercion, and deep integration into international and multilateral bodies.

Many outside observers, myself included, initially believed that the party’s inability to contain the outbreak of COVID-19 highlighted the weaknesses of China’s system. By the summer of 2020, however, Xi was able to extol the virtues of centralized control in checking the pandemic’s domestic spread. Far from undermining his political authority, Beijing’s iron-fisted approach to combating the virus has now become a point of national pride.

A UNIQUE MOMENT

Xi’s fast pace was provoked by a convergence of geopolitical, demographic, economic, environmental, and technological changes. The risks they pose are daunting, but not yet existential; Beijing has a window of opportunity to address them before they become fatal. And the potential rewards they offer are considerable.

The first major change is Beijing’s assessment that the power and influence of the West have entered a phase of accelerated decline, and as a result, a new era of multipolarity has begun, one that China could shape more to its liking. This view took hold as the U.S. wars in Afghanistan and Iraq became quagmires, and it solidified in the wake of the 2008 financial crisis, which the Chinese leadership saw as the death knell for U.S. global prestige. In 2016, the British vote to leave the European Union and the election of Donald Trump as president in the United States fortified the consensus view that the United States, and the West more generally, was in decline. This might suggest that China could opt for strategic patience and simply allow American power to wane. But the possibility of a renewal of U.S. leadership brought about by the advent of the Biden administration—and concerns about Xi’s mortality (he will be 82 in 2035)—means that Beijing is unwilling to wait and see how long this phase of Western decline will last.

The second important force confronting Xi is China’s deteriorating demographic and economic outlook. By the time he assumed office, China’s population was simultaneously aging and shrinking, and the country was facing an imminent surge of retirees that would stress the country’s relatively weak health-care and pension systems. The Chinese Academy of Social Sciences now expects China’s population to peak in 2029, and a recent study in The Lancet forecast that it will shrink by nearly 50 percent by the end of the century. Although Beijing ended its draconian one-child policy in 2016, the country has still recorded a 15 percent decline in births during the past 12 months. Meanwhile, the government estimates that by 2033, nearly one-third of the population will be over the age of 60.

Contributing to these woes is China’s shrinking workforce and rising wages, which have increased by ten percent, on average, since 2005. Larger paychecks are good for workers, but global manufacturers are increasingly moving their operations out of China and to lower-cost countries, leaving a rising number of low-skilled workers in China unemployed or underemployed. And because only 12.5 percent of China’s labor force has graduated from college (compared with 24 percent in the United States), positioning the bulk of the country’s workforce to compete for the high-skilled jobs of the future will be an uphill battle.

Directly related to this worrying demographic picture is the slowdown of China’s economy. With annual GDP growth having dropped from a high of 14 percent in 2007 to the mid-single digits today, many of the long-standing problems Beijing had been able to sweep under the rug now require attention and a willingness to accept economic and political pain, from unwinding the vast sea of indebted companies to demanding that firms and individuals pay more into the country’s tax coffers. At the heart of China’s growth woes is flagging productivity. Throughout the first several decades of the post-Mao reform period, realizing productivity gains was relatively straightforward, as the planned economy was dissolved in favor of market forces and droves of citizens voluntarily fled the countryside for urban and coastal areas and the promise of higher-wage jobs. Later, as foreign companies brought investment, technology, and know-how to the country, industrial efficiency continued to improve. Finally, the massive amounts spent on infrastructure, especially roads and rail, boosted connectivity and thus productivity. All of this helped a poor and primarily agricultural economy rapidly catch up with more advanced economies.

Yet by the time Xi assumed power, policymakers were finding it increasingly difficult to maintain momentum without creating unsustainable levels of debt, just as they had done in response to the 2008 global financial crisis. What is more, the country was already saturated with transportation infrastructure, so an additional mile of road or high-speed rail wasn’t going to add much to growth. And because almost all able-bodied workers had already moved from the countryside to urban areas, relocating labor wouldn’t arrest the decline in productivity, either. Finally, the social and environmental costs of China’s previous growth paradigm had become both unsustainable and destabilizing, as staggering air pollution and environmental devastation provoked acute anger among Chinese citizens.

Perhaps the most consequential shifts to have occurred on Xi’s watch are advances in new technologies such as artificial intelligence, robotics, and biomedical engineering, among others. Xi believes that dominating the “commanding heights” of these new tools will play a critical role in China’s economic, military, and geopolitical fate, and he has mobilized the party to transform the country into a high-tech powerhouse. This includes expending vast sums to develop the country’s R & D and production capabilities in technologies deemed critical to national security, from semiconductors to batteries. As Xi stated in 2014, first-mover advantage will go to “whoever holds the nose of the ox of science and technology innovation.”

Xi also hopes that new technologies can help the CCP overcome, or at least circumvent, nearly all of China’s domestic challenges. The negative impacts of a shrinking workforce, he believes, can be blunted by an aggressive push toward automation, and job losses in traditional industries can be offset by opportunities in newer, high-tech sectors. “Whether we can stiffen our back in the international arena and cross the ‘middle-income trap’ depends to a large extent on the improvement of science and technology innovation capability,” Xi said in 2014.

New technologies serve other purposes, as well. Facial recognition tools and artificial intelligence give China’s internal security organs new ways to surveil citizens and suppress dissent. The party’s “military-civil fusion” strategy strives to harness these new technologies to significantly bolster the Chinese military’s warfighting capabilities. And advances in green technology offer the prospect of simultaneously pursuing economic growth and pollution abatement, two goals Beijing has generally seen as being in tension.

THE PARANOID STYLE IN CHINESE POLITICS

This convergence of changes and developments would have occurred regardless of who assumed power in China in 2012. Perhaps another leader would have undertaken a similarly bold agenda. Yet among contemporary Chinese political figures, Xi has demonstrated an unrivaled skill for bureaucratic infighting. And he clearly believes that he is a figure of historical significance, on whom the CCP’s fate rests.

In order to push forward significant change, Xi has overseen the construction of a new political order, one underpinned by a massive increase in the power and authority of the CCP. Yet beyond this elevation of party power, perhaps Xi’s most critical legacy will be his expansive redefinition of national security. His advocacy of a “comprehensive national security concept” emerged in early 2014, and in a speech that April, he announced that China faced “the most complicated internal and external factors in its history.” Although this was clearly hyperbole—war with the United States in Korea and the nationwide famine of the late 1950s were more complicated—Xi’s message to the political system was clear: a new era of risk and uncertainty confronts the party.

The CCP’s long experience of defections, attempted coups, and subversion by outside actors predisposes it to acute paranoia, something that reached a fever pitch in the Mao era. Xi risks institutionalizing this paranoid style. One result of blurring the line between internal and external security has been threat inflation: party cadres in low-crime, low-risk areas now issue warnings of terrorism, “color revolutions,” and “Christian infiltration.” In Xinjiang, fears of separatism have been used to justify turning the entire region into a dystopian high-tech prison. And in Hong Kong, Xi has established a “national security” bureaucracy that can ignore local laws and operate in total secrecy as it weeds out perceived threats to Beijing’s iron-fisted rule. In both places, Xi has demonstrated that he is willing to accept international opprobrium when he feels that the party’s core interests are at stake.

At home, Xi stokes nationalist sentiment by framing China as surrounded and besieged by enemies, exploiting a deeply emotional (and highly distorted) view of the past, and romanticizing China’s battles against the Japanese in World War II and its “victory” over the United States in the Korean War. By warning that China has entered a period of heightened risk from “hostile foreign forces,” Xi is attempting to accommodate Chinese citizens to the idea of more difficult times ahead and ensure that the party and he himself are viewed as stabilizing forces.

Xi has placed China on a risky trajectory, one that threatens the achievements his predecessors secured.

Meanwhile, to exploit a perceived window of opportunity during an American retreat from global affairs, Beijing has advanced aggressively on multiple foreign policy fronts. These include the use of “gray zone” tactics, such as employing commercial fishing boats to assert territorial interests in the South China Sea and establishing China’s first overseas military base, in Djibouti. China’s vast domestic market has allowed Xi to threaten countries that don’t demonstrate political and diplomatic obedience, as evidenced by Beijing’s recent campaign of economic coercion against Australia in response to Canberra’s call for an independent investigation into the origins of the virus that causes COVID-19. Similarly, Xi has encouraged Chinese “Wolf Warrior” diplomats to intimidate and harass host countries that criticize or otherwise antagonize China. Earlier this year, Beijing levied sanctions against Jo Smith Finley, a British anthropologist and political scientist who studies Xinjiang, and the Mercator Institute for China Studies, a German think tank, whose work the CCP claimed had “severely harm[ed] China’s sovereignty and interests.”

Mao Zedong and Deng Xiaoping demonstrated strategic patience in asserting China’s interests on the global stage. Indeed, Mao told U.S. President Richard Nixon that China could wait 100 years to reclaim Taiwan, and Deng negotiated the return of Hong Kong under the promise (since broken by Xi) of a 50-year period of local autonomy. Both leaders had a profound sense of China’s relative fragility and the importance of careful, nuanced statesmanship. Xi does not share their equanimity, or their confidence in long-term solutions.

That has sparked concerns that Xi will attempt an extraordinarily risky gambit to take Taiwan by force by 2027, the 100th anniversary of the founding of the People’s Liberation Army. It seems doubtful, however, that he would invite a possible military conflict with the United States just 110 miles from China’s shoreline. Assuming the PLA were successful in overcoming Taiwan’s defenses, to say nothing of surmounting possible U.S. involvement, Xi would then have to carry out a military occupation against sustained resistance for an indeterminate length of time. An attempted takeover of Taiwan would undermine nearly all of Xi’s other global and domestic ambitions. Nevertheless, although the more extreme scenarios might remain unlikely for the time being, Xi will continue to have China flaunt its strength in its neighborhood and push outward in pursuit of its interests. On many issues, he appears to want final resolution on his watch.

THE MAN OF THE SYSTEM

Xi’s tendency to believe he can shape the precise course of China’s trajectory calls to mind the economist Adam Smith’s description of “the man of system”: a leader “so enamored with the supposed beauty of his own ideal plan of government, that he cannot suffer the smallest deviation from any part of it.” In order to realize his near-term goals, Xi has abandoned the invisible hand of the market and forged an economic system that relies on state actors to reach predetermined objectives.

Critical to this shift has been Xi’s reliance on industrial policy, a tool of economic statecraft that had fallen out of favor until near the end of the tenure of Xi’s predecessor, Hu, when it began to shape Beijing’s approach to technological innovation. The year 2015 marked an important inflection point, with the introduction of supersized industrial policy programs that sought not just to advance a given technology or industry but also to remake the entire structure of the economy. These included the Made in China 2025 plan, which aims to upgrade China’s manufacturing capabilities in a number of important sectors; the Internet Plus strategy, a scheme to integrate information technology into more traditional industries; and the 14th Five-Year Plan, which outlines an ambitious agenda to decrease China’s reliance on foreign technology inputs. Through such policies, Beijing channels tens of trillions of yuan into companies, technologies, and sectors it considers strategically significant. It does this by means of direct subsidies, tax rebates, and quasi-market “government guidance funds,” which resemble state-controlled venture capital firms.

Thus far, Beijing’s track record in this area is decidedly mixed: in many cases, vast sums of investment have produced meager returns. But as the economist Barry Naughton has cautioned, “Chinese industrial policies are so large, and so new, that we are not yet in a position to evaluate them. They may turn out to be successful, but it is also possible that they will turn out to be disastrous.”

Xi believes he can mold China’s future as did the emperors of the country’s storied past.

Related to this industrial policy is Xi’s approach to China’s private-sector companies, including many of the technological and financial giants that just a few years ago observers viewed as possible agents of political and social change. Technological innovation put firms such as Ant Group and Tencent in control of critical new data flows and financial technology. Xi clearly perceived this as an unacceptable threat, as demonstrated by the CCP’s recent spiking of Ant Group’s initial public offering in the wake of comments made by its founder, Jack Ma, that many perceived as critical of the party.

Xi is willing to forgo a boost in China’s international financial prestige to protect the party’s interests and send a signal to business elites: the party comes first. This is no David and Goliath story, however. It’s more akin to a family feud, given the close and enduring connections between China’s nominally private firms and its political system. Indeed, nearly all of China’s most successful entrepreneurs are members of the CCP, and for many companies, success depends on favors granted by the party, including protection from foreign competition. But whereas previous Chinese leaders granted wide latitude to the private sector, Xi has forcefully drawn a line. Doing so has further restricted the country’s ability to innovate. No matter how sophisticated Beijing’s regulators and state investors may be, sustained innovation and gains in productivity cannot occur without a vibrant private sector.

GRAND STRATEGY OR GRAND TRAGEDY?

In order to seize temporary advantages and forestall domestic challenges, Xi has positioned himself for a 15-year race, one for which he has mobilized the awesome capabilities of a system that he now commands unchallenged. Xi’s truncated time frame compels a sense of urgency that will define Beijing’s policy agenda, risk tolerance, and willingness to compromise as it sprints ahead. This will narrow the options available to countries hoping to shape China’s behavior or hoping that the “Wolf Warrior” attitude will naturally recede.

The United States can disprove Beijing’s contention that its democracy has atrophied and that Washington’s star is dimming by strengthening the resilience of American society and improving the competence of the U.S. government. If the United States and its allies invest in innovation and human capital, they can forestall Xi’s efforts to gain first-mover advantage in emerging and critical technologies. Likewise, a more active and forward-looking U.S. role in shaping the global order would limit Beijing’s ability to spread illiberal ideas beyond China’s borders.

Unwittingly, Xi has put China into competition with itself, in a race to determine if its many strengths can outstrip the pathologies that Xi himself has introduced to the system. By the time he assumed power, the CCP had established a fairly predictable process for the regular and peaceful transition of power. Next fall, the 20th Party Congress will be held, and normally, a leader who has been in charge as long as Xi has would step aside. To date, however, there is no expectation that Xi will do so. This is an extraordinarily risky move, not just for the CCP itself but also for the future of China. With no successor in sight, if Xi dies unexpectedly in the next decade, the country could be thrown into chaos.

Even assuming that Xi remains healthy while in power, the longer his tenure persists, the more the CCP will resemble a cult of personality, as it did under Mao. Elements of this are already evident, with visible sycophancy among China’s political class now the norm. Paeans to the greatness of “Xi Jinping Thought” may strike outsiders as merely curious or even comical, but they have a genuinely deleterious effect on the quality of decision-making and information flows within the party.

### China Good---2NC

#### China’s 5G revolutionizes AI, biotechnology, and green tech---winning the tech race is key

Kharpal 22 (Arjun Kharpal, CNBC’s senior technology correspondent, based in London, 2-17-2022, ”‘Pathetic’ performance has left U.S. ‘well behind’ China in 5G race, ex-Google CEO Eric Schmidt says,” CNBC, https://www.cnbc.com/2022/02/17/us-well-behind-china-in-5g-race-ex-google-ceo-eric-schmidt-says.html, DOA: 7-5-2022//Smarx Ahsan)

The U.S. government’s “dithering” has left the country “well behind” China in the race to build out 5G technology, former Google CEO Eric Schmidt said, as he urged Washington to step up investment in the next-generation internet technology.

Writing in an op-ed in the Wall Street Journal, Schmidt and Graham Allison, a professor of government at Harvard, said that America is “far behind in almost every dimension of 5G while other nations—including China — race ahead.”

The authors urged the Biden administration to make 5G a “national priority.” Otherwise, they said, “China will own the 5G future.”

5G refers to next-generation wireless internet that promises super-fast download speeds. But it could also form the basis for industrial and military applications and form a way for devices to communicate with each other. That’s why it’s seen as a critical technology and one of the reasons China is moving quickly with its own 5G rollout and future applications.

“The step up to real 5G speeds will lead to analogous breakthroughs in autonomous vehicles, virtual-reality applications like the metaverse, and other areas that have yet to be invented,” Schmidt and Allison wrote. “Applications abound that could advantage a country’s intelligence agencies and enhance its military capabilities.”

The pair also accused the U.S. of falling behind in a number of areas. They said that China’s average 5G download speed is significantly faster than the U.S.’s.

China’s median download speed was just over 299 megabits per second in the third quarter of 2021 versus 93.73 megabits per second in the U.S., according to Speedtest, a company which measures internet speeds.

“Mobile internet speed is a central advancement of 5G, which enables a new domain of breakthrough applications with potent economic and national-security implications,” Allison and Schmidt said.

The authors also said that Huawei, China’s biggest telecommunications equipment maker, still dominates the market “although American sanctions have hurt Huawei.”

Meanwhile, China has been “rapidly allocating the most efficient part” of the wireless spectrum, called midband, to telecommunications companies. The authors claimed that AT&T and Verizon are using the same spectrum band for both their 4G and 5G networks in the U.S.

Allison and Schmidt also said that China is outspending the U.S. when it comes to 5G.

“The pathetic U.S. performance in the 5G race is a sign of America’s larger failure to keep up with China on strategically important technologies. China is also ahead of America in high-tech manufacturing, green energy and many applications of artificial intelligence,” they said.

“On current trajectories, by 2030 it will likely lead the U.S. in the number of semiconductor chips it produces and in applications of biotechnology to defeat diseases like cancer.”

Schmidt has been critical of the U.S. government’s approach to technologies he views as key to the future and has warned on several occasions about the threat of China overtaking.

Last year, a report by the National Security Commission on Artificial Intelligence, which Schmidt chairs, said China could soon replace the U.S. as the world’s “AI superpower” and that could have serious military implications to consider.

### China Good---Innovation---2NC

#### Chinese 5G is safe, spills out globally, and drives technological innovation

Xiang 20 (Nina Xiang, the founder of China Money Network, a media platform tracking China's venture and tech sectors, 9-8-2020, "How China winning the race to install 5G will be good for the world," Nikkei Asia, https://asia.nikkei.com/Opinion/How-China-winning-the-race-to-install-5G-will-be-good-for-the-world, DOA: 7-5-2022//Smarx Ahsan)

It seems nothing can stop China from winning the global race to install 5G telecommunications technology. Not government bans, nor the debilitating COVID-19 pandemic.

Despite these grave challenges, when it comes to 5G China is actually extending its lead while other countries are plagued by delays.

By the end of July, China's 5G users had already surpassed 88 million, accounting for over 80% of users worldwide -- far ahead of the previously projected 70% share for the whole of 2020. By the end of this year, the number of 5G base stations in China is expected to reach nearly one million, by far the biggest tally globally.

And despite the U.S. cutting off the supply of crucial mobile chips, China's Huawei Technologies remains the top filer of standard-essential 5G patents, with the telecommunications giant set to remain a top global supplier of 5G equipment.

Compare this to some regions in the U.K., where delays of up to three years are expected for the rollout of 5G technology after the government decided to strip Huawei from its networks. Or elsewhere in Europe, where COVID-19 is expected to slow the 5G rollout by up to 18 months. Even the U.S. looks certain to lag far behind China in the 5G race, despite the Trump Administration trying to speed things up last month by making a crucial new chunk of spectrum available to telecom carriers.

Yes, the 5G rivalry is threatening to further divide the world's digital universe by accelerating the U.S.-China decoupling in multiple dimensions and further disrupting global supply chains. But if we look beyond these geopolitical complications, and focus instead on the certainty that China's 5G leadership provides, then the current period can also be seen in a more constructive and beneficial light.

The world does not have to suffer or break apart just because China leads in next-generation wireless technology. In the area of consumer internet innovation, all China's 5G lead will do is strengthen its emerging role as an innovator, just as it did during the 4G mobile internet age when China began to introduce new ideas in particular areas ahead of others.

Bike-sharing and super apps are two examples. These unique innovations soon spread to other corners of the world, enabling California surfers to rent electric scooters with their phones, and allowing young professionals in Indonesia to hail a motorcycle taxi, and order and pay for a meal all on the same app.

What China's advanced schedule in 5G deployment means is that China's entrepreneurs will be able to experiment with user applications on scale first. It's not inconceivable that successful applications tested in China -- be it augmented reality or new gaming experiences -- will later be introduced to other countries.

It's often argued that 5G's industrial applications will bring revolutionary change, such as smart factories where 5G's super fast speed and low latency will enable more flexible, efficient, and intelligent manufacturing. But China, currently the world's factory with 28.4% of global manufacturing output -- far greater than the second-place U.S. on 16.6% -- was already well-positioned to benefit the most from such changes. And as the biggest exporter accounting for 13.45% of global trade, China can keep improving the quality of the products it exports to the benefit of the world's consumers.

Elsewhere, in areas including smart cities, health care, and autonomous driving cars, China can serve as the testing ground for trial and error. What works, what doesn't, and how 5G can best facilitate these long-term revolutions will only be answered through real-life experiments.

Imagine an accident involving an autonomous driving bus on a public road in China that warns the rest of the world that such mixed traffic situations are not the best approach for self-driving tech. The more lead time China has to test and answer these questions in scale, the more valuable the lessons will be to other countries.

Of course, China's leadership in 5G will not be only positive. How to ensure security, protect data privacy, and control risks will be pressing concerns that many international companies and legislators will need to urgently address.

Still, while the surveillance tech that forms a key part of any smart city project is clearly a thorny subject, the fear that Beijing can export authoritarianism around the world through the sale of surveillance tech is about as credible as the idea that the U.S. can export democracy by selling more Big Macs and getting more people to watch Hollywood films.

To be sure, there are troubling ethical questions around the use of surveillance tech. But the best solution is to have a global regulatory framework to address them, such as the EU's General Data Protection Regulation. But when it comes to seeing more technological innovations coming out of China, the rest of the world should relax. As the mobile internet era showed, China can innovate on its own without inflicting much harm.

The 5G age may see China becoming an even bigger driving force for innovation. Some of these inventions will raise difficult questions, but some will be as good for the public as those brought about by many of the things that came out of Silicon Valley. Having dual -- or even multiple -- engines of innovation is not a bad thing.

### China Good---Governance---2NC

#### Chinese leadership is key to solving all global problems – that solves the case

Shen Yamei 18, Deputy Director and Associate Research Fellow of Department for American Studies, China Institute of International Studies, 1-9-2018, "Probing into the “Chinese Solution” for the Transformation of Global Governance," CAIFC, http://www.caifc.org.cn/en/content.aspx?id=4491

As the world is in a period of great development, transformation and adjustment, the international power comparison is undergoing profound changes, global governance is reshuffling and traditional governance concepts and models are confronted with challenges. The international community is expecting China to play a bigger role in global governance, which has given birth to the Chinese solution. A. To Lead the Transformation of the Global Governance System. The “shortcomings” of the existing global governance system are prominent, which can hardly ensure global development. First, the traditional dominant forces are seriously imbalanced. The US and Europe that used to dominate the global governance system have been beset with structural problems, with their economic development stalling, social contradictions intensifying, populism and secessionism rising, and states trapped in internal strife and differentiation. These countries have not fully reformed and adjusted themselves well, but rather pointed their fingers at globalization and resorted to retreat for self-insurance or were busy with their own affairs without any wish or ability to participate in global governance, which has encouraged the growth of “anti-globalization” trend into an interference factor to global governance. Second, the global governance mechanism is relatively lagging behind. Over the years of development, the strength of emerging economies has increased dramatically, which has substantially upset the international power structure, as the developing countries as a whole have made 80 percent of the contributions to global economic growth. These countries have expressed their appeal for new governance and begun policy coordination among themselves, which has initiated the transition of global governance form “Western governance” to “East-West joint governance”, but the traditional governance mechanisms such as the World Bank, IMF and G7 failed to reflect the demand of the new pattern, in addition to their lack of representation and inclusiveness. Third, the global governance rules are developing in a fragmented way, with governance deficits existing in some key areas. With the diversification and in-depth integration of international interests, the domain of global governance has continued to expand, with actors multiplying by folds and action intentions becoming complicated. As relevant efforts are usually temporary and limited to specific partners or issues, global governance driven by requests of “diversified governance” lacks systematic and comprehensive solutions. Since the beginning of this year, there have been risks of running into an acephalous state in such key areas as global economic governance and climate change. Such emerging issues as nuclear security and international terrorism have suffered injustice because of power politics. The governance areas in deficit, such as cyber security, polar region and oceans, have “reversely forced” certain countries and organizations to respond hastily. All of these have made the global governance system trapped in a dilemma and call urgently for a clear direction of advancement. B. To Innovate and Perfect the International Order. Currently, whether the developing countries or the Western countries of Europe and the US are greatly discontent with the existing international order as well as their appeals and motivation for changing the order are unprecedentedly strong. The US is the major creator and beneficiary of the existing hegemonic order, but it is now doubtful that it has gained much less than lost from the existing order, faced with the difficulties of global economic transformation and obsessed with economic despair and political dejection. Although the developing countries as represented by China acknowledge the positive role played by the post-war international order in safeguarding peace, boosting prosperity and promoting globalization, they criticize the existing order for lack of inclusiveness in politics and equality in economy, as well as double standard in security, believing it has failed to reflect the multi-polarization trend of the world and is an exclusive “circle club”. Therefore, there is much room for improvement. For China, to lead the transformation of the global governance system and international order not only supports the efforts of the developing countries to uphold multilateralism rather than unilateralism, advocate the rule of law rather than the law of the jungle and practice democracy rather than power politics in international relations, but also is an important subject concerning whether China could gain the discourse power and development space corresponding to its own strength and interests in the process of innovating and perfecting the framework of international order. C. To Promote Integration of the Eastern and Western Civilizations. Dialog among civilizations, which is the popular foundation for any country’s diplomatic proposals, runs like a trickle moistening things silently. Nevertheless, in the existing international system guided by the “Western-Centrism”, the Western civilization has always had the self-righteous superiority, conflicting with the interests and mentality of other countries and having failed to find the path to co-existing peacefully and harmoniously with other civilizations. So to speak, many problems of today, including the growing gap in economic development between the developed and developing countries against the background of globalization, the Middle East trapped in chaos and disorder, the failure of Russia and Turkey to “integrate into the West”, etc., can be directly attributed to lack of exchanges, communication and integration among civilizations. Since the 18th National Congress of CPC, Xi Jinping has raised the concept of “Chinese Dream” that reflects both Chinese values and China’s pursuit, re-introducing to the world the idea of “all living creatures grow together without harming one another and ways run parallel without interfering with one another”, which is the highest ideal in Chinese traditional culture, and striving to shape China into a force that counter-balance the Western civilization. He has also made solemn commitment that “we respect the diversity of civilizations …… cannot be puffed up with pride and depreciate other civilizations and nations”; “facing the people deeply trapped in misery and wars, we should have not only compassion and sympathy, but also responsibility and action …… do whatever we can to extend assistance to those people caught in predicament”, etc. China will rebalance the international pattern from a more inclusive civilization perspective and with more far-sighted strategic mindset, or at least correct the bisected or predominated world order so as to promote the parallel development of the Eastern and Western civilizations through mutual learning, integration and encouragement. D. To Pass on China’s Confidence. Only a short while ago, some Western countries had called for “China’s responsibility” and made it an inhibition to “regulate” China’s development orientation. Today, China has become a source of stability in an international situation full of uncertainties. Over the past 5 years, China has made outstanding contributions to the recovery of world economy under relatively great pressure of its own economic downturn. Encouraged by the “four confidences”, the whole of the Chinese society has burst out innovation vitality and produced innovation achievements, making people have more sense of gain and more optimistic about the national development prospect. It is the heroism of the ordinary Chinese to overcome difficulties and realize the ideal destiny that best explains China’s confidence. When this confidence is passed on in the field of diplomacy, it is expressed as: first, China’s posture is seen as more forging ahead and courageous to undertake responsibilities ---- proactively shaping the international agendas rather than passively accepting them; having clear-cut attitudes on international disputes rather than being equivocal; and extending international cooperation to comprehensive and dimensional development rather than based on the theory of “economy only”. In sum, China will actively seek understanding and support from other countries rather than imposing its will on others with clear-cut Chinese characteristics, Chinese style and Chinese manner. Second, China’s discourse is featured as a combination of inflexibility and yielding as well as magnanimous ---- combining the internationally recognized diplomatic principles with the excellent Chinese cultural traditions through digesting the Chinese and foreign humanistic classics assisted with philosophical speculations to make “China Brand, Chinese Voice and China’s Image get more and more recognized”. Third, the Chinese solution is more practical and intimate to people as well as emphasizes inclusive cooperation, as China is full of confidence to break the monopoly of the Western model on global development, “offering mankind a Chinese solution to explore a better social system”, and “providing a brand new option for the nations and peoples who are hoping both to speed up development and maintain independence”. II.Path Searching of the “Chinese Solution” for Global Governance Over the past years’ efforts, China has the ability to transform itself from “grasping the opportunity” for development to “creating opportunity” and “sharing opportunity” for common development, hoping to pass on the longing of the Chinese people for a better life to the people of other countries and promoting the development of the global governance system toward a more just and rational end. It has become the major power’s conscious commitment of China to lead the transformation of the global governance system in a profound way. A. To Construct the Theoretical System for Global Governance. The theoretical system of global governance has been the focus of the party central committee’s diplomatic theory innovation since the 18th National Congress of CPC as well as an important component of the theory of socialism with Chinese characteristics for a new era, which is not only the sublimation of China’s interaction with the world from “absorbing and learning” to “cooperation and mutual learning”, but also the cause why so many developing countries have turned from “learning from the West” to “exploring for treasures in the East”. In the past 5 years, the party central committee, based on precise interpretation of the world pattern today and serious reflection on the future development of mankind, has made a sincere call to the world for promoting the development of global governance system toward a more just and rational end, and proposed a series of new concepts and new strategies including engaging in major power diplomacy with Chinese characteristics, creating the human community with common destiny, promoting the construction of new international relationship rooted in the principle of cooperation and win-win, enriching the strategic thinking of peaceful development, sticking to the correct benefit view, formulating the partnership network the world over, advancing the global economic governance in a way of mutual consultation, joint construction and co-sharing, advocating the joint, comprehensive, cooperative and sustainable security concept, and launching the grand “Belt and Road” initiative. The Chinese solution composed of these contents, not only fundamentally different from the old roads of industrial revolution and colonial expansion in history, but also different from the market-driven neo-liberalism model currently advocated by Western countries and international organizations, stands at the height of the world and even mankind, seeking for global common development and having widened the road for the developing countries to modernization, which is widely welcomed by the international community. B. To Supplement and Perfect the Global Governance System. Currently, the international political practice in global governance is mostly problem-driven without creating a set of relatively independent, centralized and integral power structures, resulting in the existing global governance systemcharacterized as both extensive and unbalanced. China has been engaged in reform and innovation, while maintaining and constructing the existing systems, producing some thinking and method with Chinese characteristics. First, China sees the UN as a mirror that reflects the status quo of global governance, which should act as the leader of global governance, and actively safeguards the global governance system with the UN at the core. Second, China is actively promoting the transforming process of such recently emerged international mechanisms as G20, BRICS and SCO, perfecting them through practice, and boosting Asia-Pacific regional cooperation and the development of economic globalization. China is also promoting the construction of regional security mechanism through the Six-Party Talks on Korean Peninsula nuclear issue, Boao Forum for Asia, CICA and multilateral security dialog mechanisms led by ASEAN so as to lay the foundation for the future regional security framework. Third, China has initiated the establishment of AIIB and the New Development Bank of BRICS, creating a precedent for developing countries to set up multilateral financial institutions. The core of the new relationship between China and them lies in “boosting rather than controlling” and “public rather than private”, which is much different from the management and operation model of the World Bank, manifesting the increasing global governance ability of China and the developing countries as well as exerting pressure on the international economic and financial institution to speed up reforms. Thus, in leading the transformation of the global governance system, China has not overthrown the existing systems and started all over again, but been engaged in innovating and perfecting; China has proactively undertaken international responsibilities, but has to do everything in its power and act according to its ability. C. To Reform the Global Governance Rules. Many of the problems facing global governance today are deeply rooted in such a cause that the dominant power of the existing governance system has taken it as the tool to realize its own national interests first and a platform to pursue its political goals. Since the beginning of this year, the US has for several times requested the World Bank, IMF and G20 to make efforts to mitigate the so-called global imbalance, abandoned its commitment to support trade openness, cut down investment projects to the middle-income countries, and deleted commitment to support the efforts to deal with climate change financially, which has made the international systems accessories of the US domestic economic agendas, dealing a heavy blow to the global governance system. On the contrary, the interests and agendas of China, as a major power of the world, are open to the whole world, and China in the future “will provide the world with broader market, more sufficient capital, more abundant goods and more precious opportunities for cooperation”, while having the ability to make the world listen to its voice more attentively. With regard to the subject of global governance, China has advocated that what global governance system is better cannot be decided upon by any single country, as the destiny of the world should be in the hands of the people of all countries. In principle, all the parties should stick to the principle of mutual consultation, joint construction and co-sharing, resolve disputes through dialog and differences through consultation. Regarding the critical areas, opening to the outer world does not mean building one’s own backyard, but building the spring garden for co-sharing; the “Belt and Road” initiative is not China’s solo, but a chorus participated in by all countries concerned. China has also proposed international public security views on nuclear security, maritime cooperation and cyber space order, calling for efforts to make the global village into a “grand stage for seeking common development” rather than a “wrestling arena”; we cannot “set up a stage here, while pulling away a prop there”, but “complement each other to put on a grand show”. From the orientation of reforms, efforts should be made to better safeguard and expand the legitimate interests of the developing countries and increase the influence of the emerging economies on global governance. Over the past 5 years, China has attached importance to full court diplomacy, gradually coming to the center stage of international politics and proactively establishing principles for global governance. By hosting such important events as IAELM, CICA Summit, G20 Summit, the Belt and Road International Cooperation Forum and BRICS Summit, China has used theseplatforms to elaborate the Asia-Pacific Dream for the first time to the world, expressing China’s views on Asian security and global economic governance, discussing with the countries concerned with the Belt and Road about the synergy of their future development strategies and setting off the “BRICS plus” capacity expansion mechanism, in which China not only contributes its solution and shows its style, but also participates in the shaping of international principles through practice. On promoting the resolution of hot international issues, China abides by the norms governing international relations based on the purposes and principles of the UN Charter, and insists on justice, playing a constructive role as a responsible major power in actively promoting the political accommodation in Afghanistan, mediating the Djibouti-Eritrea dispute, promoting peace talks in the Middle East, devoting itself to the peaceful resolution of the South China Sea dispute through negotiations. In addition, China’s responsibility and quick response to international crises have gained widespread praises, as seen in such cases as assisting Africa in its fight against the Ebola epidemic, sending emergency fresh water to the capital of Maldives and buying rice from Cambodia to help relieve its financial squeeze, which has shown the simple feelings of the Chinese people to share the same breath and fate with the people of other countries. D. To Support the Increase of the Developing Countries’ Voice. The developing countries, especially the emerging powers, are not only the important participants of the globalization process, but also the important direction to which the international power system is transferring. With the accelerating shift of global economic center to emerging markets and developing economies, the will and ability of the developing countries to participate in global governance have been correspondingly strengthened. As the biggest developing country and fast growing major power, China has the same appeal and proposal for governance as other developing countries and already began policy coordination with them, as China should comply with historical tide and continue to support the increase of the developing countries’ voice in the global governance system. To this end, China has pursued the policy of “dialog but not confrontation, partnership but not alliance”, attaching importance to the construction of new type of major power relationship and global partnership network, while making a series proposals in the practice of global governance that could represent the legitimate interests of the developing countries and be conducive to safeguarding global justice, including supporting an open, inclusive, universal, balanced and win-win economic globalization; promoting the reforms on share and voting mechanism of IMF to increase the voting rights and representation of the emerging market economies; financing the infrastructure construction and industrial upgrading of other developing countries through various bilateral or regional funds; and helping other developing countries to respond to such challenges as famine, refugees, climate change and public hygiene by debt forgiveness and assistance.

#### Effective global governance prevents unregulated emergent tech – prevents extinction

Robert Bailey 18, Vision of Earth contributor and computer science masters, 9-5-2018, "Why do we need global governance?," Vision of Earth, https://www.visionofearth.org/social-change/global-governance/

Global governance is necessary because humanity increasingly faces both problems and opportunities that are global in scale. Today, transnational problems such as violence and pandemics routinely reach across borders, affecting us all. At the same time, the increasingly integrated global system has also laid the necessary foundations for peace and spectacular prosperity. Effective global governance will allow us to end armed conflict, deal with new and emerging problems such as technological risks and automation, and to achieve levels of prosperity and progress never before seen.1 The most important challenge for humanity to overcome is that of existential risks. One way to look at the danger of an existential risk is to quantify the level of global coordination needed to deal with it. While best-shot risks, at one end of the spectrum only require that a single nation, organization or even individual (i.e., superhero) has the means and the will to save everyone, weakest-link risks, at the other end of the spectrum, are dangers that might require literally every country to take appropriate action to prevent catastrophe, with no room for failure.2 3 We’ve always been at risk of natural disaster, but with advances in our level of technology the risk we pose to ourselves as a species becomes ever greater. Nuclear weapons are a well-known risk that we still live with to this day. The progress of technological research exposes us to new dangers such as bioengineered superbugs, nanotechnological menaces, and the risk of an out-of-control artificial intelligence with ill-intent. Increased levels of global coordination are needed to combat many of these risks, as described in our article on the cooperation possibilities frontier. There are other problems that don’t necessarily threaten the species or even civilization as we know it, but which are holding back the development of prosperity and progress. Armed conflict, around since the dawn of history, still haunts us today. Even though wars between great powers appear to be a thing of the past, regional conflicts still account for tremendous human suffering and loss of life in parts of the world without stable governance.4 Other problems have emerged precisely because of our successes in the past. The unprecedented advancement of human wellbeing and prosperity over the past century has been based in large part on the use of fossil fuels, thus exposing us to climate change. Widespread automation, already a stressor on society, will put increased pressure on the social and economic fabric of our societies over the next few decades. Global governance can help alleviate these issues in various ways – we refer the interested reader to the very detailed work in Ruling Ourselves. Finally, global governance will increasingly be judged not only by the extent to which it prevents harm, but also by its demonstrated ability to improve human wellbeing.5 Progress has let us set our sights higher as a species, both for what we consider to be the right trajectory for humanity and for our own conduct.6 Major advances in human wellbeing can be accomplished with existing technology and modest improvements in global coordination. Effective global governance is global governance that tackles these issues better than the regional governments of the world can independently. Global governance is key to solving global problems. Without it, we may not be able to avoid weakest-link existential risks or regulate new and dangerous technologies. With it, we may be able to prosper as we never have before. The next step is to determine how effective global governance can be achieved.

### China Good---Relations---2NC

#### U.S. 5G norms cause backlash and heightened competition that increase likelihood of US-China war, prevent effective climate cooperation, and spoil arms control talks.

Ben Scott 21, Director of Australia’s Security and the Rules-Based Order Project at the Lowry Institute, 9/25/2021, "International rules make U.S.-China conflict more likely," No Publication, https://www.lowyinstitute.org/publications/international-rules-make-us-china-conflict-more-likely, RMax

Unlike previous great power contests, competition between the U.S. and China is being waged through, and over the content of, international rules.

The winners of the First World War sought to reorder the world in the form of the League of Nations. They did so again after the Second World War, although more inclusively, by establishing the United Nations. Something similar happened after the Cold War, as the "Washington Consensus" expanded across the globe.

Neither China nor the U.S. is looking to reorder the world by winning a decisive war. Because both recognize that such a conflict could be catastrophic, they are trying to win without fighting and are using international rules and rule-writing as tools to constrain their adversaries and shape the world in their favor.

Long before the U.S. was willing to acknowledge its strategic competition with China, then U.S. President Barack Obama urged the adoption of the Trans Pacific Partnership trade agreement because it would allow "America -- and not countries like China -- to write the rules of the road in the 21st century." President Joe Biden's interim national security guidance published in March ended with a similar declaration that the U.S., not China, would shape "new global norms and agreements."

Under Xi Jinping, China has become more open about its intention to make, rather than merely take, rules. Unlike some foreign policy realists, the Chinese Communist Party understands that hard military or even economic power is not the only source of international influence.

The competition over new technology is central to this new domain of competitive rule writing. The battle to set global standards and dominate the market for 5G broadband cellular networks is playing out over other emerging technologies such as the rules about the development of facial recognition technology that involve fundamental questions of value.

But competition over rules could, paradoxically, make a military conflict more likely. The fundamental rules of international relations -- many of which are embodied in international law -- exist to manage competition and enable cooperation. These rules only exist insofar as they are accepted by states. Trying to determine them competitively is pointless. Great powers can simply decide to opt out.

Washington now more clearly recognizes the need for rules that will forestall conflict, with President Biden recently emphasizing the need for "responsible competition" bounded by "guardrails" in order to "ensure competition does not veer into conflict."

The recent surge in Chinese jets entering Taiwan's Air Defence Identification Zone has underscored the need for a working hotline. When U.S. Chairman of the Joint Chiefs of Staff Mark Milley recently revealed that in Donald Trump's final months he found it necessary to reassure his Chinese counterpart that they are were not about to be attacked, he added that such phone calls could take days or weeks to set up.

Washington's need for more cooperation with Beijing goes beyond crisis management. More broadly, it is necessary to address climate change -- still at the top of Biden's agenda -- and start talks on arms control, a need driven home by China's reportedly successful test of a Fractional Orbital Bombardment System.

China appears far less enthusiastic about "guardrails," with Beijing probably suspecting that such a concept is, in fact, another form of competitive rule-setting and a thinly-veiled attempt to lock in the status quo. China itself is no stranger to using conflict management for geopolitical ends. It is pushing an ostensibly neutral "Code of Conduct" for the South China Sea that would cement its dominance of that body of water.

Competition without guardrails is a game of chicken that Beijing seems readier to play. It may view Washington's recent pivot to "responsible competition" as a sign of weakness. Experience has shown that, Trump aside, most U.S. presidents come into office talking tough on China but, over time, come to realize the importance of engaging and accommodating it.

The challenge for Washington is to sell the concept of responsible competition as mutually beneficial without feeding the perception that this offer is a sign of weakness to be exploited. The sequencing of recent exchanges suggests that this is a delicate balance.

### China Good---Status Denial---2NC

#### Technological competition is the primary way China intends to gain status

Khong, 19 **-** Yuen Foong Khong is the Li Ka Shing Professor of Political Science at the Lee Kuan Yew School of Public Policy, National University of Singapore (“Power as prestige in world politics,” International Affairs, Volume 95, Issue 1, January 2019, Pages 119–142, <https://doi.org/10.1093/ia/iiy245>, <https://academic.oup.com/ia/article/95/1/119/5273583>

The analysis of US–China interactions presented here reveals that the phase of heightened geopolitical competition between the two superpowers is upon us. A key bone of contention now and in the coming decade will be about the hierarchy of prestige. By most accounts, China is likely to overtake the United States to become the world's largest economy within a decade; meanwhile it is investing heavily in multiple arenas—military, economic, technological, cultural—to create facts on the ground that will force the US to recognize it as a co-equal. Indeed, if the technological advances sought by ‘Made in China 2025’ and the economic and political–diplomatic goals of the BRI are realized—big ifs, to be sure—China will be well positioned to ‘win friends and influence people’ in ways America did with its economic and technological prowess. It will be in a position to match, and perhaps overtake, the US reputation for power. A Pew poll of 2015 found that, in 27 out of the 40 countries polled, a plurality or majority of individuals believed that China ‘will or already has overtaken the US as a superpower’.78 Such polls need to be interpreted with caution; but if that day does come to pass, it will put the US in a position of great strategic angst. Kishore Mahbubani cites an exchange he had at the 2012 Davos meeting in which he raised the possibility of China replacing the United States as the world's top power—a suggestion to which Senator Bob Corker, Chairman of the Senate Foreign Relations Committee, responded: ‘The American people absolutely would not be prepared psychologically for an event where the world began to believe that it was not the greatest power on earth.’79

#### Status denial goes nuclear

Onea, 14- Tudor Onea is a Social Sciences and Humanities Research Council of Canada Post-doctoral Fellow with the Department of Government at Dartmouth College (“Between dominance and decline: status anxiety and great power rivalry” Review of International Studies, Volume 40 / Issue 01 / January 2014, pp 125-152

Rivalries between great powers over dominance have captured scholarly attention since the days of Thucydides. However, the bulk of studies have concentrated on shifts in capabilities, while neglecting the motives that produce such positional rivalries. The status anxiety hypothesis is an effort to address this omission, by tracing their occurrence and continuation, sometimes for decades, to the clashing status requirements of the dominant power and those of the next-in-line state. In a nutshell, status anxiety argues that the refusal of the dominant power to allow the succession of the challenger will be a fundamental cause of rivalry, worsening as the rising power threatens to overtake the current leader in additional dimensions. The purpose of this article was to formulate this hypothesis as well as subject it to preliminary testing. The findings suggest that status anxiety represented a significant influence, though not necessarily excluding additional balance of power considerations, in the foreign policy decision-making of declining dominant powers: France in the mid-eighteenth century and Britain at the turn of the twentieth century. Status anxiety thus helps account for the hostility France manifested towards Britain, and Britain towards German demands for superior status, a reaction which is more problematic to account for by theories stressing solely physical security and material gains.

A further contribution of this endeavour is that it suggests the existence of a dominant power club, distinct from the club of major or great powers, and, as such, following a different set of rules.138 The existing status literature has concentrated exclusively on the latter club, arguing persuasively that there is no impediment for granting either admission to new members or opportunities for further advancement to current ones.139 Hence, status competition in the great power club is seen as non-zero sum. But the dominant power club has a membership of one, which makes it unfeasible for the dominant power to satisfy the demands of dominant power aspirants without voluntarily surrendering its supremacy. Accordingly, status competition over the dominant position is more likely to be zero-sum and lead to rivalry.

The findings of this article are at this point only plausible, yet they highlight the need for further research covering the entire universe of dominant powers in order to determine both if intense status anxiety always prompts conflict and if reduced status anxiety or its absence lead to stability. Consequently, additional studies of the role of status for dominant powers foreign policy should be conducted, extending beyond the current en vogue concentration on the foreign policy of rising powers alone.

Indeed, dominant powers' status anxiety may be increasingly policy-relevant, if unipolarity were to erode due to a steady shrinking of distance between the US and China. This is not to suggest that Sino-American confrontation under the ominous shadow of nuclear weapons is inevitable, but to draw attention to the possible heightened risks posed by status anxiety in future decades. In the words of President Obama: ‘if other nations do not play for second place, I do not accept second-place for the United States of America’.140

### China Good---Smart Cities---2NC

#### Huawei is developing “Smart Cities”---solves warming---Thailand proves

Bangkok Post 22 (Bangkok Post Public Company Limited, an English-language daily newspaper published in Bangkok, Thailand, 2-24-2022, "Huawei joins hands with GLAND to enable ‘Smart City’ in Thailand," https://www.bangkokpost, https://www.bangkokpost.com/thailand/pr/2269439/huawei-joins-hands-with-gland-to-enable-smart-city-in-thailand, DOA: 7-11-2022//Smarx Ahsan---edited for spelling)

Huawei Technologies (Thailand) Co., Ltd. and Grand Canal Land plc (GLAND) have announced a strategic partnership through a Memorandum of Understanding (MoU) to promote a ‘Smart City’ project in Thailand. This project aims to develop smart offices in Thailand to support the future of working with integrated Information and Communication Technology (ICT), digital technology, and full connectivity.

In addition, Huawei and GLAND plan to expand their cooperation to retail, shopping centers, residential buildings, and hotel business groups throughout Thailand to increase the country’s readiness to become the ASEAN digital hub, supporting the national strategy: Thailand 4.0.

“Huawei and GLAND have a close and longstanding partnership. The headquarters of Huawei Technologies Thailand has been in G Tower Grand, a subsidiary of GLAND, since we officially started our business in Thailand in 1999. In 2017, Huawei also launched Huawei Open Lab Bangkok in the same building to promote digital skills development in Thailand, create new innovations and support the country's goal of becoming the ASEAN digital hub. We hope that the cooperation between Huawei and GLAND will strengthen Thailand's real estate sector and fulfil Huawei's commitment to helping Thailand evolve in the digital era. We would like to bring digital technology to everyone, every home, and every organization to create a fully connected, intelligent Thailand,” said Abel Deng, Chief Executive Officer, Huawei Technologies (Thailand).

“Thailand is evolving towards a fully digital society and will become an important digital hub in ASEAN through the government's national strategy: Thailand 4.0. It is also a strategic market for foreign investment and trade, especially from China, which is the world’s technology leader. This cooperation will enable us to leverage Huawei’s expertise to raise the potential for innovation creation in mixed-use projects such as retail spaces, shopping centers, office buildings, residential buildings, and hotels – including GLAND's subsidiaries. We are creating a modern and perfect ‘Smart Digital Township’ that helps drive business growth and helps real estate businesses adapt to a rapidly changing world,” added Naparat Srivanvit, Chief Executive Officer, Grand Canal Land plc.

The cooperation between Central Pattana, led by GLAND and Huawei, will develop a comprehensive, intelligent ecosystem by creating Smart Digital Townships for GLAND's real estate projects through five key elements:

* Smart Building: Using world-class technology to develop smart buildings that raise the building occupants’ convenience and be environmentally friendly.
* Smart Asset Management: Using 5G technology in asset management, access point technology, ultra-high-speed Wi-Fi 6, IoT modules, and intelligent cameras.
* Smart Hospitality and Retail: Connecting the fiber backbone system to become the smart hotels and shopping centers of the future.
* Smart Campus and Living: Creating safe building and living systems including intelligent parking systems.
* Intelligent Connectivity: Intelligent connection with AI (artificial intelligence), video & imaging technology, fiber optics and cloud storage.

Previously, Huawei partnered with Central Pattana holding the ‘GREEN FOR FUTURE’ exhibition in the activity area at centralwOrld shopping center. This event enabled Huawei to launch the latest Huawei FusionSolar Residential Smart PV solutions. The solutions enable householders to produce clean electrical energy, reduce cost, and be environmentally friendly. The clean energy solutions will help promote carbon neutrality and in reducing greenhouse gas emissions to net zero, demonstrating the companies’ commitment to shaping a better future for Thailand and the environment and driving Thailand as an important digital hub of the ASEAN region.

With a digital-first lifestyle, Huawei Enterprise continues to develop innovative solutions and build a digital ecosystem that allows everyone to grow, innovate and be successful. In November 2021, Huawei developed more than 100 solutions, covering more than 10 different sectors, including smart cities, finance, energy, transportation, and manufacturing. Huawei's smart city solutions are deployed in more than 700 cities in 40 countries and regions.

Huawei has integrated ICT technologies to develop intelligent campus solutions that enable intelligent and low-carbon campuses for over 800 customers in sectors such as government, energy, manufacturing, real estate and logistics.

Huawei also actively participates in standardization by leading a work group that recently launched a project to develop the first set of Chinese national standard for intelligent campuses. The company has also built a partner program, attracting over 133 partners to its intelligent connectivity ecosystem for intelligent campuses.

#### Smart Cities are the next step to economic modernization for China---Tech Dominance is key to maintain development

Rosas 21 (Alexander Rosas, reporter for “The China Guys” --- have spent their professional and academic careers learning to decode China, 8-26-2021, "What To Know About China's Smart Cities and How They Use AI, 5G, and IoT," China Guys, https://thechinaguys.com/china-smart-cities-development/, DOA: 7-11-2022//Smarx Ahsan)

What Are China’s Smart Cities?

In 2011, China’s 12th Five-Year Plan announced its intentions to develop “digital cities.” Within this plan, Beijing sought to accelerate the construction of new-generation IT infrastructure, mobile communication networks, internet infrastructures, digital and television broadcasting networks, satellite communication facilities, and an ultra high speed, large capacity and highly intelligent national trunk transmission network. The government also wanted to construct broadband connection throughout urban and rural areas to strengthen interconnectivity.

This infrastructure now serves as the basis of China’s smart cities. Smart cities are urban areas that collect large amounts of data and use it to improve city operations. Developers can create technological applications based upon a city’s critical communications infrastructure, which then convert data into insights, and insights into tools. These applications in turn serve as a form of public-private partnerships, creating opportunities for government, companies, and the public. For example, in the case of public transit, bus riders could use a real-time traffic monitoring application to find the optimal time to travel with less traffic while reducing the overall strain on the public transportation system.

In subsequent five-year plans, Beijing’s gaze has narrowed in on smart city development. Policymakers have diverted significant resources towards furthering the technological innovation and public-private partnerships behind smart cities, including the development of 5G, artificial intelligence, new energy vehicles, cloud computing, blockchain technology, and internet of things (IoT), all of which serve a critical function in the infrastructure of many of China’s urban areas. In early 2020 alone, China’s governing National People’s Congress signed off on a US$1.4 trillion fiscal plan to support technological innovation in these fields.

How Are China’s Tech Giants Developing Smart Cities?

As new technologies emerge after decades of research and development, a handful of companies have taken the lead in the transformation of cities. These include Alibaba, Baidu, Didi Chuxing, Huawei, and Tencent, all of which have incorporated their individual technologies across Hangzhou, Suzhou, Shenzhen, Shanghai, and Beijing, among others. These technologies then form the building blocks for “digital brains,” which utilize cloud computing, AI, and IoT to create the foundations for smart city infrastructure.

Alibaba: City Brain

Alibaba’s City Brain uses artificial intelligence and network infrastructure to automate traffic systems, optimize public transportation routes, identify environmental issues, and allow for more efficient public resource management. It is largely associated with Hangzhou, the city in which it was piloted and home to Alibaba’s headquarters. Since the implementation of Alibaba’s City Brain, transit times in its pilot areas have been reduced by 15%, arrival times of ambulances were cut in half, and an AI surveillance system to monitor traffic violations has lowered overhead for law enforcement.

City Brain has been deployed in many of Hangzhou’s parking lots, enabling a “park-first, pay later system” that aims to cut down congestion near major traffic centers. This same system is also applied to its hospitals where patients can receive treatment first and pay later. This is in conjunction with Alibaba’s Medical Brain that utilizes AI and big data to treat patients. It has already begun piloting in a few hospitals across Hangzhou.

The success of Alibaba’s City Brain project in Hangzhou has attracted the attention of major cities across China. Beijing, Shanghai, Tianjin, Macao, and Lhasa have all begun pilot programs, and Kuala Lumpur, Malaysia, a hub for Alibaba’s Southeast Asian operations, has imported the technology. Despite regulatory changes and recent crackdowns on the company’s anti-competitive e-commerce practices, Alibaba’s other technologies are still deeply integrated into many Chinese cities’ infrastructures.

Huawei: 5G and the Internet of Things

Huawei has faced intense scrutiny in recent years over the 5G technologies that it exports around the globe. Considered one of China’s top national champions, Huawei has been pivotal to the overall expansion of IoT technologies and China’s 5G telecommunications network, both of which are key to the overall development of smart city infrastructures. The company is responsible for the interconnectivity of 200 million IoT-enabled devices around the world, with 90 million connected to China Telecom’s network alone. Huawei’s 5G technology is key to many smart city projects throughout China, and it seeks a much more comprehensive approach to smart city infrastructure, encompassing everything from airport management and traffic optimization to streamlined city governance and medical personnel assistance.

Although Huawei’s network spans throughout China, Shenzhen and Shanghai have been the primary focus as pilot cities for the company’s smart city technologies. For example, Shenzhen’s Bao’an International Airport signed an agreement with Huawei to upgrade airport infrastructure. Since, Shenzhen Bao’an International Airport has seen a 15% reduction in waiting queues and a 20% reduction in onboarding times due to Huawei’s infrastructure.

Other parts of Shenzhen have employed Huawei’s Smart Traffic Lights and Traffic Control systems that help optimize traffic patterns. As cars become increasingly integrated with cellular vehicle-to-everything (“C-V2X”) technologies that enable connectivity between cars and surrounding networks, Huawei’s systems will improve both the flow of traffic as well as allow for quickened response times for first responder emergency vehicles. These technologies function similar to Alibaba’s City Brain in employing AI with big data to manage traffic and assist police and other critical services to optimize the efficiency of their real-time decision making. The result of Huawei’s traffic brain has been a 15% increase in traffic speed.

Tencent: WeChat and Net City

Tencent has been a key player in China’s tech industry for nearly two decades. The company is behind popular platforms like QQ, Weibo, and WeChat, and is a major driver behind social media and e-commerce. WeChat’s extremely high user penetration rates, coupled with its payment services and interoperability with other applications, have allowed it to become a versatile platform among both China’s digital infrastructure and population. Tencent is likely to continue dominating the social media landscape, providing it sufficient resources and reach to expand into other innovative projects such as its Net City project.

WeChat Pay, the digital payment system native to WeChat, has long been integrated within most city utilities and infrastructure across China. It provides services for vendors, consumers, and government bureaus, alike, and it would be difficult to find a shop, restaurant, or vendor anywhere in China that does not accept the service. Government services and hospitals will even allow you to use WeChat Pay if you need to pay a fee or a fine.

In addition to its payments services, WeChat’s ability to disseminate information has also proved invaluable over the years. This was demonstrated at the onset of the COVID-19 epidemic, in which WeChat allowed for continuous updates regarding quarantine measures and provided important statistics to local governmental officials. It later helped provide contact tracing capabilities that were critical to isolating COVID-19 clusters in certain areas. Among its most recent developments now include a digital vaccination certificate and a digital hospital picker which uses AI to help connect you with doctors that best suit your needs. WeChat’s services and innovations have allowed Tencent to not only grow exponentially but also become a key tool for social infrastructure over the past decade.

Despite scrutiny over its anti-competitive practices, Tencent is still exploring different areas of innovation. Announced last year, Tencent and prominent architectural firm NBBJ jointly announced the creation of Net City, an area that will prioritize green sustainable living, pedestrian-focused infrastructure, and an underground self-driving vehicle network. Utilizing reclaimed land near Shenzhen, Net City plans to accommodate 80,000 people. It will primarily serve Tencent’s offices, providing a sustainable ecosystem that benefits the company’s employees and city residents. It aims to utilize renewable energies and reusable waste water in order to promote a more environmentally friendly living environment. Construction of this area started in 2020 and is estimated to be completed in 2027.

Baidu and Didi: Intelligent Driving and Autonomous Driving

Baidu and Didi Chuxing, two of China’s largest tech giants, are competing with each other to develop autonomous driving vehicles. With the development of 5G, C-V2X, and rapid transit technologies, Baidu and Didi both have launched partnerships with city officials in order to develop intelligent transportation at the city level.

Baidu’s Apollo aims to develop smart city digital transportation infrastructure that utilizes C-V2X technologies to integrate smart vehicles into a city’s wider traffic grid. According to Baidu, this includes smart signaling, smart parking, and smart buses. This technology has already been deployed in major cities like Changsha and Guangzhou and has already totaled hundreds of millions of dollars in contracts for the company.

Didi Chuxing, widely known for its ride sharing app, has developed both Didi Transportation Brain and an autonomous vehicle fleet that are highly synergistic with each other. The transportation brain has already been deployed across multiple cities across China, leveraging big data and AI to improve travel times for commuters. Its growing robo-taxi fleet works in tandem with its transportation brain, and self-driving autonomous vehicle pilot programs have been launched in Shanghai, Yangquan, and Hefei.

Baidu and Didi Chuxing have been successful in utilizing the networks and technologies of other companies to rapidly develop and deploy their technologies. For example, both Baidu and Didi Chuxing leverage Huawei’s expanding 5G infrastructure, C-V2X protocols, and pre-existing transportation brains to compete in a young competitive market. Additionally, these offerings offer the potential for overseas expansion, with both companies aiming to develop self-driving vehicles as a mobility-as-a-service.

### China Good---Warming---2NC

#### Chinese 5G solves warming through digital innovation and deep decarbonization

Mun 22 (Ng Wai Mun, a correspondent at Eco-Business, has nearly a decade of experience in media, 6-6-2022, "China’s tech giant Huawei touts digital growth to cut carbon emissions," https://www.eco-business.com/news/chinas-tech-giant-huawei-touts-digital-growth-to-cut-carbon-emissions/, DOA: 7-5-2022//Smarx Ahsan---edited for spelling)

By the end of this decade, renewables, particularly solar, should make up at least half of the world’s total electricity generation. Enabled by digital solutions, deep decarbonization must occur across all sectors, and digital infrastructure itself should be 100 times more energy efficient.

In a latest report that highlights the role of information and communications technology (ICT) in a cleaner and sustainable future, China’s largest tech giant Huawei called for more innovation to create synergies between digitalization and decarbonization. It believes that technology will help enable other sectors to reduce their carbon footprint.

The report, titled Green Development 2030 and launched this month, maps out Huawei’s vision of the future, where data centers running on artificial intelligence (AI) will be powered by solar photovoltaic (PV) plants, and where virtual factories staffed by robots will enable efficient manufacturing cycles. By the end of this decade, all new buildings around the world will operate at net-zero carbon and there will be large-scale electrification in transportation, from cars to aviation and shipping, predicted Huawei.

In recent years, not only has the digital economy become a major engine of global growth, various sectors are looking to bold use of technological solutions to cope with climate-related challenges. For example, most Asia-Pacific countries have released clear policies for digitalization and decarbonization. In Asean, the region’s internet economy market is booming and key entities like the Asian Development Bank are working on promoting digitalization for green and inclusive growth in Asia.

Huawei’s report further highlights the various untapped green opportunities that different industries can tap on. It also calls for the ICT sector to work on cutting its carbon footprint.

In the study, Huawei estimated that only 20 per cent of businesses are currently using digital technology, and green development will require increased penetration of digital technology across all sectors.

[Chart Omitted]

“While the ICT industry itself accounts for less than 2 per cent of global carbon emissions, it is a leverage point that can be exploited to achieve disproportionate and higher emissions reductions,” said Huawei, which is predicting for carbon emissions reductions enabled by digital solutions to hit at least 20 per cent of global emissions by 2030.

Huawei highlighted how digital technology can play a role in increasing the efficiency of carbon storage and carbon removal, processes that have featured more prominently in the latest United Nations’ Intergovernmental Panel on Climate Change (IPCC) report. The IPCC has said that the removal of carbon dioxide from the atmosphere will be unavoidable as climate dangers grow.

[Chart Omitted]

Currently, renewable energy makes up 28.6 per cent of the global electricity generation, and Huawei’s vision is for the ratio to increase to 50 per cent by 2030, making renewables mainstream. Key to this is a strong solar push, as it predicts that solar power is set to become a major source of electricity.

It imagines offshore floating PVs and wind turbines to be a common sight by the end of the next decade. Power plants will also become highly digitized.

“With a converged, open, and intelligent energy cloud, virtual power plants will break down boundaries between traditional power plants and users, and coordinate distributed wind energy, solar PV, energy storage systems, and other flexible loads.”

Breakthroughs in digital technology needed

Huawei also called for the energy efficiency of digital infrastructure itself to be vastly improved. Growth of the digital economy creates additional energy demands as new ICT infrastructure needs to be powered, but yet this should not deter investment into such infrastructure. Instead, the ICT sector should lead the way and search for innovative and effective solutions in order to meet these demands.

This is especially as more countries and regions start embracing green development. Huawei urged further breakthroughs in digital technology and greater coordination between different industries. Regulations, systems and standards across various sectors need to be clear and standardized. “This will require joint innovation in both digital technology and low carbon growth, as well as greater collaboration across all communities, industries, value chains and ecosystems.”

“Digital innovation is key to achieving low-carbon growth. The two are mutually reinforcing, so we need to keep strengthening investment in research and development to deliver the right enabling technologies.”

The report’s authors told Eco-Business that while digitalization may cause a rebound effect, its downsides are less significant than their potential to improve the planet. Nonetheless, they acknowledge that these side effects need to be addressed and controlled on a more systemic level.

The report points out that the ICT industry currently lacks a unified standard to measure the carbon emissions of digital infrastructure, and suggests the creation of an index to establish unified standards for better management of the industry’s energy consumption and carbon footprint.

“On one hand, carriers from different countries and regions adopt different approaches to network rollout. On the other hand, digital infrastructure covers numerous domains, and its carbon emissions vary greatly across domains, making it almost impossible to fully achieve green and efficient operations.”

In 2021, Huawei launched a white paper that proposed a Network Carbon Intensity (NCI) index, which defines carbon emissions per bit of data traffic as a new metric for green digital infrastructure.

Huawei also envisions for networks to be reconstructed based on the nature of the services they carry, allowing for energy-efficient routing. Data centers, which currently account for about 1 per cent of global electricity consumption, need to adopt evaporative cooling technology and AI.

Digital infrastructure construction also needs to become more flexible and efficient. “Most of today’s data centers are built indoors. In the future, what once filled an equipment room will be squeezed into a single cabinet, and what once filled a cabinet will be mounted on a single pole. Traditional concrete data center buildings will be replaced by prefabricated modular data centers,” said Huawei, which believes that new data centers can be built in just a few months in the future, meeting the requirements for rapid service rollout.

In its report, Huawei highlighted the Gui’an Data Centre it built in China that has green and intelligent technologies incorporated into its design, and which adopts indirect evaporative cooling technology and AI to increase energy efficiency.

The center, which will be able to accommodate one million servers after full completion, has a power usage effectiveness (PUE) of 1.12, and generates 810,000 tons fewer carbon emissions every year compared with a conventional one.

Although more countries and regions are embracing green development, the world still lacks unified standards for low-carbon growth, the report stated. “We still have many challenges ahead. We need to make further breakthroughs in digital technology, flesh out regulations, systems and standards, and promote greater coordination between different industries.”

### China Good---Warming---Ext

#### We need Huawei 5G to ensure a sustainable future through cutting energy consumption --- mitigates climate change

The Atlantic 19 (The Atlantic, an American magazine and multi-platform publisher, it features articles in the fields of politics, foreign affairs, business and the economy, culture and the arts, technology, and science, 2019---only the year was provided :( ,"Can 5G Save the Planet?," Atlantic, https://www.theatlantic.com/sponsored/huawei-2019/can-5g-save-planet/3184/, DOA: 7-5-2022//Smarx Ahsan)

THE 5G FUTURE promises more. More speed. More security. More support for cutting-edge applications such as robotic telemedicine and driverless cars.

Yet to achieve its full potential while protecting the environment, the next generation of wireless networking will need to deliver less in one key area.

Energy consumption.

From sleek mobile phones to ubiquitous cellular antennas to sprawling data centers, our increasingly connected digital lives require increasing amounts of electricity. The result? Increasing contributions to the carbon emissions that scientists believe are the driving force behind climate change and planetary warming.

The numbers tell the story. Canadian researchers estimate that by next year, information and communications technology (ICT) will account for 3.5 percent of annual global carbon emissions, a larger share than the aviation and shipping industries will account for.

By next year 3.5% of annual global carbon emissions will come from information and communications technology (ICT).

By 2040 14% of worldwide emissions will be from ICT. Roughly equivalent to the percentage now attributable to the entire population of the United States.

That figure could jump to 14 percent of worldwide emissions by 2040, roughly equivalent to the percentage now attributable to the entire population of the United States.

Inside and outside the telecommunications industry, there’s concern that the pending 5G shift could play a significant role in any rise. By 2022, networks are expected to support 26 billion devices and connections worldwide, an increase of about 10 billion from 2015.

A 5G world includes many more wireless devices, including security cameras, smart appliances, and connected factory robots. More devices transmitting much more data figures to require far more power. Telecom sustainability expert Anders Andrae calls this situation a potential “perfect storm” of increased energy consumption.

“This is a real concern for 5G,” says Zach Chang, a carrier network product manager at the communications technology company Huawei. “It will be much more powerful than 4G in terms of processing power and bandwidth and has the potential to cover the whole Earth’s population.

“All of that will increase energy consumption. If the efficiency of the entire infrastructure doesn’t go up, it won’t make financial or environmental sense. It won’t be sustainable.”

ONLY THAT DOESN’T have to be the case. International standards for 5G call for reduced energy use compared to today’s 4G networks, and companies such as Huawei are designing and building components with dramatically increased efficiency in mind.

The ultimate goal? Use less power to transmit more data, decreasing the wattage required for each bit of internet traffic.

One single kilowatt hour

4G

300 high-definition movies

5G

5,000 ultra-high-definition movies

So far, results have been promising. While recently discussing sustainability, Huawei Chairman Liang Hua said that with 4G, a single kilowatt hour (kWh) of electricity is sufficient to download about 300 high-definition movies. With 5G, that same kilowatt hour can power about 5,000 ultra-high definition movie downloads.

Or consider base stations, which transmit and receive the radio signals at the heart of wireless networks. These power-hungry sites can account for as much as 80 percent of total network energy use. Nearly half of the electricity consumed by each station goes to the air-conditioning used to cool transmission equipment.

In the city of Hangzhou, Huawei and a major Chinese telecom provider have deployed new 5G base stations that require fewer heat-generating electronic components. They also use sophisticated power management software and trade air-conditioning for open-air cooling.

Compared to 4G stations, the new stations use almost 20 percent less electricity. That saves an estimated 4,130 kWh of power per site per year, which translates to about 1,125 kilograms (kg) of carbon emissions.

If the efficiency of the entire infrastructure doesn’t go up, it won’t make financial or environmental sense. It won’t be sustainable.

Similarly, other companies in Europe and Japan have developed base stations that use liquid cooling and solar power. Respectively, those solutions reduce energy operating expenses by nearly a third and CO2 emissions by up to 80 percent.

What could these reductions mean at scale? Between now and 2022, Huawei estimates, more than 2 million base stations in China alone will be built or reconstructed for 5G.

Apply that number to the energy-use reductions achieved in Hangzhou, and that’s 8.3 billion kWh of electricity and 2.3 billion kg of carbon emissions saved per year. The first number is almost the same as total annual household power consumption in Iceland. The second is equivalent to the yearly CO2 absorption of 130 million trees.

“When you’re talking about hundreds of thousands of base stations, even a 1 percent savings in power use is huge,” says Scott Jamar, Huawei’s vice president of Industry Relations.

Better base station efficiency isn’t the only way to reduce 5G power use. Huawei and others are developing additional solutions, including:

Sleep Modes

CURRENT 4G NETWORKS use almost the same amount of energy regardless of how much data they are handling. By contrast, 5G will allow telecoms to reduce power consumption during periods of lower network traffic—like late at night, when most customers are sleeping instead of using their mobile devices.

“I work in an industrial park,” Chang says. “During the day, lots of people go there to work. They’re checking emails and making lots of phone calls. The nearby base station has to work at peak capacity to process all of that data.

“But at night, those same people leave. So you don’t need that peak capacity. With 5G, you can lower your power use significantly, without sacrificing performance for the individual user who happens to still be there and online.”

Analytics & Artificial Intelligence

THE DATA CENTERS that store our photos, host our websites, and handle our cloud computing consume an enormous amount of energy. In the United States alone, data centers are expected to use about 73 billion kWh by next year.

As is the case with base stations, much of that power goes to keeping equipment cool enough to function properly. And that’s where data analysis and artificial intelligence (AI) can help.

Deploying an algorithm that learns how best to adjust fans, vents, and other cooling equipment to cut power consumption, a major American tech company reduced its data center cooling costs by about 40 percent. Meanwhile, a leading Chinese telecom claims it was able to reduce power consumption at its data centers by roughly 30 percent during recent AI trials.

Similarly, Huawei has helped telecoms in China, Morocco, and South Africa lower power consumption on their existing networks by 12 percent. How? Through a software-based analytic system that allows operators to visualize and better manage their overall energy use.

“The main thing AI does is look at different data sets and make sense out of them,” Jamar says. “With energy efficiency, it gives us the ability to fine tune our energy use in different areas based on network traffic, like the difference between an urban area and a rural one. And those optimizations reduce power consumption.”

ULTIMATELY, 5G’s most important contribution to energy efficiency may come through enabling users. Environmentalists and policy think tanks alike believe that smart, wirelessly-connected appliances, factories, cities, and transportation grids will be able to optimize and reduce their power consumption, just like networks and data centers. The end result? Lower costs and a meaningful contribution to global efforts to mitigate climate change.

“The thing about 5G is that we will have much more capacity to incorporate sensors into daily life, from industry to our own homes,” Chang says. “And that will allow us to modulate our energy use in so many places we’ve overlooked, just because we didn’t have the communications tools to make equipment truly smart. With 5G, our society as a whole can become much more energy efficient.”

#### Huawei 5G is critical to broader shifts in green technology --- they’ve already reduced 230 million tons of CO2 emissions

Bangkok Post 22 (Bangkok Post Public Company Limited, an English-language daily newspaper published in Bangkok, Thailand, 5-20-2022, "Huawei will accelerate Asia-Pacific's move toward green development," https://www.bangkokpost, https://www.bangkokpost.com/tech/2313350/huawei-will-accelerate-asia-pacifics-move-toward-green-development, DOA: 7-5-2022//Smarx Ahsan---edited for spelling)

The digital economy has become a major engine of global economic growth. Green and low-carbon technologies have become new drivers for sustainable development. This combination of digital transformation and green development presents the information and communications technology (ICT) industry with incredible new opportunities.

As global climate change is one of the greatest challenges human beings face today, and carbon neutrality, as the best way to cope with this change, has become the global consensus and mission. Carbon neutrality is also meaningful to national energy security. Since the end of last year, international energy markets have fluctuated sharply, and the crisis has resulted in a dramatic increase in the cost of economics; a reminder that more attention to energy security is required.

Seeing this trend, Huawei announced during APAC Digital Innovation Congress that it will continuously innovate, use green ICT to empower green development, and contribute to a better, green and intelligent world.

“Huawei always considers Asia Pacific as our strategic market. By the end of 2021, almost all of the ASEAN countries have set carbon neutral targets. Huawei is committed to invest in Asia Pacific continually following the governments’ pace,” said by Boham Sun, President of Huawei Digital Power of Asia Pacific on session of Technology Innovation-Accelerating Power Digitalisation for a Low-Carbon Smart Society.

According to Boham Sun, Huawei Digital Power has more than 6,000 employees, and 12 R&D centers globally with more than 1,300 technology patents, showing Huawei’s leadership in Digital Power Industry.

Leveraging its advantages in power electronics and digital technologies, Huawei Digital Power has created all-scenario low-carbon energy solutions, covering the whole energy flow from green power generation to efficient power consumption, including Smart PV for green power generation, Data Center Facility and Site Power facility for green ICT infrastructure, mPower for green transportation.

On the road towards the low carbon vision, it is impossible to clap with one hand. Huawei is committed to building a low-carbon and green Asia-Pacific region ecosystem. Huawei is focused on core technologies and solutions and openly cooperates with customers, industry partners and regulators, to build future “zero carbon to everything” solutions to realize the carbon neutrality goal.

As a member of Asia Pacific, digitization and low-carbonization are two mostly embraced consensuses in the world. Thailand is taking a forward-looking vision in this journey and is one step ahead of most countries in both digitalization and low-carbonization. In the journey towards a low-carbon future, Thailand is the first ASEAN country to commit to carbon neutrality. At the recent 2021 United Nations Climate Change Conference (COP26), Thailand proposed the Carbon Neutrality 2050 roadmap to address climate change, which is the same as the EU milestone.

Towards this visionary goal of Carbon Neutrality 2050, digitalization will play a crucial role in the great journey.

In Thailand, Huawei established digital power business last year to fully support its carbon neutrality goals. So far, Huawei has delivered more than 2.4GW of Smart Inverter to serve more than 1000 customers and partners with best LCOE, in total producing 6.18 billion kWh of clean energy and reducing carbon emissions by 6.16 million tons. For example, TSE Prachinburi 10MW floating power station; 7-Eleven's 1500 convenience store rooftop photovoltaics; Central Plaza Maha Chai 1.4MW PV roof; Krabi 5MW PV power station. Also in 2021, it was estimated that about 50,000 households had installed solar inverters, of which 14,000 were provided by Huawei.

Ken Hu, rotating chairman of Huawei also cited during APAC Digital Innovation Congress that, “APAC is going green. Countries are really committed to sustainable development. For example, Japan and Thailand have committed to carbon neutrality by 2050. Singapore is committed to reaching peak carbon emissions by 2030. China will reach peak carbon emissions by 2030, and carbon neutrality by 2060. Of course, digital technology will be a key enabler throughout this process.”

Simon Lin, President of Huawei's Asia Pacific Region, gave a on the abundance of digital opportunities in APAC. He spoke about the company's mission, "In Asia-Pacific, for Asia-Pacific", under speech which Huawei is committed to becoming a key contributor to the digital economy in Asia-Pacific and working with customers and partners to build a better green digital life.

Lin said, "Huawei hopes to help Asia-Pacific build a leading green infrastructure, create a thriving industry ecosystem, and empower an inclusive and sustainable Asia-Pacific."

According to Lin, Huawei has provided connectivity for more than 90 million households and one billion mobile users in Asia-Pacific. Huawei's IaaS market share ranks No 4 in the emerging Asia-Pacific market, and Huawei is integrating digital and power electronics technologies to enable energy digitalization for a greener future.

Huawei continues to invest extensively in research and development to reduce carbon footprint of E2E products and services by more than 80% compared to other products of the same capacity.

“As of December 31, 2021, Huawei Digital Power had already helped customers generate 482.9 billion kWh of green power, save 14.2 billion kWh of electricity, and reduce CO2 emissions by 230 million tonnes, which is equivalent to planting 320 million trees,” said by Boham Sun. “Huawei also aims to develop its products to achieve 2.7 times more energy efficiency. With combined digital and electronic technologies, Huawei develops innovative digital power solutions that allow the most efficient use of energy and reduce CO2 emissions from ICT infrastructure. In 2021, Huawei has helped customers around the world reduce CO2 emissions by 230 million metric tons.”

### China Good---AT: China Fails---2NC

#### China’s tech sector is resilient---Xi’s reforms benefit the US

Ignatius 21 (David Ignatius, writes a twice-a-week foreign affairs column for The Washington Post, education from Harvard College, Kings College, Cambridge, 11-9-2021, "Xi’s heavy-handed reforms of China’s tech sector could have an upside for the U.S." Washington Post, https://www.washingtonpost.com/opinions/2021/11/09/xis-heavy-handed-reforms-chinas-tech-sector-could-have-an-upside-us/, DOA: 7-10-2022//Smarx Ahsan)

Napoleon is said to have advised his commanders: Never interrupt your adversary when he is making a mistake. Some American experts on China would offer a similar admonition as they watch President Xi Jinping’s heavy-handed regulation of China’s tech sector.

Over the past year, Xi has conducted a mini-purge against Internet entrepreneurs whose companies had been the darlings of the tech world. The question puzzling U.S. analysts is whether Xi’s leftward turn is doing any permanent damage to China’s tech sector, or whether the Chinese economy is so strong and dynamic that it can absorb Xi’s mistakes and keep rolling.

China’s economic strength or weakness will loom in the background next week as President Biden talks with Xi during a virtual summit. Clearly, China’s growth is slowing, and Foreign Affairs posted an article last month with the provocative title, “The End of China’s Rise.” But past experience suggests it would be a mistake to bet on China’s inability to solve problems.

Kevin Rudd, a former Australian prime minister who is also a China expert, says of Xi’s recent crackdown on Chinese tycoons: “I don’t think it will kill the goose. But it’s going to slow the goose.” A senior U.S. official offers a similar view: “Xi is taking incredible risks” in his recent economic purge. “But he has enormous margin for error. Like the U.S. in its heyday, China can absorb failure.”

China’s Internet bubble certainly has deflated. Jack Ma, founder of Alibaba, was silenced a year ago after he dared to criticize Chinese authorities; regulators halted the initial public offering planned for his Ant Group last November. Advance orders for the stock had reached $3 trillion before Beijing pulled the plug. China’s antitrust regulator subsequently levied a $2.8 billion fine against Alibaba.

Investors have suffered from Xi’s tech putsch. Shares in Alibaba Holding Co., the flagship of Ma’s empire, have declined nearly 41 percent over the past year. Didi Global, a Chinese ride-hailing company, has fallen 47 percent since July. Tencent Holdings, another Internet powerhouse, has dropped about 40 percent from its peak in February.

Caution is now the watchword in a sector that was once as freewheeling and risk-tolerant as Silicon Valley. As Alibaba was being fined in April, antitrust regulators summoned 34 Internet companies and demanded self-criticism and compliance. A dozen companies duly issued statements promising reform. These encounters raised worries that Xi was returning to the struggle sessions of the Cultural Revolution.

But dunce caps aside, the irony is that Xi’s critique of Big Tech is similar to recent debates in the United States. He argues that the Internet boom, by creating new billionaires, is worsening inequality. Instead, he wants “common prosperity.” And he complains that social media companies have fostered gaming and other trivial pursuits, rather than a genuine technological revolution. Hard to disagree with any of that.

What makes Xi’s reform campaign dangerous for the Chinese economy is that he’s imposing change with the iron fist of a police state. In place of independent tech giants such as Alibaba and Tencent, he prefers state-owned enterprises, or “little giants,” that accept Communist Party authority. Docile, compliant tech executives may satisfy Xi’s commissars, but they may be less likely to produce the breakthrough ideas that can power Xi’s “China Dream.”

“People are watching,” says Christopher M. Schroeder, a global investor who talks frequently with young Chinese tech innovators. “Many entrepreneurs I’ve spoken to understand government concerns that Ant, as an example, may have had legitimate issues that needed to be addressed before going public,” he says, and he doubts there will be a “slowing of the astounding rise of tech start-ups in China.” But it’s a wary moment.

Christopher Johnson, a former CIA analyst who now runs a consulting firm called China Strategies Group, notes Xi’s comments last month to a Politburo “study session on the digital economy.” Xi stressed that to “seize the commanding heights” of global technology, he wants to make China self-reliant in core technologies, such as semiconductors, “as soon as possible.” That means less emphasis on social media platforms and digital commerce, where China’s tech giants had been so successful.

Xi’s message, says Johnson: “Elites and tech moguls need to quit their complaining and get on board, or they will be left to the dustbin of history.”

For the United States, here’s the potential benefit of Xi’s diktats on tech: Imagine a brilliant young Chinese computer scientist studying at Stanford, say, or working for Google. Returning home to China may look a bit less attractive — and certainly less lucrative — than it did a year ago. In Shanghai or Silicon Valley, brainpower doesn’t follow orders from politicians.

#### China is already prepared to become the tech-hegemon---US attempts to control the industry are ineffective

Mozur & Lee Myers 21 (Paul Mozur, a technology correspondent focused on the intersection of technology and geopolitics in Asia and Steven Lee Myers, the Beijing bureau chief for The New York Times, 3-10-2021, "Xi’s Gambit: China Plans for a World Without American Technology (Published 2021)," New York Times, https://www.nytimes.com/2021/03/10/business/china-us-tech-rivalry.html, DOA: 7-10-2022//Smarx Ahsan)

China is freeing up tens of billions of dollars for its tech industry to borrow. It is cataloging the sectors where the United States or others could cut off access to crucial technologies. And when its leaders released their most important economic plans last week, they laid out their ambitions to become an innovation superpower beholden to none.

Anticipating efforts by the Biden administration to continue to challenge China’s technological rise, the country’s leaders are accelerating plans to go it alone, seeking to address vulnerabilities in the country’s economy that could thwart its ambitions in a wide range of industries, from smartphones to jet engines.

China has made audacious and ambitious plans before — in 2015 — but is falling short of its goals. With more countries becoming wary of China’s behavior and its growing economic might, Beijing’s drive for technological independence has taken on a new urgency. The country’s new five-year plan, made public on Friday, called tech development a matter of national security, not just economic development, a break from the previous plan.

The plan pledged to increase spending on research and development by 7 percent annually, including the public and private sectors. That figure was higher than budget increases for China’s military, which is slated to grow 6.8 percent next year, raising the prospect of an era of looming Cold War-like competition with the United States.

The spending pledges follow four tumultuous years during which President Donald J. Trump rattled — and angered — the Communist Party leadership under Xi Jinping by restricting access to American technology for some of its corporate giants, including Huawei.

The experience has hardened a view that the United States, even under a new administration, is determined to undercut the country’s advancement and that China can no longer rely on the West for a stable supply of the technologies that help drive its economic growth.

“The United States, which has already climbed to the summit, wants to kick away the ladder,” Zhang Xiaojing, an economist with the Chinese Academy of Social Sciences, wrote on the eve of the legislative meetings now underway in Beijing.

The road to the “global peaks of technology,” as Mr. Xi has described China’s aspirations, is decidedly uphill. The government had previously set out to spend 2.5 percent of gross domestic product on research and development in the last five years, but actual expenditures failed to reach that target.

One sector that China has struggled with is microchips, which much of its electronics production relies on. Bewilderingly complex production has stymied Chinese businesses, which instead import the majority of the semiconductors they require. Despite tens of billions of dollars invested, China’s domestic chip production met only 15.9 percent of its chip demand in 2020, barely higher than the 15.1 percent share it accounted for in 2014, according to IC Insights, an American semiconductor research firm.

China’s premier, Li Keqiang, last week detailed proposals to accelerate the development of high-end semiconductors, operating systems, computer processors, cloud computing and artificial intelligence.

“I think they’re really worried,” said Rebecca Arcesati, a tech analyst with the Mercator Institute for China Studies in Berlin. “They know that without access to those technologies, they won’t be able to reach their targets.”

The new strategy, to a degree, rebrands the country’s previous Made in China 2025 campaign, which sought to propel it to the lead in a range of cutting-edge technologies. It broadly set out to produce 70 percent of the core components that Chinese manufacturers needed by 2025. The plan scared trade partners and contributed to a punishing trade war with the United States.

“China wants to reduce its dependency on the world — not to reduce its trade and interaction but to ensure that it is not vulnerable to the kind of strategic blackmail against China that it has historically used against others,” said Daniel Russel, a former American diplomat who is now a vice president at the Asia Society Policy Institute.

A confrontation has been brewing for more than a decade. Long-held Chinese policies to winnow reliance on foreign tech got a boost in 2013, after disclosures by Edward Snowden about National Security Agency hacks that relied on American firms.

American companies have long complained about policies mandating tech transfer. Chinese government-backed hacks aimed at American intellectual property have further raised tensions. China has in the past used corporate espionage to support economic interests, including in the high-tech fields that the government is now making a priority.

The latest intrusion against business and government agencies used Microsoft email systems and was discovered last weekend. Tentatively linked to Chinese hackers, it is likely to sharpen a divide that could split the tech world.

In recent weeks, Chinese officials have repeatedly emphasized the danger of “choke points” where the United States controls key foundational technologies. At a news conference in Beijing, Xiao Yaqing, who leads the Ministry of Industry and Information Technology, announced a review of 41 sectors for “empty spots” that could cause the tech supply chain to break “during crucial times.”

Beijing is backing this effort with money and rhetoric.

China Development Bank, the country’s policy lender, said last week that it was preparing over $60 billion in loans for more than 1,000 firms key to strategic innovation and had raised $30 billion for a new government-backed microchip investment fund.

A Chinese Academy of Engineering official, Ni Guangnan, wrote recently that the country should create a “Chinese system” that could supplant the combined systems of Intel, Microsoft, Oracle and others that have historically dominated computing. China should also increase the world’s reliance on its telecom infrastructure technology to “form a powerful deterrent” against future embargoes, he added.

The tech supply chain remains hugely complex and resolutely global, and too much meddling in the markets can have unforeseen consequences, experts have warned. Top-down jockeying by the United States and China over microchips has in part triggered a chip shortage that recently hit the auto industry.

Neither country can imminently attain true self-reliance in the myriad cutting-edge technologies required to run a modern economy and military. In place of overarching policies, a proxy fight is emerging, with both sides working to secure missing pieces that come from other countries.

Many American allies have been happy to see their companies take advantage of a Chinese market increasingly emptied of American companies.

Earlier this month, ASML, a Dutch company that makes the tools required to mass produce microchips, said it had extended a contract to provide equipment to China’s largest semiconductor maker, even though Washington put the firm, known as SMIC, on a blacklist last year. The extension did not break any restrictions, but showed how there are limits to the United States’ ability to cut off supplies.

Decisions like that could continue to frustrate President Biden, who has cast China as the country’s most significant foreign policy challenge. China hopes to undercut American efforts to isolate it by entwining itself with major economies, including those politically allied with the United States.

“They’re certainly speaking and acting with a view of discouraging third countries from joining any posse the United States might organize against China,” Mr. Russel of the Asia Society Policy Institute said. The goal is to buy “time needed by China to seal up the remaining vulnerabilities in its armor.”

Whatever hopes Chinese leaders had about a diplomatic reset after the Trump years appear to have already waned.

Mr. Biden’s first conversation with Mr. Xi lasted about two hours and, according to the White House, included discussions about “Beijing’s coercive and unfair economic practices.”

At home, Mr. Biden has warned that the United States needs to keep up with China on investments in infrastructure, some in support of tech industries, including electric vehicles. “If we don’t get moving, they’re going to eat our lunch,” he said while making the case for the $1.9 trillion economic stimulus plan.

The phrase echoed one he had made as a candidate only two years before — to dismiss the challenge posed by China. “China’s going to eat our lunch?” he said while stumping in Iowa in 2019. “C’mon, man!”

### China Good---AT: Defense---2NC

#### US attempts to ensure tech dominance cause war---Chinese persistence escalates

Layne 20 (Christopher Layne, University Distinguished Professor of International Affairs and Robert M. Gates Chair in National Security at Texas A&M University and the author of the forthcoming book After the Fall: International Politics, U.S. Grand Strategy, and the End of the Pax Americana.; “Coming Storms The Return of Great-Power War”; Foreign Affairs; November/December 2020; <https://www.foreignaffairs.com/articles/united-states/2020-10-13/coming-storms//Smarx> Ahsan)

DANGER AHEAD

Today, the U.S.-Chinese relationship is in free fall. Economic relations are on the rocks due to the Trump administration’s trade war, and U.S. technology policy aims to put Chinese firms such as Huawei out of business. It is easy to see how any number of flash points could trigger a war in the coming years. Events on the Korean Peninsula could draw in the United States and China, and both countries’ military maneuvers have raised tensions in the South China Sea and the Taiwan Strait. Washington is also challenging long-established understandings about Taiwan’s status by edging closer to recognizing the island’s independence from China and openly acknowledging the United States’ military commitment to defend Taiwan. The United States has also reacted strongly to Beijing’s repression of China’s Uighur Muslim minority and to its imposition of a harsh new security law on Hong Kong. In both cases, a bipartisan array of U.S. officials have condemned China, and both Congress and the Trump administration have imposed retaliatory sanctions.

Despite such pushback, however, China is unlikely to abandon its goal of becoming a regional hegemon in East Asia. Beijing will also continue pressing the United States to accord it respect as a great-power equal. Avoiding war by accommodating China’s desires would require the United States to retract its security guarantee to Taiwan and recognize Beijing’s claims on the island. Washington would also need to accept the reality that its liberal values are not universal and thus stop interfering in China’s internal affairs by condemning Beijing’s policies in Hong Kong and Xinjiang and issuing thinly veiled calls for regime change.

There is little chance that the United States will take those steps. Doing so would mean acknowledging the end of U.S. primacy. This makes the prospect of a hot war ever more likely. Unlike during the Cold War, when the United States and the Soviet Union generally accepted each other’s European spheres of influence, today, Washington and Beijing have starkly different views of who should enjoy preeminence in the East China and South China Seas and Taiwan.

If Washington does not cede its dominance in East Asia it is on the fast track to war.

U.S. public opinion is also unlikely to act as a check on this potential march to war. Historically, the country’s foreign policy establishment has not been particularly responsive to public opinion, and many American voters know little about U.S. overseas military commitments and their implications. In the event of a Chinese attack, especially on Taiwan, the “rally around the flag” effect and the U.S. government’s ability to manipulate public opinion would likely neuter public opposition to war. U.S. leaders would condemn Beijing as a ruthless, aggressive, and expansionist communist dictatorship aiming to suppress the freedom-loving people of a democratic territory. The U.S. public would be told that war was necessary to uphold the United States’ universal values. Of course, as was the case with World War I, the Vietnam War, and the Iraq war, public disillusionment would set in if the war went badly. By then, however, it would be too late.

### China Good---AT: Huawei Bad---2NC

#### Their ev is alarmist --- Huawei is safe, and bans are unnecessary

Stokel-Walker 19 (Chris Stokel-Walker, News and features journalist, The Times & Sunday Times, The Economist, Bloomberg, the BBC and WIRED, specializing in digital culture, 4-1-2019, "There’s little evidence that a Huawei 5G ban is the right approach," New Scientist, https://www.newscientist.com/article/2200766-theres-little-evidence-that-a-huawei-5g-ban-is-the-right-approach/, DOA: 7-5-2022//Smarx Ahsan)

The UK government is happy to allow Huawei equipment to form part of the UK’s 5G network – just not any of the crucial parts, according to leaked discussions from the National Security Council. The United States and Australia have taken a much more hardline approach, with complete bans on using Huawei equipment to form any part of their 5G network. What is all the worry about?

According to telecoms firm Qualcomm, 5G mobile internet gives a massive speed boost – at least 10 or 20 times greater – over our current 4G networks. As devices start sharing more and more data, from phones streaming data-rich video to self-driving cars, it’s vital to have a speedy connection.

Countries across the world are currently planning their 5G networks and as one of the world’s largest tech firms, Huawei is vying for the business – but finding closed doors.

The main fear is that Huawei will install snooping devices at the behest of the Chinese government – a worry that stems from a belief that it’s not possible to operate in China without engaging with the state apparatus and acting as an arm of its spy network.

It’s a concern stoked by Chinese plans to pass a cybersecurity law that requires Chinese companies transferring data to store “important data” in the country – where outsiders fear it could be accessed easily by state mandate.

The UK regularly monitors Huawei’s equipment as part of the Huawei Cyber Security Evaluation Centre Oversight Board – a body set up to allay fears about the technology being tampered with. The apparent decision from the UK’s National Security Council is to give Huawei access only to the edge of the 5G network, which does not involve the transmission of sensitive information, keeping the core of the network safe.

Bans for Huawei

However other countries have gone further. Last August, Australia’s communication minister and home affairs minister said in a joint statement that there is a risk that companies subject to foreign governments may be asked give unauthorized access to their networks. Though the statement didn’t explicitly mention Huawei, the firm later said they had been banned from being involved with Australia’s 5G infrastructure.

Similar noises have been made in the US. A US State Department ambassador warned in February that Huawei and other Chinese technology companies posed a “threat”, and that they shouldn’t be allowed to engage with key communications infrastructure, such as antennas and mast-based equipment to access the network.

The European Union has yet to take a stance, asking member states to submit its own cybersecurity assessments of Huawei’s involvement in Europe’s 5G network by the end of June. In March a representative of the German intelligence service said Huawei shouldn’t be involved in the country’s 5G network.

The fears may be unfounded however. Sensitive data should never be sent over a public network without being encrypted anyway. This means that even if the message is intercepted it’s nearly impossible to read.

Additionally, so far no evidence has made it into the public domain showing that Huawei has mishandled data or is tied up with the Chinese state.

No one company should be entrusted with something as critical as the 5G network, as if something goes wrong, intentionally or otherwise, it could have devastating effects. But if the infrastructure is distributed among many different groups, others can pick up the slack if needed.

### China Good---AT: Huawei Fails---2NC

#### Huawei and China’s 5G has sustained the lead DESPITE numerous setbacks globally

Sacks 21 (David Sacks, a research fellow at the Council on Foreign Relations, where his work focuses on U.S.-China relations, U.S.-Taiwan relations, Chinese foreign policy, cross-Strait relations, and the political thought of Hans Morgenthau, 3-29-2021, "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, DOA: 7-5-2022//Smarx Ahsan)

In 2015, China added the Digital Silk Road (DSR) to its massive Belt and Road Initiative (BRI). While Beijing uses DSR to offer a suite of technologies to BRI countries, Huawei’s effort to provide next-generation communication networks to countries has drawn the most scrutiny in the United States.

U.S. officials have frequently claimed that Huawei is effectively an extension of the Chinese Communist Party. Under China’s 2017 National Intelligence Law, Huawei, like all Chinese companies and entities, appears legally required to conduct intelligence work on behalf of the Chinese government. According to this analysis, the Chinese government has the ability to use Huawei-built fifth-generation (5G) networks to collect intelligence, monitor critics, and steal intellectual property. There are also worries that the company might bow to government demands and disable networks to exert coercive pressure on a country.

The United States also has commercial concerns. Once Huawei builds a country’s 5G network, that country is likely to choose Huawei to upgrade those systems when newer technologies become available, thus excluding U.S. companies for potentially decades. Huawei has already finalized more 5G contracts than any other telecom company, half of which are for 5G networks in Europe.

In Africa, Huawei has built 70 percent of the continent’s 4G networks and has signed the only formal agreement on 5G, with South African wireless carrier Rain. The export of Huawei telecom equipment along the DSR has enabled the company’s share of global telecom equipment to increase by 40 percent in the years since BRI was rolled out.

In response to growing concerns about Huawei’s reach, the Trump administration leveraged U.S. dominance in advanced semiconductors to bar sales of essential computer chips to the company without a specific license. Access to U.S. chips, particularly 5G-related semiconductors that enable wireless communications, network management, and data storage, is crucial to Huawei, which is reported to be running out of supply. The Trump administration also pressured countries not to use Chinese components in their 5G infrastructure.

As part of a CFR Independent Task Force on BRI, we analyzed every country’s official policy toward Huawei 5G and the extent to which this pressure campaign has succeeded. We found that in addition to the United States, eight countries have issued outright bans of the company. Almost all of these are close U.S. allies such as Australia, Japan, and the United Kingdom.

More countries have taken a quieter approach, attempting to simultaneously allay U.S. concerns and not provoke a Chinese response. Some have taken measures that amount to a de facto ban without actually barring Huawei. For example:

* India has not formally banned the company but has begun to phase out the use of Huawei equipment in future projects, and is reportedly weighing a formal ban.
* France announced telecommunications operators would not be able to renew licenses for Huawei equipment when they expired, effectively phasing out the company’s presence in the country.
* Vietnam has not barred Huawei, but its service providers have avoided using its equipment in both their 4G and 5G networks.
* Italy’s government vetoed a deal between Huawei and telecommunications provider Fastweb that would have used Huawei as the sole supplier of its 5G network.
* Canada has put off a decision on Huawei for so long that its companies have chosen to exclude Huawei from their 5G networks due to the risk that they will be forced to replace the equipment in the future.

Still, others have chosen to use Huawei’s competitors without taking a public stance against the company. The largest telecommunications firms in Belgium, Croatia, Finland, Greece, Norway, Portugal, Singapore, and Spain have all contracted with Ericsson or Nokia to build their 5G networks.

#### Decoupling isn’t the solution---International Cooperation is best

Zhang et al. 22 (Marina Yue Zhang is an associate professor of innovation and entrepreneurship at Swinburne University of Technology, David Gann is vice-chancellor for development and external affairs, and a professor of innovation and Entrepreneurship, Saïd Business School, University of Oxford, Mark Dodgson is a visiting professor at Imperial College Business School and emeritus professor at the School of Business, The University of Queensland, 5-5-2022, "The rising risk of China’s tech decoupling," Asia Times, https://asiatimes.com/2022/05/the-rising-risk-of-chinas-tech-decoupling/, DOA: 7-9-2022//Smarx Ahsan)

China has had the world’s fastest-growing economy since the 1980s. A key driver of this extraordinary growth has been the country’s pragmatic system of innovation, which balances government steering and market-oriented entrepreneurs.

Right now, this system is undergoing changes that may have profound implications for the global economic and political order.

The Chinese government is pushing for better research and development, “smart manufacturing” facilities and a more sophisticated digital economy. At the same time, tensions between China and the West are straining international cooperation in industries such as semiconductor and biopharmaceutical manufacturing.

Taken together with the shocks of the Covid pandemic, and particularly China’s rapid and large-scale lockdowns, these developments could lead to a decoupling of China’s innovation system from the rest of the world.

Balancing government and market

China’s current “innovation machine” started developing during the late 1970s when economic reforms lessened the role of state ownership and central planning. In their place, room was made for the market to try new ideas through trial and error.

The government sets regulations aligned to the state’s objectives and may send signals to investors and entrepreneurs via its own investments or policy settings. Within this setting, private businesses pursue opportunities in their own interests.

However, freedom for businesses may be declining. Last year, the government cracked down on the fintech and private tutoring sectors, which were seen to be misaligned with government goals.

China performs well on many measures of innovation performance, such as

* R&D expenditure,
* Number of scientific and technological publications,
* Numbers of STEM graduates and patents and
* Top university rankings.

Most of these indices, however, measure quantity rather than quality. So, for example, China has:

* produced a huge number of scientific and technological publications but it lags far behind the US in highly cited publications, a measure of the influence and originality of research;
* substantially increased R&D expenditure – but the proportion of its R&D expenditure on basic research, especially by enterprises, is still far lower than in many industrialized countries;
* educated many more STEM graduates than any other country in recent decades, but still lacks top-tier talent in many areas such as artificial intelligence and semiconductors
* applied for the most international patents of any country, but the quality of these patents measured by scientific influence and potential commercial value still lags behind those of international competitors.

Adding “quality” alongside “quantity” will be crucial to China’s innovation ambitions.

In the past, policies have aimed to catch up with known technologies used elsewhere, but China will need to shift focus in order to develop unknown and emerging technologies. This will require both greater investment in longer-term basic research and reforms of the research culture to tolerate failure.

Developing smart manufacturing

Chinese firms can already translate complex designs into mass production with high precision and unmatched speed and cost. As a result, Chinese manufacturing appeals to high-tech companies such as Apple and Tesla.

The next step is upgrading toward “industry 4.0” smart manufacturing, aligned with the core industries listed in the government’s Made in China 2025 blueprint.

By 2020, China had built 11 “lighthouse factories” – benchmark “smart” manufacturers – the most of any country in the World Economic Forum’s “global lighthouse network.”

China’s giant tech companies such as Alibaba, Tencent and Huawei are also using machine learning and big data analytics to innovate in other fields, including pharmaceutical research and autonomous driving.

In China, the regulations for biotechnology, bioengineering and biopharmaceuticals are relatively relaxed. This has attracted researchers and investors to several leading biotechnology “clusters.”

China’s population of more than 1.4 billion people also means that even for rare diseases it has large numbers of patients. Using large patient databases, companies are making advances in precision medicine (treatments tailored to an individual’s genes, environment, and lifestyle).

The rising power of China’s big tech firms has seen the government step in to maintain fair market competition. Regulations force digital firms to share user data and consolidate critical “platform goods,” such as mobile payments, across their ecosystems.

International collaboration is key

As we have seen in the recent triumph of Covid-19 vaccines, global collaboration in R&D is hugely valuable. However, there are signs that such collaboration between China and the West may be under threat.

The semiconductor manufacturing industry – making the chips and circuits that drive modern electronics – is now global, but at risk of fragmentation.

Making chips requires huge amounts of knowledge and capital investment, and while China is the world’s largest consumer of semiconductors, it relies heavily on imports. However, US sanctions mean many global semiconductor companies cannot sell in China.

China is now investing vast sums in an attempt to be able to make all the semiconductors it needs.

If China succeeds in this, one consequence is that Chinese-made semiconductors will likely use different technical standards from the current ones.

Different standards

Diverging technical standards may seem like a minor issue, but it will make it more difficult for Chinese and Western technologies and products to work together. This in turn may reduce global trade and investment, with bad results for consumers.

Decoupling standards will deepen the fracture between Chinese and Western digital innovation. This in turn will likely lead to further decoupling in finance, trade and data.

At a time of heightened international tensions, both China and the West need to be clear on the value of international collaboration in innovation.

### China Good---AT: No Link---2NC

#### Disruptions to Huawei deck broad Chinese Tech development --- COMPETES Act proves

Feng 20 (Emily Feng, recipient of the 2022 Shorenstein Journalism Award for her overall reporting on the Asia Pacific, 5-28-2020, "The Latest U.S. Blow To China's Huawei Could Knock Out Its Global 5G Plans," NPR.org, https://www.npr.org/2020/05/28/862658646/the-latest-u-s-blow-to-chinas-huawei-could-knock-out-its-global-5g-plans, DOA: 7-5-2022//Smarx Ahsan)

The United States put up another major roadblock this month against Huawei, as China's big telecommunications company moves to set up the latest 5G mobile networks worldwide.

On May 19, the Commerce Department issued new export rules to choke off Huawei's access to semiconductor chips it needs to build cellphones and 5G infrastructure.

The new controls ban chipmakers — mostly based in South Korea and Taiwan — from using U.S. machines and software to manufacture semiconductors for Huawei. That closes a loophole that had allowed semiconductor makers to continue to sell components and designs to Huawei as long as they were made outside the U.S.

Analysts say this latest move likely spells a death knell for Huawei's global ambitions by freezing out the Chinese company from fundamental semiconductor technology and by raising the costs for hundreds of countries that were relying on Huawei components for their 5G expansion plans, including many in Europe. The new restrictions dramatically raise the stakes in the ongoing battle for technological superiority between the U.S. and China.

How the controls are enforced will be a sweeping test of how far America's historical dominance in high-tech sectors like semiconductors can extend in dictating the behavior of non-U.S. firms.

"It's an absolute watershed moment because it's the beginning of an emerging techno-nationalist reality," says Alex Capri, a fellow at the National University of Singapore who researches supply chains.

Huawei's rotating chairman, Guo Ping, acknowledges the obstacles in the past year of components out of reach. "Survival is the keyword for us now," he said at the company's annual analyst conference last week.

According to the U.S. government, the company and its affiliates pose a national security threat because they could access sensitive information and hand it over to China's government.

"We must amend our rules exploited by Huawei and HiSilicon and prevent U.S. technologies from enabling malign activities contrary to U.S. national security and foreign policy interests," Commerce Secretary Wilbur Ross said in a statement.

Huawei's executives say the company follows the law and deny it would give data to the Chinese government.

Huawei's way

A year ago, Huawei defiantly vowed to overcome a U.S. ban that stopped it from buying U.S.-made components, though the Trump administration since gave the company several temporary exemptions. "Huawei is going to climb this mountain ... one thing for sure is we'll make it out alive," Ren Zhengfei, the company's founder, told Business Insider then.

But the newest rules will likely end Huawei's ambitions to become the dominant provider of next-generation mobile technology, analysts say.

Huawei has invested heavily in its own research and development as part of a broader Chinese effort to move away from reliance on foreign technology. HiSilicon, a Huawei subsidiary in Shenzhen, is now one of the most advanced Chinese chip designers.

But even HiSilicon still uses electronic design automation software sold by U.S. firms Cadence and Synopsys to design its chips. HiSilicon also relies completely on the Taiwan Semiconductor Manufacturing Co. and Korean chipmakers like SK Hynix and Samsung to manufacture the actual chips. Those chipmakers in turn rely on American machines from companies like Lam Research and Applied Materials.

China's Semiconductor Manufacturing International Corp., widely seen as the country's most promising competitor to the Taiwanese company, uses U.S. machines as well. But SMIC's manufacturing technology is at least several years behind its Taiwanese competitors, analysts say, meaning it could not immediately substitute even mid-range chips — 14- and 16-nanometer chips — in Huawei's current smartphones.

"Even if you buy the talent and the professors, you can't buy the equipment," says Brett Simpson, a senior analyst at Arete Research. "You design a chip using U.S. software and you build a 'fab' [or manufacturing plant], using U.S. capital equipment. That's the bottom line."

Some Chinese tech companies briefly considered using open-source design standards for future processors and avoid the export controls. Chinese tech giant Alibaba even unveiled a new processor last year using these standards, called RISC-V, but industry experts say such efforts cannot easily be scaled.

"The U.S. government has decided to sort of weaponize this U.S. technology dominance in semiconductor manufacturing and semiconductor design and across the board," says Paul Triolo, a technology policy analyst at Eurasia Group. He says that will have reverberations around the world.

Up to 40% of current European 4G mobile network infrastructure is from Huawei, and much of the 5G upgrading will go on top of that. That includes the United Kingdom, where the government is under pressure to bar Huawei from the U.K.'s networks. The new U.S. export controls could cut off procurement of new parts to service existing 4G base stations and thus jeopardize the building of future 5G networks in partnership with Huawei.

"This new rule will impact the expansion, maintenance, and continuous operations of networks worth hundreds of billions of dollars that we have rolled out in more than 170 countries," Huawei said in a statement after the U.S. controls were announced.

### China Good---AT: No Internal---2NC

#### Winning the 5G tech race determines military superiority and IoT control

Zhen 19 (Liu Zhen, reporter for the South China Morning Post, 1-31-2019, "Why 5G, a battleground for US and China, is also a military conflict," South China Morning Post, https://www.scmp.com/news/china/military/article/2184493/why-5g-battleground-us-and-china-also-fight-military-supremacy, DOA: 7-9-2022//Smarx Ahsan---Edited for Spelling)

Apart from its tremendous commercial benefits, 5G – the fifth generation of mobile communication – is revolutionizing military and security technology, which is partly why it has become a focal point in the United States’ efforts to contain China’s rise as a tech power and its allegations against Chinese companies.

The future landscape of warfare and cybersecurity could be fundamentally changed by 5G. But experts say 5G is more susceptible to hacking than previous networks, at a time of rising security concerns and US-China tensions on various interconnected fronts that include trade, influence in the Asia-Pacific region and technological rivalry.

These tensions provide the backdrop to controversy surrounding Huawei, the world’s largest telecoms equipment supplier.

Long before the Chinese company was indicted in the US this week on multiple charges including stealing trade secrets and violating US sanctions – charges it denies – US intelligence voiced concerns that Huawei’s telecommunications equipment could contain “back doors” for Chinese espionage.

Huawei has repeatedly denied these allegations, but the controversies have underlined 5G’s growing importance and stepped up the technological arms race between China and the US.

To most people, the next-generation networks, which will be at least 20 times faster than the most advanced networks today, may just mean faster downloads of movies or smoother streaming. But they have much bigger potential than that.

Whereas existing networks connect people to people, the next generation will connect a vast network of sensors, robots and autonomous vehicles through sophisticated artificial intelligence.

The so-called internet of things will allow objects to “communicate” with each other by exchanging vast volumes of data in real time, and without human intervention.

Autonomous factories, long-distance surgery or robots preparing your breakfast – things that previously existed only in science fiction – will be made possible.

Meanwhile, though, it is being identified by many military experts as the cornerstone of future military technology.

Imagine a group of skirmishers in a jungle. They are moving forward speedily with a distance from one another of a few hundred meters. Each of them wears a wristwatch that displays fellow members’ positions. This is not satellite positioning, because reception in the tropical forest is unstable; it’s machine-to-machine communication.

Suddenly one soldier, ambushed by an enemy combatant, is shot and loses consciousness. His smart wearable device detects his condition via sensors, immediately tightens a belt around his wounded thigh, injects an adrenaline shot and sends an emergency alert to the field hospital as well as the entire team.

Having received the signal on their wristwatches, the team switch to a coordinated combat formation and encircle the enemy. An ambulance helicopter arrives to evacuate the injured soldier while auto-driven armoured vehicles come to reinforce – guided by devices on each soldier and antenna arrays nearby.

Or, imagine a street battle with a group of terrorists in a city. There is a power blackout and terrorists hide in an empty office building. A counterterrorism technician hacks into the building’s audio control system and collects high-sensitivity soundwaves using the microphones on surveillance cameras – the system is still running thanks to the devices’ low power consumption and long endurance.

After the acoustic data is sent back, artificial intelligence (AI) analysis determines the locations of the terrorists. A drone is called from nearby, enters through a window and fires a mini-gun at them.

These are not movie plots, but technologies already or about to be developed, as the internet of things – built on 5G and AI technologies – reshapes warfare.

“The 5G network and the internet of things enlarge and deepen the cognition of situations in the battlefield by several orders of magnitude and produce gigantic amounts of data, requiring AI to analyze and even issue commands,” said Dr Clark Shu, an AI and telecommunication researcher at the University of Electronic Science and Technology of China.

With the ability to carry much more data, much lower network latency (network response time) and energy consumption and much better stability than the previous generation of technologies, 5G is expected to transform digital communication.

Using 5G, data can be transmitted at up to 10 gigabytes per second, much faster than using a 4G network, and the latency is reduced to under a millisecond, or 1 per cent that of 4G.

Such features enhance connectivity in remote locations, connect sensors and robots, and will enable vehicles, traffic control, factories and construction to become more autonomous. In particular, 5G will enhance the connectivity of the internet of things (IoT).

“Internet of things involves close-range telecommunications technology to connect and exchange information between two devices, and 5G is the fastest data transmission method to realize it,” said Zhou Zhaoxiong, a senior engineer at China Mobile IoT Company, a subsidiary of China Mobile.

Military equipment embedded with communication devices can also form the internet of things, he added. The communication can take place from device to device, without satellites or early-warning planes, saving those limited resources for other uses and significantly lowering the cost of a military operation, according to a 2017 report in China Defence News, a mouthpiece of China’s People’s Liberation Army (PLA).

China has been one of the powerhouses in research and development of 5G technologies. Its telecoms operators have said they will begin to introduce commercial 5G networks from 2020, although Zhou said this would involve only regional pilot schemes because 5G devices are still quite expensive for mass commercial use.

Last week, Huawei launched a chip that it claimed to be the world’s most powerful 5G modem.

Then came the US Justice Department’s 13-count indictment on Monday against the Chinese company, its affiliates and its chief financial officer Sabrina Meng Wanzhou, following the arrest of Meng in Canada on December 1 at the US’ request.

But questions over the 5G technology made by Huawei and other Chinese firms date back further. In 2012, the US House Intelligence Committee released a report alleging Chinese telecoms equipment makers posed a threat to national security because of their relationship with the Chinese government. China’s 2017 National Intelligence Law asks Chinese companies to cooperate for national intelligence purposes when necessary.

The US has lobbied its allies to ban Huawei from building their next generation of mobile phone networks, and countries such as Britain, Germany, Australia, New Zealand and Canada have either banned Huawei or are reviewing whether to do so.

Huawei’s founder Ren Zhengfei – Meng’s father – is a former PLA engineer, which has further fueled questions in the West about Huawei’s ties to the Chinese army and government.

But Huawei executives have asked repeatedly, in vain, for evidence of “back doors” in its equipment. BIS, the German internet security watchdog, inspected Huawei labs in Germany and found no evidence, and The New York Times last week quoted American officials as saying that the case against the company had “no smoking gun – just a heightened concern about the firm’s rising technological dominance”.

Moves by the US and its allies to block Huawei from 5G networks on national security grounds were last month described as a “concerted strategy” by Kevin Allison, of US-headquartered political risk consultancy Eurasia Group, talking to US broadcaster CNBC.

A report last year to the White House by the US’ National Security Council called for action and strategy to “protect US technology leadership” and prevent China challenging US dominance in tech.

Song Zhongping, a Hong Kong-based military commentator, said China has commissioned research institutions and state-owned companies, not Huawei, for its military 5G development.

“For example, branches of the China Electronics Technology Group Corporation, which makes military radars and other electronic systems, are focused in this area,” said Song.

The US, too, has been investing in military use of 5G, while prototype 5G networks for civilian use have been launched in some cities.

In a recent interview with military technologies publication C4ISRNET, Brent Upson, a director at American aerospace and security company Lockheed Martin, predicted machine-to-machine communication, using information from several sources to form a unified picture of battlespaces, and AI-assisted decision-making would be among the trends in 2019.

Todd Wieser, chief technology officer of the US Air Force’s Special Operations Command, has said 5G tech will enhance his forces’ mobile communications and geospatial functionality.

But commercial 5G networks are regarded by the US government as easy prey for foreign intelligence agents and hackers, and such concerns are heightened where a military network is subject to hacking and intrusion attempts by adversaries.

“The biggest disadvantage of a 5G network in the battlefield is the vulnerability to electromagnetic interference – and hacking and intrusion,” said Shu.

“The significant increase in sensors and data nodes means an increase of exposure, and an increased risk of being attacked.”

## Turn---5G Bad

### Turn---1NC

#### 5G causes planetary extinction---decimates the environment.

Curran ’20 (Claire Curran, International Policy Institute Cybersecurity Fellow. “What Will 5G Mean for the Environment?” 01/30/20 <https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/>) ☺

Beginning 2020, the fifth generation of wireless technology is expected to be widely implemented throughout the world. The new network, called 5G, promises to give faster speeds and a higher capacity for the use of more devices. However, while companies from countries such as the United States and China are competing to be the first to deliver 5G to the consumer, the environmental impacts of the new network are being overlooked. In a time when the environment is at its most delicate, overlooking these impacts is extremely risky for future generations.

The main environmental issues associated with the implementation of the 5G network come with the manufacturing of the many component parts of the 5G infrastructure. In addition, the proliferation of new devices that will use the 5G network that is tied to the acceleration of demand from consumers for new 5G-dependent devices will have serious environmental consequences.

The 5G network will inevitably cause a large increase in energy usage among consumers, which is already one of the main contributors to climate change. Additionally, the manufacturing and maintenance of the new technologies associated with 5G creates waste and uses important resources that have detrimental consequences for the environment. 5G networks use technology that has harmful effects on birds, which in turn has cascading effects through entire ecosystems. And, while 5G developers are seeking to create a network that has fewer environmental impacts than past networks, there is still room for improvement and the consequences of 5G should be considered before it is widely rolled out.

What is 5G?

5G stands for the fifth generation of wireless technology. It is the wave of wireless technology surpassing the 4G network that is used now. Previous generations brought the first cell phones (1G), text messaging (2G), online capabilities (3G), and faster speed (4G).[[1]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn1) The fifth generation aims to increase the speed of data movement, be more responsive, and allow for greater connectivity of devices simultaneously.[[2]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn2) This means that 5G will allow for nearly instantaneous downloading of data that, with the current network, would take hours. For example, downloading a movie using 5G would take mere seconds. These new improvements will allow for self-driving cars, massive expansion of Internet of Things (IoT) device use, and acceleration of new technological advancements used in everyday activities by a much wider range of people.

While 5G is not fully developed, it is expected to consist of at least five new technologies that allow it to perform much more complicated tasks at faster speeds. The new technologies 5G will use are hardware that works with much higher frequencies (millimeter wavelengths), small cells, massive MIMO (multiple input multiple output), beamforming, and full duplex.[[3]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn3) Working together, these new technologies will expand the potential of many of the devices used today and devices being developed for the future.

Millimeter waves are a higher frequency wavelength than the radio wavelength generally used in wireless transmission today.[[4]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn4) The use of this portion of the spectrum corresponds to higher frequency and shorter wavelengths, in this case in the millimeter range (vs the lower radio frequencies where the wavelengths can be in the meters to hundreds of kilometers). Higher frequency waves allow for more devices to be connected to the same network at the same time, because there is more space available compared to the radio waves that are used today. The use of this portion of the spectrum has much longer wavelengths than of that anticipated for a portion of the 5G implementation. The waves in use now can measure up to tens of centimeters, while the new 5G waves would be no greater than ten millimeters.[[5]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn5) The millimeter waves will create more transmission space for the ever-expanding number of people and devices crowding the current networks. The millimeter waves will create more space for devices to be used by consumers, which will increase energy usage, subsequently leading to increased global warming.

Millimeter waves are very weak in their ability to connect two devices, which is why 5G needs something called “small cells” to give full, uninterrupted coverage. Small cells are essentially miniature cell towers that would be placed 250 meters apart throughout cities and other areas needing coverage.[[6]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn6) The small cells are necessary as emissions [or signals] at this higher frequency/shorter wavelength have more difficulty passing through solid objects and are even easily intercepted by rain.[[7]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn7) The small cells could be placed on anything from trees to street lights to the sides of businesses and homes to maximize connection and limit “dead zones” (areas where connections are lost).[[8]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn8)

The next new piece of technology necessary for 5G is massive MIMO, which stands for multiple input multiple output. The MIMO describes the capacity of 5G’s base stations, because those base stations would be able to handle a much higher amount of data at any one moment of time. Currently, 4G base stations have around eight transmitters and four receivers which direct the flow of data between devices.[[9]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn9) 5G will exceed this capacity with the use of massive MIMO that can handle 22 times more ports.[[10]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn10) Figure 1 shows how a massive MIMO tower would be able to direct a higher number of connections at once. However, massive MIMO causes signals to be crossed more easily.  Crossed signals cause an interruption in the transmission of data from one device to the next due to a clashing of the wavelengths as they travel to their respective destinations. To overcome the cross signals problem, beamforming is needed.

To maximize the efficiency of sending data another new technology called beamforming will be used in 5G. For data to be sent to the correct user, a way of directing the wavelengths without interference is necessary. This is done through a technique called beamforming. Beamforming directs where exactly data are being sent by using a variety of antennas to organize signals based on certain characteristics, such as the magnitude of the signal.[[12]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn12) By directly sending signals to where they need to go, beamforming decreases the chances that a signal is dropped due to the interference of a physical object.

One way that 5G will follow through on its promise of faster data transmission is through sending and receiving data simultaneously.[[13]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn13) The method that allows for simultaneous input and output of data is called full duplexing. While full duplex capabilities allow for faster transmission of data, there is an issue of signal interference, because of echoes.[[14]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn14) Full duplexing will cut transmission times in half, because it allows for a response to occur as soon as an input is delivered, eliminating the turnaround time that is seen in transmission today.

Because these technologies are new and untested, it is hard to say how they will impact our environment. This raises another issue: there are impacts that can be anticipated and predicted, but there are also unanticipated impacts because much of the new technologies are untested. Nevertheless, it is possible to anticipate some of detrimental environmental consequences of the new technologies and the 5G network, because we know these technologies will increase exposure to harmful radiation, increase mining of rare minerals, increase waste, and increase energy usage. The main 5G environmental concerns have to do with two of the five new components: the millimeter waves and the small cells.

Increased Energy Usage of the 5G Network

The whole aim of the new 5G network is to allow for more devices to be used by the consumer at faster rates than ever before, because of this goal there will certainly be an increase in energy usage globally. Energy usage is one of the main contributors to climate change today and an increase in energy usage would cause climate change to increase drastically as well. 5G will operate on a higher frequency portion of the spectrum to open new space for more devices. The smaller size of the millimeter waves compared to radio frequency waves allows for more data to be shared more quickly and creates a wide bandwidth that can support much larger tasks.[[15]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn15) While the idea of more space for devices to be used is great for consumers, this will lead to a spike in energy usage for two reasons – the technology itself is energy demanding and will increase demand for more electronic devices. The ability for more devices to be used on the same network creates more incentive for consumers to buy electronics and use them more often. This will have a harmful impact on the environment through increased energy use.

Climate change has several underlying contributors; however, energy usage is gaining attention in its severity with regards to perpetuating climate change. Before 5G has even been released, about 2% of the world’s greenhouse gas emissions can be attributed to the ICT industry.[[16]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn16) While 2% may not seem like a very large portion, it translates to around 860 million tons of greenhouse gas emissions.[[17]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn17) Greenhouse gas emissions are the main contributors to natural disasters, such as flooding and drought, which are increasing severity and occurrence every year. Currently, roughly 85% of the energy used in the United States can be attributed to fossil fuel consumption.[[18]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn18) The dwindling availability of fossil fuels and the environmental burden of releasing these fossil fuels into our atmosphere signal an immediate need to shift to other energy sources. Without a shift to other forms of energy production and the addition of technology allowed by the implementation of 5G, the strain on our environment will rise and the damage may never be repaired. With an increase in energy usage through technology and the implementation of 5G, it can be expected that the climate change issues faced today will only increase.

The overall contribution of carbon dioxide emissions from the ICT industry has a huge impact on climate change and will continue to have even larger impacts without proper actions. In a European Union report, researchers estimated that in order to keep the increase in global temperature below 2° Celsius a decrease in carbon emissions of around 15-30% is necessary by 2020.[[19]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn19)

Engineers claim that the small cells used to provide the 5G connection will be energy efficient and powered in a sustainable way; however the maintenance and production of these cells is more of an issue. Supporters of the 5G network advocate that the small cells will use solar or wind energy to stay sustainable and green.[[20]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn20) These devices, labeled “fuel-cell energy servers” will work as clean energy-based generators for the small cells.[[21]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn21) While implementing base stations that use sustainable energy to function would be a step in the right direction in environmental conservation, it is not the solution to the main issue caused by 5G, which is the impact that the massive amount of new devices in the hands of consumers will have on the amount of energy required to power these devices.

Consumption Increases and 5G Technologies

The wasteful nature of manufacturing and maintenance of both individual devices and the devices used to deliver 5G connection could become a major contributor of climate change. The promise of 5G technology is to expand the number of devices functioning might be the most troubling aspect of the new technology. Cell phones, computers, and other everyday devices are manufactured in a way that puts stress on the environment. A report by the EPA estimated that in 2010, 25% of the world’s greenhouse gas emissions comes from electricity and heat production making it the largest single source of emissions.[[22]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn22) The main gas emitted by this sector is carbon dioxide, due to the burning of natural gas, such as coal, to fuel electricity sources.[[23]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn23) Carbon dioxide is one of the most common greenhouse gases seen in our atmosphere, it traps heat in earth’s atmosphere trying to escape into space, which causes the atmosphere to warm generating climate change.[[24]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn24)

Increased consumption of devices is taking a toll on the environment.[[25]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn25) As consumers gain access to more technologies the cycle of consumption only expands. As new devices are developed, the older devices are thrown out even if they are still functional. Often, big companies will purposefully change their products in ways that make certain partner devices (such as chargers or earphones) unusable–creating demand for new products. Economic incentives mean that companies will continue these practices in spite of the environmental impacts.

One of the main issues with the 5G network and the resulting increase in consumption of technological devices is that the production required for these devices is not sustainable. In the case of making new devices, whether they be new smart-phones or the small cells needed for 5G, the use of nonrenewable metals is required. It is extremely difficult to use metals for manufacturing sustainably, because metals are not a renewable resource.[[26]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn26) Metals used in the manufacturing of the smart devices frequently used today often cannot be recycled in the same way many household items can be recycled. Because these technologies cannot be recycled, they create tons of waste when they are created and tons of waste when they are thrown away.

There are around six billion mobile devices in use today, with this number expected to increase drastically as the global population increases and new devices enter the market.[[27]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn27) One estimate of the life-time carbon emissions of a single device–not including related accessories and network connection–is that a device produces a total of 45kg of carbon dioxide at a medium level of usage over three years. This amount of emission is comparable to that of driving the average European car for 300km.[[28]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn28)

But, the most environmentally taxing stage of a mobile device life cycle is during the production stage, where around 68% of total carbon emissions is produced, equating to 30kg of carbon dioxide.[[29]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn29) To put this into perspective, an iPhone X weighs approximately 0.174kg, so in order to produce the actual device, 172 iPhone X’s worth of carbon dioxide is also created. These emissions vary from person to person and between different devices, but it’s possible to estimate the impact one device has on the environment. 5G grants the capacity for more devices to be used, significantly increase the existing carbon footprint of smart devices today.

Energy usage for the ever-growing number of devices on the market and in homes is another environmental threat that would be greatly increased by the new capabilities brought by the 5G network. Often, energy forecasts overlook the amount of energy that will be consumed by new technologies, which leads to a skewed understanding of the actual amount of energy expected to be used.[[30]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn30) One example of this is with IoT devices.[[31]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn31) IoT is one of the main aspects of 5G people in the technology field are most excited about. 5G will allow for a larger expansion of IoT into the everyday household.[[32]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn32) While some IoT devices promise lower energy usage abilities, the 50 billion new IoT devices expected to be produced and used by consumers will surpass the energy used by today’s electronics.

The small cells required for the 5G network to properly function causes another issue of waste with the new network. Because of the weak nature of the millimeter waves used in the 5G technology, small cells will need to be placed around 250 meters apart to insure continuous connection.[[33]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn33) The main issue with these small cells is that the manufacturing and maintenance of these cells will create a lot of waste. The manufacturing of technology takes a large toll on the environment, due to the consumption of non-renewable resources to produce devices, and technology ending up in landfills. Implementing these small cells into large cities where they must be placed at such a high density will have a drastic impact on technology waste.

Technology is constantly changing and improving, which is one of the huge reasons it has such high economic value.  But, when a technological advancement in small cells happens, the current small cells would have to be replaced. The short lifespan of devices created today makes waste predictable and inevitable. In New York City, where there would have to be at least 3,135,200 small cells, the waste created in just one city when a new advancement in small cells is implemented would have overwhelming consequences on the environment. 5G is just one of many examples of how important it is to look at the consequences of new advancements before their implementation. While it is exciting to see new technology that promises to improve everyday life, the consequences of additional waste and energy usage must be considered to preserve a sustainable environment in the future.

The Impact of 5G on Ecosystems

There is some evidence that the new devices and technologies associated with 5G will be harmful to delicate ecosystems. The main component of the 5G network that will affect the earth’s ecosystems is the millimeter waves. The millimeter waves that are being used in developing the 5G network have never been used at such scale before. This makes it especially difficult to know how they will impact the environment and certain ecosystems. However, studies have found that there are some harms caused by these new technologies.

The millimeter waves, specifically, have been linked to many disturbances in the ecosystems of birds. In a study by the Centre for Environment and Vocational Studies of Punjab University, researchers observed that after exposure to radiation from a cell tower for just 5-30 minutes, the eggs of sparrows were disfigured.[[34]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn34) The disfiguration of birds exposed for such a short amount of time to these frequencies is significant considering that the new 5G network will have a much higher density of base stations (small cells) throughout areas needing connection. The potential dangers of having so many small cells all over areas where birds live could cause whole populations of birds to have mutations that threaten their population’s survival. Additionally, a study done in Spain showed breeding, nesting, and roosting was negatively affected by microwave radiation emitted by a cell tower.[[35]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn35) Again, the issue of the increase in the amount of connection conductors in the form of small cells to provide connection with the 5G network is seen to be harmful to species that live around humans.

Additionally, Warnke found that cellular devices had a detrimental impact on bees.[[36]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn36) In this study, beehives exposed for just ten minutes to 900MHz waves fell victim to colony collapse disorder.[[37]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn37) Colony collapse disorder is when many of the bees living in the hive abandon the hive leaving the queen, the eggs, and a few worker bees. The worker bees exposed to this radiation also had worsened navigational skills, causing them to stop returning to their original hive after about ten days.[[38]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn38) Bees are an incredibly important part of the earth’s ecosystem. Around one-third of the food produced today is dependent on bees for pollination, making bees are a vital part of the agricultural system.[[39]](https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/" \l "_ftn39) Bees not only provide pollination for the plant-based food we eat, but they are also important to maintaining the food livestock eats. Without bees, a vast majority of the food eaten today would be lost or at the very least highly limited. Climate change has already caused a large decline in the world’s bee population.

The impact that the cell towers have on birds and bees is important to understand, because all ecosystems of the earth are interconnected. If one component of an ecosystem is disrupted the whole system will be affected. The disturbances of birds with the cell towers of today would only increase, because with 5G a larger number of small cell radio-tower-like devices would be necessary to ensure high quality connection for users. Having a larger number of high concentrations of these millimeter waves in the form of small cells would cause a wider exposure to bees and birds, and possibly other species that are equally important to our environment.

### Turn---Environment---2NC

#### 5G TKOs nature---energy consumption and radiation alone kill ecosystems.

Nash ’21 (Axel Nash, senior Mobiletrans website editor, previously worked as a managing editor at Android headlines and as an executive editor of UBM Americas, 2/24/21, “5G is Dangerous to Human Beings and Environment: Why and How?” <https://mobiletrans.wondershare.com/5g/5g-dangerous.html>) ☺

The development of the fifth-generation wireless network has promised faster speed and vast capacity for various devices. However, the effects of this wireless network on the environment are overlooked. Since the environment is more delicate, overlooking it might cause adverse effects in the ecosystem for future generations. Many allegations are coming the 5G way, stating the technology is causing health and environmental risks, slowly contributing to the ecosystem's killing due to the high-frequency characteristic of the 5g network.

Biologists and environmental scientists are still studying the environmental impact of the 5G network. However, even with the several controversies, theories, and hoaxes, it is unclear what long-term impact 5G can cause to the environment. The environmental concerns revolve around the effects that the 5G's higher frequencies can cause on humans, animals, diverse plants, and how energy is consumed.

While the dangers of the 5G network on the environment are overlooked even with the international organizations, there still could be adverse effects that may take a while to realize. This means the future generations are likely to suffer consequences linked to the new technology.

If you wonder whether 5G is harmful to the environment, the short answer is that 5G is not suitable for the ecosystem. We understand that 5G emits high-frequency waves that range between 30GHz and300GHz. It means that there must be antennas with proximity, which means more radiation. Therefore, the cellular network will require more energy. Since much of the energy comes from fossil fuels and natural gas, high energy demand will lead to more gas and oil demand, leading to environmental issues. There is a need to look at the bigger picture before ignoring the future consequences of this fast-growing 5G wireless network.

When looking into the effects of the 5G wireless network on plants' health, the millimeter waves are particularly suspected to be absorbed by the rain and plants. The process could leave the food not safe to consume. The irradiated water from rain could ruin the ecosystem. Even the seedlings exposed to radio frequencies are likely to suffer hazardous symptoms, which will cause unknown long-term impacts to the environment and animals.

On the other hand, the 5G technology could lead to weather satellite interference. The frequency bands used in the weather forecast systems to detect the atmospheric water levels are similar to the bands used by 5G wireless technology. Therefore, interfering with these weather satellite frequencies could lead to adverse effects and degrade the weather forecasting. Interference on the weather satellite could lead to large-scale weather events that could lead to harmful climate and environmental risks in the future. If there are chances of interfering with the weather satellite, questions will arise concerning some parametric insurance policies' accuracy.

It is clear the climate change has many underlying contributors, but a few are gaining attention to its severity in causing adverse effects. Before 5G was introduced, the statistics indicated that the ICT industry contributed about 2% of the greenhouse gas emission. The 2% contributor may not seem like a significant portion, but it translates to enormous tons of greenhouse gas emitted. Now that many companies are looking to integrate the 5G network to develop AI systems and communication devices, the chances of contributing to climate change in a higher percentage are increasing. We already understand that the greenhouse gas emission could lead to adverse natural disasters such as droughts and floods, which might increase the severity over the years.

As many people and companies take advantage of the fast-growing 5G technology, new devices are manufactured, leading to high chances of abandoning the old devices. This means a lot of e-waste is likely to stick around, especially the non-renewables. Discarding the old 5G non-compatible devices means that we invite a vast environmental problem if proper plans are not implemented yet.

Further impacts are likely to be experienced regarding the advancement of the 5G network across many countries. The full deployment of 5G means building towers almost everywhere, including on the mountains, forests, and so on, to ensure a robust connection is established. The process could lead to increased radiation to the delicate contributors to the safety of the ecosystem.

#### Wider implementation kills insects and birds and guarantees global warming.

Cho ’20 (Renee Cho, staff writer for the Columbia Climate School, received the Executive Education Certificate in Conservation and Sustainability from the Earth Institute Center for Environmental Sustainability, has been published by [www.insideclimatenews.com](http://www.insideclimatenews.com) and other environmental magazines, former Communications Coordinator for Riverkeeper. “The Coming 5G Revolution: How Will It Affect the Environment?” 08/13/20 <https://news.climate.columbia.edu/2020/08/13/coming-5g-revolution-will-affect-environment/#:~:text=By%20enabling%20more%20people%20to,reducing%20traffic%20congestion%20and%20idling>.) ☺

More energy consumption and emissions

Currently, information and communications technology is responsible for about 4 percent of global electricity consumption, and 1.4 percent of global carbon emissions. But an Ericcson report projects that by the end of 2025, 5G will have 2.6 billion subscribers; total global mobile subscriptions are expected to reach 5.8 billion by then. By 2030, IoT devices around the world could number 125 billion. At that point, information technology is expected to be responsible for one-fifth of all global electricity consumption and by 2040, it could generate 14 percent of worldwide greenhouse gas emissions. If the entire system is not energy efficient, 5G will ultimately not be sustainable.

Data storage centers that handle cloud computing and websites, and store our information use enormous amounts of energy—as much as 80 percent of total network energy use. About half of this goes towards keeping transmission equipment in base stations cool. A Berkeley Lab report found that U.S. data centers consumed 70 billion kWh in 2014; this year they are projected to consume 73 billion kWh. Small cell base stations may devour three times as much power as 4G base stations.

Life cycle impacts

In 2019, the president of The Shift Project, a French think tank advocating the shift to a post-carbon economy, said, “…behind each byte we have mining and metal processing, oil extraction and petrochemicals, manufacturing and intermediate transports, public works (to bury the cables) and power generation with coal and gas. As a result, the carbon footprint of the global digital system is already four percent of the global greenhouse gas emissions, and its energy consumption rises by nine percent per year.”

The increase in greenhouse gas emissions will be due in part to the fact that consumers will need to buy new 5G mobile phones in order to take full advantage of 5G. A Swedish study calculated that a smart phone produced 45 kg of CO2 during its entire lifetime, with most of it coming from the production phase—the manufacture of integrated circuits, sourcing the raw material, production of the phone shell, then assembly and distribution. If accessories and the mobile network are included, the total life cycle impact is 68 kg CO2.

The manufacture of more IoT devices and cell phones, and small cells also means more mining and use of many nonrenewable metals that are difficult to recycle.

As consumers around the world move to 5G phones, many older phones and IoT devices will be discarded if there are no buy back or recycling plans for them. This will result in enormous amounts of e-waste, which is already a huge global problem.

The full deployment of 5G could have a disruptive impact on ecosystems. A Punjab University study found that sparrows exposed to cell tower radiation for five to 30 minutes produced disfigured eggs. In Spain, the nesting, breeding and roosting of birds were disturbed by microwave radiation from a cell tower. Wireless frequencies have also been found to interfere with the navigational systems and circadian rhythms of birds, affecting migration.

Another study found that bees exposed to low-band spectrum radiation for 10 minutes suffered colony collapse disorder. And some research has found that insects, including honeybees, absorb more radiation from the mid-band and 5G spectrum. This could lead to changes in insect behavior and functions over time.

### Turn---AT: Hacks---2NC

#### Peer reviewed, science-based facts show that 5G is a human carcinogen and also affects plants and animals – prefer ev from authors who *aren’t* pawns of the Telecom industry.

Hardell and Carlberg ’20 (Lennart Hardell, MD, PhD, oncologist and professor at Örebro University Hospital. Michael Carlberg, Statistician and Researcher at Örebro University Hospital. “Health risks from radiofrequency radiation, including 5G, should be assessed by experts with no conflicts of interest.” 04/08/20 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/>) ☺

Most politicians and other decision-makers using guidelines for exposure to radiofrequency (RF) radiation seem to ignore the risks to human health and the environment. The fact that the International Agency for Research on Cancer (IARC) at the World Health Organization (WHO) in May 2011 classified RF radiation in the frequency range of 30 kHz to 300 GHz to be a ‘possible’ human carcinogen, Group 2B ([1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b1-ol-0-0-11876),[2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b2-ol-0-0-11876)), is being ignored. This has been recently exemplified in a hearing at the Tallinn Parliament in Estonia ([3](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b3-ol-0-0-11876)).

An important factor may be the influence on politicians by individuals and organizations with inborn conflicts of interests (COIs) and their own agenda in supporting the no-risk paradigm ([4](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b4-ol-0-0-11876),[5](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b5-ol-0-0-11876)). The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has repeatedly ignored scientific evidence on adverse effects of RF radiation to humans and the environment. Their guidelines for exposure are based solely on the thermal (heating) paradigm and were first published in ICNIRP 1998 ([6](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b6-ol-0-0-11876)), updated in ICNIRP 2009 ([7](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b7-ol-0-0-11876)) and have now been newly published in ICNIRP 2020 ([8](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b8-ol-0-0-11876)), with no change of concept, only relying on thermal effects from RF radiation on humans. The large amount of peer-reviewed science on non-thermal effects has been ignored in all ICNIRP evaluations ([9](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b9-ol-0-0-11876),[10](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b10-ol-0-0-11876)). Additionally, ICNIRP has successfully maintained their obsolete guidelines worldwide.

COIs can be detrimental, and it is necessary to be as unbiased as possible when assessing health risks. There are three points that should be emphasized. Firstly, the evidence regarding health risks from environmental factors may not be unambiguous, and therefore informed judgements must be made. Furthermore, there are gaps in knowledge that call for experienced evaluations, and no conclusion can be reached without value judgements. Secondly, paradigms are defended against the evidence and against external assessments by social networks in the scientific community. Thirdly, the stronger the impact of decisions about health risks on economic, military and political interests, the stronger will stakeholders try to influence these decision processes.

Since the IARC evaluation in 2011 ([1](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b1-ol-0-0-11876),[2](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b2-ol-0-0-11876)), the evidence on human cancer risks from RF radiation has been strengthened based on human cancer epidemiology reports ([9](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b9-ol-0-0-11876)–[11](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b11-ol-0-0-11876)), animal carcinogenicity studies ([12](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b12-ol-0-0-11876)–[14](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b14-ol-0-0-11876)) and experimental findings on oxidative mechanisms ([15](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b15-ol-0-0-11876)) and genotoxicity ([16](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b16-ol-0-0-11876)). Therefore, the IARC Category should be upgraded from Group 2B to Group 1, a human carcinogen ([17](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b17-ol-0-0-11876)).

The deployment of the fifth generation, 5G, of RF radiation is a major concern in numerous countries, with groups of citizens trying to implement a moratorium until thorough research on adverse effects on human health and the environment has been performed. An appeal for a moratorium, currently signed by >390 international scientists and medical doctors, was sent to the European Union (EU) in September 2017 ([18](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b18-ol-0-0-11876)), currently with no EU response ([19](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b19-ol-0-0-11876)). Several regions have implemented a moratorium on the deployment of 5G motivated by the lack of studies on health effects, for instance Geneva ([20](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b20-ol-0-0-11876)).

In the present article, the current situation in Switzerland is discussed as an example ([21](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b21-ol-0-0-11876)). Additionally, the ICNIRP 2020 evaluation is discussed ([8](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b8-ol-0-0-11876)).

Evaluation of health risks in Switzerland

Several Swiss citizens have brought to our attention that Associate Professor Martin Röösli is the chair of two important government expert groups in Switzerland (directeur), despite possible COIs and a history of misrepresentation of science ([22](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b22-ol-0-0-11876),[23](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b23-ol-0-0-11876)). These groups are Beratende Expertengruppe NIS (BERENIS; the Swiss advisory expert group on electromagnetic fields and non-ionizing radiation) ([24](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b24-ol-0-0-11876)), and the subgroup 3, the Mobile Communications and Radiation Working Group of the Department of the Environment, Transport, Energy and Communications/Eidgenössisches Departement für Umwelt, Verkehr, Energie und Kommunikation, evaluating RF-radiation health risks from 5G technology ([25](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b25-ol-0-0-11876),[26](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b26-ol-0-0-11876)).

The conclusions made in the recent Swiss government 5G report are biased and can be found here ([27](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b27-ol-0-0-11876),[28](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b28-ol-0-0-11876)). This 5G report concluded that there is an absence of short-term health impacts and an absence or insufficient evidence of long-term effects [see Table 17 (Tableau 17) on page 69 in the French version ([27](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b27-ol-0-0-11876)) and Table 17 (Tabelle 17) on page 67 in the German version ([28](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b28-ol-0-0-11876))].

Furthermore, it was reported that there is limited evidence for glioma, neurilemmoma (schwannoma) and co-carcinogenic effects, and insufficient evidence for effects on children from prenatal exposure or from their own mobile phone use. Regarding cognitive effects, fetal development and fertility (sperm quality), the judgement was that the evidence on harmful effects is insufficient. These evaluations were strikingly similar to those of the ICNIRP (see Appendix B in ICNIRP 2020; 8). Other important endpoints, such as effects on blood-brain barrier, cell proliferation, apoptosis (programmed cell death), oxidative stress (reactive oxygen species) and gene and protein expression, were not evaluated.

According to Le Courrier November 19, 2019, Martin Röösli presented the conclusion in an interview in the following way: ‘Sur l'aspect sanitaire pur, «le groupe de travail constate que, jusqu'à présent, aucun effet sanitaire n'a été prouvé de manière cohérente en dessous des valeurs limites d'immissions fixées», résume Martin Röösli, professeur d'épidémiologie environnementale à l'Institut tropical et de santé publique suisse’ ([29](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b29-ol-0-0-11876)). [Regarding the health issue, the working group concludes that, until now, no health effect has been consistently proven below the given exposure limits, summarizes Martin Röösli, professor in environmental epidemiology at the Swiss Tropical and Public Health Institute].

This Swiss evaluation is scientifically inaccurate and is in opposition to the opinion of numerous scientists in this field ([18](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b18-ol-0-0-11876)). In addition, 252 electromagnetic field (EMF) scientists from 43 countries, all with published peer-reviewed research on the biologic and health effects of nonionizing electromagnetic fields (RF-EMF) have stated that:

‘Numerous recent scientific publications have shown that RF-EMF affects living organisms at levels well below most international and national guidelines. Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life’ ([30](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7405337/#b30-ol-0-0-11876)).

### Impact---Warming---2NC

#### Curan says 5G causes warming from energy use and waste---extinction.

Krosofsky ’21 (Andrew Krosofsky, journalist at GreenMatters. “How Global Warming May Eventually Lead to Global Extinction” 03/11/21 <https://www.greenmatters.com/p/will-global-warming-cause-extinction>) ☺

Life on this planet has gone through many extinction-level events over time. Most of these phenomena were caused by natural, cataclysmic forces beyond the control of any of the lifeforms existing at that time. The current cataclysmic forces are anything but natural and they are well within our control. The question is not, "[will global warming cause extinction](https://www.greenmatters.com/p/endangered-vs-extinct-species)?"— it’s, "how can we prevent that inevitability from happening?

Will global warming cause extinction?

Eventually, yes. Global warming will invariably result in the mass extinction of millions of different species, humankind included. In fact, [the Center for Biological Diversity](https://www.biologicaldiversity.org/programs/climate_law_institute/global_warming_and_life_on_earth/index.html) says that global warming is currently the greatest threat to life on this planet. Global warming causes a number of detrimental effects on the environment that many species won’t be able to handle long-term.

Extreme weather patterns are shifting climates across the globe, eliminating habitats and altering the landscape. As a result, food and fresh water sources are being drastically reduced. Then, of course, there are the rising global temperatures themselves, which many species are physically unable to contend with. Formerly frozen [arctic and antarctic regions are melting](https://www.greenmatters.com/p/arctic-ice-melting), increasing [sea levels](https://www.greenmatters.com/news/2019/01/15/bPhgWvMpZ/oceans-warming-climate-change) and temperatures. Eventually, these effects will create a perfect storm of extinction conditions.

What species will go extinct if global warming continues?

The melting glaciers of the arctic and the searing, unmanageable heat indexes being seen along the Equator are just the tip of the iceberg, so to speak. The species that live in these [climate zones](https://www.greenmatters.com/p/what-is-a-climate-zone) have already been affected by the changes caused by global warming. Take polar bears for example, whose habitats and food sources have been so greatly diminished that they have been forced to range further and further south.

Increased carbon dioxide levels in the atmosphere and oceans have already led to [ocean acidification](https://www.greenmatters.com/p/what-causes-ocean-acidification#:~:text=According%20to%20the%20Natural%20History,for%20some%20species%20to%20survive.). This has caused many species of crustaceans to either adapt or perish and has led to the mass bleaching of more than 50 percent of Australia’s [Great Barrier Reef](https://www.greenmatters.com/p/coral-great-barrier-reef), according to [National Geographic](https://www.nationalgeographic.com/magazine/article/explore-atlas-great-barrier-reef-coral-bleaching-map-climate-change).

According to the Center for Biological Diversity, the current trajectory of global warming predicts that more than 30 percent of Earth’s plant and animal species will face extinction by 2050. By the end of the century, that number could be as high as 70 percent.

Will global warming cause humanity’s extinction?

We won’t try and sugarcoat things, humanity’s own prospects aren’t looking that great either. According to [The Conversation](https://theconversation.com/will-climate-change-cause-humans-to-go-extinct-117691), our species has just under a decade left to get our CO₂ emissions under control. If we don’t cut those emissions by half before 2030, [temperatures will rise](https://www.greenmatters.com/p/global-temperature-rise-predictions) to potentially catastrophic levels. It may only seem like a degree or so, but the worldwide ramifications are immense.

The human species is resilient. We will survive for a while longer, even if these grim global warming predictions come to pass, but it will mean less food, less water, and increased hardship across the world — especially in low-income areas and developing countries. This increase will also mean more [pandemics](https://www.greenmatters.com/p/climate-crisis-leads-to-pandemics), devastating storms, and uncontrollable wildfires.

It’s difficult to calculate the numbers in these cases or to assess precisely what risks we will all be facing, but this is because we have never experienced anything like it before.

How do we stave off extinction?

We keep species extinction at bay by continuing to fix the environmental mistakes we've already made. The [Paris Agreement](https://www.greenmatters.com/p/paris-agreement) set the stage for global unity in the face of environmental annihilation, but it has not done enough. More work and cooperation are required to meet the 2030 goal. If more countries switch to renewable sources of power, if more people choose to eat less meat, create less waste, use less energy, and expand conservation efforts, we may have a chance of deferring this grim fate.

### Impact---Bees---2NC

#### 5G kills the remaining bees---extinction.

Pollard ’20 (Elma Pollard, editor of the Green Times, a social enterprise focused on climate change and other environmental news. “Does 5G mean the final knockout for the bees?” 04/28/20 <https://thegreentimes.co.za/does-5g-mean-the-final-knockout-for-the-bees/>) ☺

1. Vital essential bee-to-bee communication is massively disturbed by mobile transmission.

Prof. Martin Lindauer, one of the most important German-speaking bee and behavioral researchers, discovered that bees communicate with each other with the help of electromagnetic fields. They use the waggle dance to indicate to each other the direction and distance to good food sources. In 1974, Russian researchers Eskov and Sapozhnikov found that bees produce frequencies between 180 Hz and 250 Hz with the help of small magnetite crystals in their rump.

The data transmission of mobile communication takes place with a pulse frequency of 217 Hz and is exactly in the range of the waggle dance. This impairs the natural communication of the bees. The result: food collecting bees cannot tell each other correctly where good food sources are. Thus, the feeding of the bee colony is existentially endangered.

2. Mobile radiation leads to stress reactions and the doom of whole bee colonies.

For example, several experiments with continuous radio irradiation of hives in India, Russia and Germany have consistently shown that the exposure of radiation leads to increased stress reactions in the bees, which ultimately can lead to the death of the bee colony.

The biophysicist and Doctor of Natural Sciences, Dr. Ulrich Warnke, clearly describes the great suffering of bees in low-frequency, artificially constructed electric fields:

“In 50 Hz alternating fields with field strengths of 110 V/cm [electric field strength], the bee colonies in their habitation are very restless. The temperature in the hive increases significantly. The defense of social territory is increased so uncontrollably that members of the hive kill each other. They do not recognize each other anymore. After a few days of field influence, the bees remove their progeny out of the cells and new progeny is no longer created. Likewise, honey and pollen are consumed and then no longer collected.

The bee colony finally cements all the cracks and the entry hole with propolis [a resinous mass made by bees] to keep out the alleged ‘enemy.’ After cementing the cracks and the entry hole an acute lack of oxygen is created, and thus the bees try to create air with intense fanning. In the process, the wing muscles cause such high temperatures that the wax can melt. The bees try to cool down the excessive temperature by even more intensive fanning. The end is a ‘hyper activity’ of the hive, which means that all individuals suffer death by heat and suffocation.”

3. Mobile radiation severely impairs the orientation of the bees.

Different scientists have found that organisms at all levels, ranging from unicellular organisms, bacteria, insects, snails to vertebrates (e.g. whales or birds) can orientate themselves by electromagnetic fields, such as the Earth’s magnetic field or weather fronts and air mass-movements. All of these creatures have a compass system. For example, in the cell body of so-called magnetic bacteria iron-containing crystals act comparatively as a strong magnet.

These so-called magnetosomes act as a compass needle and align the cell always to the Earth’s magnetic field, so that they can move very straightforwardly and unerringly through their habitat. The zoologist and behavioral scientist Prof. Dr. Med. Wolfgang Wiltschko, and the biologist Prof. Dr. Günther Fleissner proved the magnetic sense of birds: Iron-containing magnetite crystals in the beaks indicate the intensity of the magnetic field to the birds.

So they know at every moment of their flight where they are currently located within their biologically stored earth magnetic field map. The renowned bee and behavioral scientist Prof. Martin Lindauer proved by experiments on bees that these also orientate themselves with the help of biomagnetite particles (Fe3O4) on natural magnetic fields. But if the natural ones magnetic fields are overlaid by artificial magnetic fields, then the calibration of the animals’ natural sense of compass is falsified, and this sets false directional impulses so that they lose their way.

Technical communication transmissions (e.g., mobile, satellite) massively disturb the energy and information lines of nature on which the animals rely on. A team of Indian researchers proved that the orientation of bees is affected the most by mobile phone radiation. In their experiment two mobile phones were attached to the sides of each of two beehives. Twice a day they were activated for fifteen minutes.

In a third hive, only mobile phone dummies were installed. Nothing was installed on the fourth hive. After 90 days, the two irradiated bee colonies were significantly smaller and honey production had ceased altogether. The queens averaged only 145 eggs per day, compared to 376 in the other hives. The working bees strayed around the hive disoriented. When they left, they returned less and less often. At the end of the experiment there was no honey, no breeding and no bees in the irradiated beehives.

4. Mobile radiation weakens the immune system.

Scientists at the American Beltsville Farming Research Institute found that deceased bees have a severely weakened immune system.

“It is extremely alarming that dying is accompanied by symptoms that have never been described before. The immune system of the animals seems to have collapsed; some bees suffer from five to six infections simultaneously.”

But how can that be explained? The immune system works optimally only if cell communication is working properly. The diverse biochemical processes in the cells are controlled by means of electromagnetic pulses.

It is precisely these electromagnetic impulses that are massively disturbed by mobile communications, so that the biochemical processes within the immune system are waning. Bees get sick and die. This would also explain the strong parasite infestation of many bee colonies with the Varroa mite, which beekeepers and researchers have been fighting for decades. The disturbed bee immune system cannot defend itself anymore against this highly dangerous bee enemy.

Conclusion:

We already exist in the mobile generations up to 4G. To now introduce a fifth generation with unevenly higher radiation exposure could mean the complete extinction of the bees. This requires an immediate and uncompromising rethinking by everyone, because our survival is dependent upon the bees.

### \*\*\*\*Impact---Health---2NC

#### 5G wrecks human health---radiation causes genetic, reproductive, and neurological damage.

Moskowitz ’19 (Joel M. Moskowitz, PhD, director of the Center for Family and Community Health in the School of Public Health at the University of California, Berkeley. “We Have No Reason to Believe 5G Is Safe” 10/17./19 <https://blogs.scientificamerican.com/observations/we-have-no-reason-to-believe-5g-is-safe/>) ☺

The telecommunications industry and their experts have accused many scientists who have researched the effects of cell phone radiation of "fear mongering" over the advent of wireless technology's 5G. Since much of our research is publicly-funded, we believe it is our ethical responsibility to inform the public about what the peer-reviewed scientific literature tells us about the health risks from wireless radiation.

The chairman of the Federal Communications Commission (FCC) recently announced through a [press release](https://docs.fcc.gov/public/attachments/DOC-358968A1.pdf) that the commission will soon reaffirm the radio frequency radiation (RFR) exposure limits that the FCC adopted in the late 1990s. These limits are based upon a [behavioral change in rats](https://www.ncbi.nlm.nih.gov/pubmed/21999884) exposed to microwave radiation and were designed to protect us from [short-term heating risks due to RFR exposure](https://drive.google.com/file/d/1ZcI0mHUoPlu3tBsWufCg28lXd7V2prKY/view).

Yet, since the FCC adopted these limits based largely on research from the 1980s, the preponderance of peer-reviewed research, [more than 500 studies](https://drive.google.com/file/d/19CbWmdGTnnW1iZ9pxlxq1ssAdYl3Eur3/view), have found harmful biologic or health effects from exposure to RFR at intensities too low to cause significant heating.

Citing this large body of research, more than 240 scientists who have published peer-reviewed research on the biologic and health effects of nonionizing electromagnetic fields (EMF) signed [the International EMF Scientist Appeal](https://emfscientist.org/), which calls for stronger exposure limits. The appeal makes the following assertions:

“Numerous recent scientific publications have shown that EMF affects living organisms at levels well below most international and national guidelines. Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life.”

The scientists who signed this appeal arguably constitute the majority of experts on the effects of nonionizing radiation. They have published more than 2,000 papers and letters on EMF in professional journals.

The FCC’s RFR exposure limits regulate the intensity of exposure, taking into account the frequency of the carrier waves, but ignore the signaling properties of the RFR. Along with the patterning and duration of exposures, certain characteristics of the signal (e.g., pulsing, polarization)[increase the biologic and health impacts](https://www.sciencedirect.com/science/article/pii/S1383574218300991) of the exposure. New exposure limits are needed which account for these differential effects. Moreover, these limits should be [based on a biological effect](https://www.ncbi.nlm.nih.gov/pubmed/22676645), not a change in a laboratory rat’s behavior.

The World Health Organization's International Agency for Research on Cancer (IARC) [classified RFR as "possibly carcinogenic to humans"](https://www.iarc.fr/wp-content/uploads/2018/07/pr208_E.pdf)in 2011. Last year, a $30 million study conducted by the U.S. National Toxicology Program (NTP) found “clear evidence” that two years of exposure to cell phone RFR [increased cancer in male rats and damaged DNA in rats](https://www.niehs.nih.gov/ntp-temp/tr595_508.pdf)and [mice](https://www.niehs.nih.gov/ntp-temp/tr596_508.pdf)of both sexes. The Ramazzini Institute in Italy replicated the key finding of the NTP using a different carrier frequency and much weaker exposure to cell phone radiation over the life of the rats.

Based upon the research published since 2011, including human and animal studies and mechanistic data, the IARC has recently prioritized RFR to be reviewed again in the next five years. Since many EMF scientists believe we now have [sufficient evidence](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5376454/) to consider RFR as either a probable or known human carcinogen, the IARC will likely upgrade the carcinogenic potential of RFR in the near future.

Nonetheless, without conducting a formal risk assessment or a systematic review of the research on RFR health effects, the FDA recently reaffirmed the FCC’s 1996 exposure limits [in a letter to the FCC](https://ecfsapi.fcc.gov/file/10815418118189/13-84.pdf), stating that the agency had “concluded that no changes to the current standards are warranted at this time,” and that “NTP’s experimental findings should not be applied to human cell phone usage.” The letter stated that “the available scientific evidence to date does not support adverse health effects in humans due to exposures at or under the current limits.”

The latest cellular technology, 5G, will employ millimeter waves for the first time in addition to microwaves that have been in use for older cellular technologies, 2G through 4G. Given limited reach, 5G will require cell antennas every 100 to 200 meters, exposing many people to millimeter wave radiation. 5G also employs new technologies (e.g., active antennas capable of beam-forming; phased arrays; massive multiple inputs and outputs, known as massive MIMO) which pose unique challenges for measuring exposures.

Millimeter waves are mostly absorbed within a few millimeters of human skin and in the surface layers of the cornea. Short-term exposure can have adverse physiological effects in the peripheral nervous system, the immune system and the cardiovascular system. The research suggests that long-term exposure may pose health risks to the skin (e.g., melanoma), the eyes (e.g., ocular melanoma) and the testes (e.g., sterility).

Since 5G is a new technology, there is no research on health effects, so we are “flying blind” to quote a U.S. senator. However, we have considerable evidence about the harmful effects of 2G and 3G. Little is known the effects of exposure to 4G, a 10-year-old technology, because governments have been remiss in funding this research. Meanwhile, we are seeing increases in certain types of head and neck tumors in tumor registries, which may be at least partially attributable to the proliferation of cell phone radiation. These increases are consistent with results from case-control studies of tumor risk in heavy cell phone users.

5G will not replace 4G; it will accompany 4G for the near future and possibly over the long term. If there are synergistic effects from simultaneous exposures to multiple types of RFR, our overall risk of harm from RFR may increase substantially. Cancer is not the only risk as there is considerable evidence that RFR causes neurological disorders and reproductive harm, likely due to oxidative stress.

As a society, should we invest hundreds of billions of dollars deploying 5G, a cellular technology that requires the installation of 800,000 or more new cell antenna sites in the U.S. close to where we live, work and play?

Instead, we should support the recommendations of the 250 scientists and medical doctors who signed the [5G Appeal](http://www.5gappeal.eu/) that calls for an immediate moratorium on the deployment of 5G and demand that our government fund the research needed to adopt biologically based exposure limits that protect our health and safety.

### Impact---Health---Ext

#### 5G is detrimental to human health.

BMJ ’21 (BMJ, subsidiary of the British Medical Association, global healthcare knowledge provider. “Stop global roll out of 5G networks until safety is confirmed, urges expert” 18/01/21 <https://www.bmj.com/company/newsroom/stop-global-roll-out-of-5g-networks-until-safety-is-confirmed-urges-expert/>) ☺

Stop global roll out of 5G networks until safety is confirmed, urges expert

Transmitter density means greater population exposure to high levels of radio frequency electromagnetic fields

We should err on the side of caution and stop the global roll out of 5G (fifth generation) telecoms networks until we are certain this technology is completely safe, urges an expert in an[opinion piece](https://jech.bmj.com/lookup/doi/10.1136/jech-2019-213595) published online in the Journal of Epidemiology & Community Health.

There are no health concerns about 5G and COVID-19, despite what conspiracy theorists have suggested.

But the transmitter density required for 5G means that more people will be exposed to radio frequency electromagnetic fields (RF-EMFs), and at levels that emerging evidence suggests, are potentially harmful to health, argues Professor John William Frank, Usher Institute, University of Edinburgh.

The advent of 5G technology has been hailed by governments and certain vested interests as transformative, promising clear economic and lifestyle benefits, through massively boosting wireless and mobile connectivity at home, work, school and in the community, he says.

But it has become the subject of fierce controversy, fuelled by four key areas of scientific uncertainty and concern.

The lack of clarity about precisely what technology is included in 5G; and a growing but far from comprehensive body of laboratory research indicating the biologically disruptive potential of RF-EMFs

An almost total lack (as yet) of high quality epidemiological studies of the impact on human health from 5G EMF exposure

Mounting epidemiological evidence of such effects from previous generations of RF-EMF exposure at lower levels

Persistent allegations that some national telecomms regulatory authorities haven’t based their RF-EMF safety policies on the latest science, amid potential conflicts of interest

5G uses much higher frequency (3 to 300GHz) radio waves than in the past and it makes use of very new—and relatively unevaluated, in terms of safety—supportive technology to enable this higher data transmission capacity, points out Professor Frank.

Its inherent fragility means that transmission boosting ‘cell’ antennae are generally required every 100–300 m—which is far more spatially dense than the transmission masts required for older 2G, 3G and 4G technology, using lower frequency waves, he says.

A dense transmission network is also required to achieve the ‘everywhere/anytime’ connectivity promised by 5G developers.

Existing 4G systems can service up to 4000 radio frequency-using devices per square kilometre; 5G systems will connect up to one million devices per square kilometre—greatly increasing the speed of data transfer (by a factor of 10) and the volume of data transmitted (by a factor of 1000), he explains.

While several major reviews of the existing evidence on the potential health harms of 5G have been published over the past decade, these have been of “varying scientific quality,” suggests Professor Frank.

And they have not stopped the clamour from “a growing number of engineers, scientists, and doctors internationally...calling on governments to raise their safety standards for RF-EMFs, commission more and better research, and hold off on further increases in public exposure, pending clearer evidence of safety,” he writes.

Permitted maximum safety limits for RF-EMF exposure vary considerably around the world, he points out.

What’s more, ‘5G systems’ is not a consistently defined term, comprising quite different specific technologies and components.

“It is highly likely that each of these many forms of transmission causes somewhat different biological effects—making sound, comprehensive and up-to-date research on those effects virtually impossible,” he explains.

Recent reviews of lab data on RF-EMFs indicate that exposures can produce wide-ranging effects, including reproductive, fetal, oncological, neuropsychiatric, skin, eye and immunological.  But there is absolutely no evidence whatsoever to suggest that it is implicated in the spread of COVID-19, as some conspiracy theorists have suggested, he emphasises.

# Military Advantage

## Mechanics

### Status Quo Solves---1NC

#### Lockheed Martin solves.

Partyard 22 – Partyard Military Division, worldwide supplier of OEM systems and aftermarket air, sea, and land spares and maintenance, 3/8/2022, "​​Why the World’s Militaries Are Embracing 5G," <https://partyardmilitary.com/2022/03/08/why-the-worlds-militaries-are-embracing-5g/>, RMax

Warfare has always been carried out at the boundary between chaos and order. Strategists have long tried to suppress the chaos and impose order by means of intelligence, communication, and command and control. The most powerful weapon is useless without knowing where to aim it. The most carefully constructed plan leads nowhere if it is based on bad intelligence. And the best intelligence is worthless if it arrives too late. No wonder that over the past two centuries, as technologies such as photography, electronic communications, and computing became available, they were quickly absorbed into military operations and often enhanced by targeted defense R&D.

The next key enabler is fifth-generation (5G) wireless communications. The United States, Europe, China, and Russia are now integrating 5G technologies into their military networks. These are sizable and complicated projects, and several different strategies are already becoming apparent.

At Lockheed Martin, we’re enhancing standard 5G technologies to connect the many platforms and networks that are fielded by the various branches of the armed services. We call this our 5G.MIL initiative. Earlier this year, in two projects, called Hydra and HiveStar, we demonstrated the feasibility of key aspects of this initiative. Hydra yielded encouraging results on the interoperability challenge, and HiveStar showed that it was possible to quickly construct, in an area with no existing infrastructure, a highly mobile and yet capable 5G network, as would be required on a battlefield.

### Status Quo Solves---2NC

#### Status quo private sector efforts solve.

Shane Snider 22, senior associate editor at CRN Magazine, 4/4/2022, "Intel, Lockheed Martin Team Up For Military 5G," CRN, https://www.crn.com/intel-lockheed-martin-team-up-for-military-5g, RMax

Intel Corp. and Lockheed Martin have joined forces to provide 5G-enabled hardware and software solutions for the U.S. Department of Defense.

While the companies declined to disclose a price tag for the federal contract, they signed a memorandum of understanding to expand the ongoing relationship to develop and align 5G technologies. The companies have collaborated for more than a decade and worked previously to provide cloud and edge computing to the military.

“This collaboration between Intel and Lockheed Martin will help accelerate delivery of secure 5G.MIL solutions to achieve network effects for our customers that will enable prompt, data-driven decisions by military commanders across all operational domains,” Dan Rice, vice president of 5G.MIL programs at Lockheed Martin, said in a statement. “As security risks evolve and opportunities to leverage 5G emerge, staying ahead of the threat landscape is more critical than ever.”

Santa Clara, Calif.-based Intel’s contributions include proprietary 5G solutions that are integrated into Bethesda, Md.-based Lockheed Martin’s 5G.MIL Hybrid Base Station, which the companies say acts as a multi-network gateway for ubiquitous communications between military personnel and current and emerging platforms.

“Together, Intel and Lockheed Martin are utilizing the power of 5G to deliver greater connectivity, faster and more reliable networks, and new data capabilities to the DOD,” Dan Rodriguez, corporate vice president at Intel, said in a statement. “This shows how cloud, network and edge technologies that are proven in enterprise implementations can also bring significant value to the tactical needs of modern defense systems.”

### Alt Causes---1NC

#### Alt causes to losing the 5G race and Allied interoperability---spectrum type and local backlash.

David Sanger 20, National Security Correspondent and Security Writer at The New York Times, author of *The Perfect Weapon: War, Sabotage, and Fear in the Cyber Age*; and Mary Brooks, Associate Producer at Ark Media, Spring 2020, "Battlefield 5G," *The Wilson Quarterly*, Vol. 44, No. 2, https://www.wilsonquarterly.com/quarterly/who-writes-the-rules/battlefield-5g, RMax

The Defense Innovation Board made a convincing case in 2019 that the United States cannot depend on stumbling its way to a lead in 5G deployment merely by assuming that the wizards of Silicon Valley will stay ahead. "The country that owns 5G will own many of these [critical] innovations and set the standards for the rest of the world," the board concluded. "That country is currently not likely to be the United States."

One key concern is technical: The U.S. has selected a different part of the wireless spectrum for its 5G than much of the rest of the world, a decision that could lead to significant interoperability problems and undercut U.S. industry's ability to compete globally. Another fear is the persistent local backlash against the installation of 5G small cells across the United States. These frictions are based on both aesthetic and purported health concerns, and they threaten to ensnare 5G deployment in a series of decentralized legal and regulatory battles.

### AT: HGVs---1NC

#### No risk of hypersonic missiles.

David Wright 21, research affiliate at the Laboratory for Nuclear Security and Policy at the Massachusetts Institute of Technology, former co-director of the Global Security Program at the Union of Concerned Scientists; and Cameron Tracy, Global Security Fellow at the Union of Concerned Scientist, 8/1/2021, "The Physics and Hype of Hypersonic Weapons," Scientific American, <https://www.scientificamerican.com/article/the-physics-and-hype-of-hypersonic-weapons/>, RMax

NO SILVER BULLET

In the early 2010s the U.S. flight-tested a long-range glider, the Hypersonic Technology Vehicle 2 (HTV-2). It was designed to glide up to 7,600 kilometers after being boosted to an initial speed of Mach 20 by a rocket. We combined data from these tests with other information about the vehicle to construct detailed computer simulations of hypersonic flight. We also compared the performance of boost-glide weapons with long-established technologies, such as ballistic or cruise missiles, on the three abilities in which hypersonic weapons are said to be exceptional—delivery time, maneuverability and stealth.

Hypersonic weapons are often said to reduce the time needed to deliver a warhead, but this claim is largely based on a misleading comparison with subsonic cruise missiles or with ballistic missiles on longer trajectories. The most energy-efficient path for a ballistic missile, called a minimum-energy trajectory, sends a warhead arcing high above Earth before it falls to its target. The warhead avoids atmospheric drag over most of its flight but follows a much longer path than a hypersonic glider would, so it can take somewhat longer to reach the same target.

Yet a ballistic missile can instead fly at lower altitude, called a depressed trajectory—long seen as a way of delivering quicker [nuclear attacks](http://scienceandglobalsecurity.org/archive/1992/06/depressed_trajectory_slbms_a_t.html) from submarines. Such a path would be much shorter than a minimum-energy one, and a warhead following it would also avoid drag over most of its trajectory. In contrast, a hypersonic glider spends significantly more time within the atmosphere, where drag reduces its speed. Our calculations show that a ballistic missile on a depressed trajectory can deliver a warhead with an equal or shorter flight time than a hypersonic weapon over the same range.

Maneuvering is another advertised advantage of hypersonic weapons. Again, the reality is more complicated. The U.S. has developed and tested maneuvering reentry vehicles (MaRVs)—warheads that use aerodynamic forces to change direction as they near the target, helping to increase accuracy and evade missile defenses—for ballistic missiles for decades: maneuverability is not unique to hypersonic weapons. To be sure, MaRVs typically twist and turn only late in flight. They cannot snake around during their entire course as hypersonic gliders are supposed to do. But the maneuverability of hypersonic gliders is constrained by the great forces needed to turn a vehicle flying at such tremendous speeds.

To change direction, a hypersonic glider must use lift forces to impart a horizontal velocity—which might itself have to be hypersonic. For example, to turn by 30 degrees, a glider flying at Mach 15, or 4.5 kilometers per second, must generate a horizontal velocity of Mach 7.5, or 2.3 kilometers per second. (Because the speed of sound changes with density and altitude, flight engineers often take Mach 1 to be about 300 meters per second, and so do we.) At the same time, the glider must retain enough vertical lift to stay aloft. Such maneuvers can cost significant speed and range.

To generate the extra lift needed to change direction, the vehicle could dive to a lower altitude to use the greater push from denser air. It would make its turn before returning to a higher altitude, with less drag, to resume its flight. Going to lower altitudes would reduce the time needed to turn but also increase the drag that the vehicle experiences. For example, at Mach 15 a glider such as the HTV-2 would fly at an altitude of about 40 kilometers. If it drops by about 2.5 kilometers, then turning by 30 degrees would take about seven minutes, during which it would travel along a vast arc, with a radius of some 4,000 kilometers. The extra drag that comes from traveling in denser air, even for such a short time, would reduce the glider’s speed by about Mach 1.3, causing it to lose about 450 kilometers of range out of the 3,000 kilometers it might otherwise have traveled.

Some amount of midcourse maneuvering, such as for selecting a new target, can be useful, and gliders could likely make larger maneuvers than ballistic missile warheads can. Still, MaRVs can already maneuver by hundreds of kilometers during reentry, so it is hard to see how this ability is revolutionary.

Another common claim is that because gliders travel at lower altitudes than a ballistic warhead, they would be “nearly invisible” to early-warning systems. A ground-based radar system can spot a warhead at an altitude of 1,000 kilometers from about 3,500 kilometers away, but because of the earth’s curvature it would not see a glider approaching at a height of 40 kilometers until it was only about 500 kilometers away. But both the U.S. and Russia have early-warning satellites with sensitive infrared sensors that could spot the intense light that gliders emit because of their extreme temperatures. Our analysis indicates that currently deployed U.S. satellites would be capable of detecting and tracking gliders traveling through the atmosphere at speeds covering most of the hypersonic regime.

Gliders deployable in the foreseeable future might avoid being seen by U.S. satellites if they fly at the low end of the hypersonic range— below about Mach 6. This concern appears to be motivating U.S. research into new constellations of satellite sensors. But a boost-glide vehicle similar to the HTV-2 with an initial speed of Mach 5.5 would travel less than 500 kilometers, so flying at these speeds would significantly limit its range. Hypersonic cruise missiles could conceivably maintain these low speeds over longer distances. Such slow speeds may, however, negate another key argument for hypersonic weapons—their ability to avoid terminal missile defenses.

Russia and China seem to be developing hypersonic weapons largely because of their ability to evade U.S. missile defense systems. The U.S. Ground-based Midcourse Defense and ship-based Aegis SM-3 systems, which are intended to defend the U.S., Japan, and other countries, intercept above the atmosphere and are unable to engage hypersonic weapons flying in at lower altitudes. Hypersonic gliders with sufficient speed and maneuverability could also evade defenses of shorter range that work within the atmosphere, such as the U.S. Patriot, SM-2 and THAAD systems. These interceptors protect small regions, tens of kilometers across, around military sites and ships, using lift forces for turning to intercept incoming weapons. Their efficacy depends on their being more maneuverable than the missile they are trying to hit, which in turn depends strongly on flight speed. Patriot interceptors, for example, use rocket boosters to reach speeds of up to Mach 6. A hypersonic weapon could likely outmaneuver these interceptors if it maintained high speeds—but could become vulnerable to them when flying below about Mach 6. Thus, almost as soon as a hypersonic glider becomes invisible to satellites (but possibly visible to ground radar), it can become susceptible to interception.

Moreover, the ability to penetrate defensive shields is not unique to hypersonic gliders. Interceptors that operate outside the atmosphere are particularly vulnerable to being fooled by decoys and other countermeasures, which Russia and China have developed and likely deployed. Ballistic missiles of short and medium range, launched from an aircraft, could fly at altitudes low enough to avoid such “exo-atmospheric” defenses. Similarly, equipping ballistic missiles, including missiles of short and medium range, with MaRVs could allow them to outmaneuver and penetrate defenses that operate within the atmosphere.

Today the U.S. has shifted its focus from developing long-range gliders such as the HTV-2 toward hypersonic systems of shorter range, of up to a few thousand kilometers. This change is motivated not only by the shortcomings of the prototype HTV-2 glider, which the tests had revealed, but also by a new mission: to use weapons in a local, or “theater,” conflict to penetrate and destroy defensive systems. In terms of capabilities, however, these shorter-range hypersonic gliders are virtually indistinguishable from MaRV-tipped ballistic missiles flying on depressed trajectories. The similarity became obvious in 2018, when the U.S. Department of Defense announced its choice of design for a hypersonic vehicle intended for joint use by the army, navy and air force. Rather than opting for a wedge shape like that of the HTV-2, which would increase the value of L/D, the Pentagon chose an older conical design based on an experimental MaRV originally developed in the 1970s. This weapon would have a lower range and less maneuverability, the Pentagon acknowledged, but the technology was less risky.

A design from the 1970s is hardly revolutionary. It looks to us like the Pentagon is using the hype about hypersonic weapons to secure funding from Congress while reverting to a technology developed half a century ago for its main system. While the Pentagon is putting some funds into other designs, its focus is not the revolutionary systems that were advertised.

### AT: HGVs---2NC

#### It’s basic physics.

David Wright 21, research affiliate at the Laboratory for Nuclear Security and Policy at the Massachusetts Institute of Technology, former co-director of the Global Security Program at the Union of Concerned Scientists; and Cameron Tracy, Global Security Fellow at the Union of Concerned Scientist, 8/1/2021, "The Physics and Hype of Hypersonic Weapons," Scientific American, <https://www.scientificamerican.com/article/the-physics-and-hype-of-hypersonic-weapons/>, RMax

DRAG AND LIFT

Hypersonic systems deployed in the near term will be “boost-glide” weapons, which would be launched by a rocket booster and then glide long distances without propulsion. (The U.S. and other countries are also working to build hypersonic cruise missiles, but their engines are still under development.) Yet our studies indicate that hypersonic gliders encounter severe challenges. Physics gets in the way.

Designers of hypersonic vehicles face a daunting adversary: drag, the resistance a fluid offers to anything moving through it. The drag on a flying object increases in proportion to the square of its velocity, making it particularly debilitating at hypersonic speeds. A glider at Mach 5 is subjected to 25 times the drag force than when it flies at Mach 1, for example, and one at Mach 20 faces 400 times the drag of when it is at Mach 1.

Even more severe is the energy drain from an aircraft as it pushes the molecules of air forward and aside: it increases as the cube of the velocity. So a glider flying at Mach 5 will lose energy 125 times faster than at Mach 1; one flying at Mach 20 will lose energy 8,000 times faster. Just as problematic, the kinetic energy flowing from the glider to the surrounding air transforms to thermal energy and shock waves. Some of that energy transfers back to the vehicle as heat: leading edges of boost-glide weapons flying at Mach 10 or above can reach temperatures above 2,000 kelvins for sustained periods. Protecting a vehicle from this intense heat is one of the biggest problems facing engineers.

At the same time, like any other glider, a hypersonic one must generate lift—a force perpendicular to its direction of motion—to stay aloft and to turn. (A glider turns by banking or otherwise inducing a horizontal component of the lift force.) As it happens, lift is also proportional to the square of the velocity. Moreover, the aerodynamic processes that produce lift also unavoidably generate drag. The ratio of the lift force, L, to the drag force, D, is called the lift-to-drag ratio, L/D, a key marker of a glider’s performance.

Achievable values of L/D for hypersonic vehicles are much lower than for conventional aircraft. For subsonic aircraft, the ratio can be 15 or larger. Yet after decades of research and development, U.S. hypersonic weapons tested in the past decade appear to have L/D values less than three. Such low L/D ratios mean low lift and high drag—which limits the speed and range of a hypersonic glider, reduces its maneuverability and increases surface heating.

As if that were not enough, the physics and chemistry of air flowing past an object become radically different at hypersonic speeds. Heated to thousands of degrees, the surrounding air dissociates, converting molecular oxygen into free atoms that can ionize and scour away the surface of the vehicle. Even if the missile survives the roasting, the heating produces a bright infrared signal that satellites can see.

#### Their ev is alarmism.

David Wright 21, research affiliate at the Laboratory for Nuclear Security and Policy at the Massachusetts Institute of Technology, former co-director of the Global Security Program at the Union of Concerned Scientists; and Cameron Tracy, Global Security Fellow at the Union of Concerned Scientist, 8/1/2021, "The Physics and Hype of Hypersonic Weapons," Scientific American, <https://www.scientificamerican.com/article/the-physics-and-hype-of-hypersonic-weapons/>, RMax

In an assessment after Putin’s speech, U.S. military officials stated that hypersonic weapons, which China was also developing, would “revolutionize warfare.” The Pentagon, which had been working on similar systems for a decade and a half, ramped up its own efforts; last year Congress dedicated $3.2 billion to the research and development of hypersonic weapons and defenses. Russia and China now claim to each have deployed at least one such system. The U.S. has six known hypersonic programs, divided among the air force, army and navy. Proponents say that these weapons are incredibly fast and agile and virtually invisible.

We disagree. We belong to a small but vibrant community of physicists and engineers scattered around the globe who study new weapons systems to understand their potential impacts on global security. This tradition is deep, going back to participants in the Manhattan Project and Russian scientists such as Andrei Sakharov, who sought to mitigate the danger to the world from the nuclear weapons they had helped create. As investigative physicists, we glean what information we can about new and usually secretive technologies, analyze it and share our evaluations with the public.

Our studies indicate that hypersonic weapons may have advantages in certain scenarios, but by no means do they constitute a revolution. Many of the claims about them are exaggerated or simply false. And yet the widespread perception that hypersonic weapons are a game-changer has increased tensions among the U.S., Russia and China, driving a new arms race and escalating the chances of conflict.

#### No hypersonics impact---they are nothing new.

Jon Kelvey 21, science writer covering space, aerospace, and biosciences who has appeared in Air & Space Magazine, Earth and Space News, Slate, Smithsonian, and Inverse, 11/12/2021, "Why China's hypersonic missiles don't mean nuclear Armageddon," Inverse, <https://www.inverse.com/innovation/what-is-going-on-with-chinas-hypersonic-missile-tests>, RMax

The tests surprised members of the U.S. Military and intelligence community and caused some U.S. officials and analysts to suspect China is developing offensive missile technology — a “fractional orbital bombardment system” — capable of threatening the U.S.

“The People’s Liberation Army now has an increasingly credible capability to undermine our missile defenses and threaten the American homeland with both conventional and nuclear strikes,” Republican Congressman Michael Gallagher, of Wisconsin told the Financial Times.

Should we be worried? Should we even care about this in-development technology?

The answer, as it often is, is shrouded in gray. Yes, hypersonic technology is the next big thing in aerospace and will likely have huge implications for both civilian aviation and military operations over the next century. No, the Chinese tests over the summer don’t mean we’re necessarily any closer to nuclear Armageddon — not unless we’re determined to make it so.

“I know the latest Chinese test has made a lot of people sit up and take notice,” U.S. Naval War College Professor of National Security Affairs and former nuclear Missile Squadron Commander Dana Struckman tells Inverse. “But in my opinion, it still doesn't change the nuclear deterrence calculus that much, if at all.”

WHAT ARE HYPERSONIC WEAPONS?

Hypersonic flight generally means flying at Mach 5 — five times the speed of sound — or faster. It’s a speed at which the aerodynamics of flight change significantly.

For example, the U.S. Cold War-era SR-71 spy plane flew at a merely high supersonic Mach 3.2 and the plane’s windshield would heat to 600 degrees Fahrenheit due to friction. Airflows become even more forgiving at hypersonic speeds. Some of the most cutting-edge aerospace engineering in the U.S., Russia, and China involves figuring out how to make flight at hypersonic speeds sustainable.

At the same time, hypersonic flight isn’t entirely new.

There were French and Russian scientists researching hypersonic propulsion technologies in the 1930s and 40s. The U.S. Air Force and NASA were already flying at hypersonic speeds in the 1950s with the X-15 rocket plane, Michael Heil, former commander of the U.S. Air Force Space and Directed Energy Laboratory tells Inverse.

Spacecraft must hit Mach 25 to reach orbit and later re-enter the atmosphere at a blistering Mach 20, as do the warheads of Intercontinental Ballistic Missiles, or ICBMs, the more traditional strategic nuclear missile.

If the U.S. and USSR had ever pushed the button, ICBMs would have launched from silos and submarines, delivering nuclear warheads on arching, ballistic trajectories through space and over the north pole to incinerate people and infrastructure on the other side of the world.

Contemporary hypersonic research is different than ICBMs or spacecraft in that it focuses on sustained, controlled flight at hypersonic speeds in the atmosphere.

This requires either using rockets to boost a vehicle or missile that then glides at hypersonic speeds to its target— a “boost-glide” system — or an “air-breathing” vehicle with specialized jet engines called supersonic combustion ramjet, or scramjet, engines (both approaches are difficult, but scramjets are a bit like trying to light a blue dart in a tornado).

The U.S. has developed both types of hypersonic technologies, successfully flying air-breathing hypersonic test vehicles — like the X-43 in 2004 and the X-51 from 2010 to 2013 — and boost-glide weapons such as the Intermediate-Range Conventional Prompt Strike /Dark Eagle missile, though the latter failed its most recent test flight in late October.

WHAT KIND OF HYPERSONIC VEHICLE DID CHINA TEST?

It’s not exactly clear what China flew over the summer. Officially, the Chinese Foreign Ministry says the launches were tests of reusable spacecraft.

Heil tells Inverse it was likely some sort of boost-glide vehicle —a maneuverable, hypersonic glider lofted to high altitude and then gliding down at hypersonic speeds to strike its target.

China has tested one such weapon system, the DF-ZF, nine times since 2014, according to a Congressional Research Service report.

But most boost-glide systems don’t place a glide vehicle in orbit. That’s much more like a fractional orbital bombardment system, or FOB, a system that was actually deployed by the USSR in the 1970s and 80s, according to a Twitter thread by Jeffery Lewis, director of the East Asia Nonproliferation Project at Middlebury Institute of International Studies.

The idea is to place nuclear weapons in a partial orbit for a short time, from where they can be called down upon your enemies unpredictably.

“The Soviets had an operational FOBS capability for twelve years,” Lewis tweeted. “It was designed to defeat US missile defenses.”

CHINA’S HYPERSONIC VEHICLE AND ITS CAPABILITIES

It’s the possibility of a Chinese FOB system evading missile defense systems that worries people like Congressman Gallagher. It’s not the speed of a hypersonic missile — a traditional ICBM flies faster — but its maneuverability and unpredictability.

“Ballistic systems are, by definition, predictable. Once you know a ballistic trajectory, you can predict about where it's gonna land,” Heil says. “With a hypersonic system, even if you can detect it coming in, it can maneuver. It can go off on a different azimuth and hit a different target than you think it was aiming for.”

That makes it hard to intercept a hypersonic missile with an anti-missile missile.

But China’s hypersonic launch probably doesn’t mean we’re heading toward nuclear war.

There’s a very important thing to consider when discussing missile defense systems and nuclear attacks: There is no missile defense system. Not against a large-scale nuclear attack anyway.

A national missile defense against a few missiles is “doable,” Heil says. But is there a missile defense system in place that could fend off a large-scale attack from China? No.

Ultimately, it doesn’t matter how you nuke an American city, it only matters that you nuked an American city. Whether a missile from space, a bomb dropped from a plane, or smuggled inside of a suitcase, if China nukes the U.S., the U.S. will nuke back.

Mutually assured destruction was the basis of the strategic stalemate between the Soviet Union and the U.S. during the Cold War — and we haven’t progressed past that policy.

It may be the case that China is developing a missile system that can evade missile defense systems, Struckman says, but assuming it wanted to start a full-scale nuclear war — a big if — a hypersonic missile, “does not alleviate the targeting conundrum any adversary would face in trying to strike 400 dispersed ICBMs, along with deployed submarines and bombers.”

One of the reasons the U.S. and USSR stockpiled thousands of nuclear weapons across multiple weapons platforms was to make it difficult for the other side to wipe out their ability to retaliate should they be victims of a surprise attack. Hypersonics are in many ways just better missiles — but they still can’t compete with the number of American nukes.

What also gets lost in this conversation is the cost of hypersonic missiles, Struckman says.

“It seems to me that the price tag alone per unit cost on a hypersonic weapon would preclude mass production and thus strengthen the argument for using them against high-value targets,” he explains.

#### MAD and de-escalation measures check.

Ananmay Agarwal 21, graduate student at The Fletcher School of Law and Diplomacy at Tufts University; Ryan Harden, lead program manager at the United States Air Force, 10/26/2021, "Letter: China’s hypersonic missiles do not change the nuclear calculus," <https://www.ft.com/content/924c8163-60ac-404a-bc8b-29fd534b1c0d>, RMax

While the operational test conducted by China has fuelled fears over a potential conflict, the reality is that mutually assured destruction remains the reigning doctrine governing nuclear deterrence. Further, the belief that hypersonic missiles fundamentally alter interactions between nuclear weapon states is misguided. Nuclear weapon states continue to employ the “triad” — bombers, submarines and intercontinental ballistic missiles or ICBMs — to effectively strike their targets from any location in real time. Although hypersonic missiles are unrivalled in their speed, nuclear capable assets can be deployed fast enough to eliminate a first-mover advantage.

Despite technological breakthroughs, the US and China will avoid nuclear war at all costs, as was the case between the US and the Soviet Union. Nonetheless, both powers should try to avert the modern day equivalent of a Cuban missile crisis altogether.

Though it is true that no bilateral treaty exists between Washington and Beijing on nuclear weapons, there are other informal avenues to mitigate tensions.

Consider the actions of General Mark Milley, the chairman of the joint chiefs, who said he contacted his Chinese counterpart General Li Zuocheng to de-escalate tensions following the January 6 insurrection on Capitol Hill, citing intelligence showing China was concerned about the risk of attack from a destabilised US. None of this is to argue that the US should stop investing in nuclear modernisation and shoring up defensive capabilities as nuclear technology evolves.

### AT: Air Power---1NC

#### Air power doesn’t deter---studies prove.

Abigail Post 18, professor of Political Science at Anderson University, 7/21/2018, “Flying to Fail: Costly Signals and Air Power in Crisis Bargaining,” *Journal of Conflict Resolution*, Vol. 63, No. 4, pp. 869-895, https://doi.org/10.1177/0022002718777043

Discussion, Limitations, and Conclusions

Scholars continue to dispute the coercive role of air power in single cases and across space and time. This article examines coercive air power from a new angle, assessing the role of air power as a costly signal during international crisis bargaining. It argues that air demonstrations communicate a lack of resolve during coercive bargaining. Using new data on air, naval, and land demonstrations during interstate crises, this article finds that air signals do not increase the success of compellent threats. Air demonstrations are far less effective at inducing target compliance when compared with other military demonstrations.

Of course, this is not to say that air power is ineffective in all problem areas. This article does not assess the usefulness of air power in a host of other situations, including surveillance, reconnaissance, force application, and force enhancement processes, to name a few. However, the findings here jive with the growing consensus that air power has limited utility for coercion. While Pape’s conclusions concerning air power prompted a litany of criticisms and responses from multiple angles (Watts 1997; Warden 1997; Pape 1997a, 1997b; Mueller 1998), coercive air power (particularly when used in punishment campaigns) has been found to have limited utility within war (e.g., Horowitz and Reiter 2001).23 This article finds comparable patterns in the period leading up to war as well.

One limitation of the study and data is its focus on the challenger state over the target state. The theory here does not delve into the goals/interests of the state being coerced, and the MCT data set does not include much information on the target state. However, this limitation is unlikely to undermine the findings of this article regarding the success of compellent threats. If a state is the recipient of a compellent threat, it is likely that the state has already begun to undertake an action that is undesirable and is relatively highly resolved to achieve its goals. Given the target’s high resolve, the coercing state(s) will need to employ especially costly signals to bring about a desired behavior. Air power is not a particularly costly signal, so we should expect air mobilizations and demonstrations to be less effective in these cases. However, air signals may be more effective for deterrent purposes, in which the target state’s resolve is weaker and the stakes are lower. That is, if the target state has relatively low stakes in a crisis, air mobilizations might actually serve as a credible and effective signal of resolve. A study of deterrence may be better able to address variation in target interests and resolve and find different effects for various military signals.

This article suggests a significant revision to our understanding of military mobilization and costly signals. To further evaluate this article’s central claim—that audiences interpret air demonstrations as less costly signaling attempts and respond accordingly—we should move to models and data sets that better assess the scope of the signal employed. We also need to focus on the intent behind the signal. Of course, intent is much more difficult to assess in practice than in theory. State leaders often “intend” a policy to communicate multiple meanings to different audiences and may revise their own understanding based on its effects. Future research might look at how leaders (especially presidents) choose among the signaling options in the coercive bargaining context. This may require extensive archival research to understand why leaders rely on certain types of military power. For example, those with military experience may prefer certain types of signals compared with civilian presidents, just as military background can influence the willingness to use force more generally (Horowitz and Stam 2014; Horowitz, Stam, and Ellis 2015; Sechser 2004).

At a minimum, these findings suggest that air power communicates a lack of resolve across a data set of compellent threats. According to the theoretical framework provided here, air signals reveal important limitations to a state’s cost tolerance. In so doing, such acts signal a degree of restraint (perhaps unintentionally) and come across as half-hearted signals. Instead of being costly enough to demonstrate resolve, air signals are costless enough to demonstrate a lack of resolve. Recent scholarship on air power notes that “ ... . even when military professionals doubt the effectiveness of air power in certain situations, the siren song of airpower continues to appeal to civilians committed to doing something” (Farley 2014, 189). These results lead to the frustrating conclusion that succumbing to the demand to just “do something, anything” may be an efficient way to accomplish little during cases of international bargaining.

### AT: Naval Power---1NC

#### Naval power fails.

Hooda ’18 [DS; 7-25-2018; Lt. Gen., former Northern Commander, Indian Army, under whose leadership India carried out surgical strikes against Pakistan in 2016; “Navy, Air Force Are Key But Land Power Will Decide Victory in Future Wars,” News 18, https://www.news18.com/news/opinion/opinion-navy-and-air-force-key-fronts-but-land-power-will-decide-indias-victory-in-future-wars-writes-lt-gen-ds-hooda-1822721.html]

None of these arguments are completely incorrect, but in questioning the primacy of land power, they ignore both history and geography, as well as the psychological aspect of warfare. There is no example in military history where a major conflict between strong powers has been decisively won only on the basis of a naval or air campaign.

The Allied strategic bombing campaign against Germany in World War 2 was unprecedented in scale. According to The United States Strategic Bombing Survey, published after the war, almost 2,700,000 tons of bombs were dropped, with more than 1,440,000 bomber sorties and 2,680,000 fighter sorties being flown. An estimated 300,000 civilians were killed and 780,000 wounded while almost 7,500,000 were rendered homeless. However, as the survey pointed out, “The mental reaction of the German people to air attack is significant…Their morale, their belief in ultimate victory or satisfactory compromise, and their confidence in their leaders declined, but they continued to work efficiently as long as the physical means of production remained.” Ultimately it required a ground offensive for Germany to capitulate.

There is a similar trend in the employment of naval power. For Alfred Mahan, the imposition of a blockade to choke a country’s economy was the ultimate manifestation of sea power. However, as John J. Mearsheimer points out in his book The Tragedy of Great Power Politics, “First, blockades alone cannot coerce an enemy into surrendering. The futility of such a strategy is shown by the fact that no belligerent has ever tried it…Second, blockades rarely do much to weaken armies, hence they rarely contribute in important ways to the success of a ground campaign.”

Julian Corbett, a famous British naval strategist, reinforces this view when he writes, “Since men live upon the land and not upon the sea, great issues between nations at war have always been decided…either by what your army can do against your enemy’s territory and national life, or else by the fear of what the fleet makes it possible for your army to do.”

There are two more domains of modern warfare, space and cyber. While important, these are by themselves are not sufficient to force victory. Non-contact warfare is a good term to use, and while countries would like to win victories without much cost, it would be poor strategy to plan our force structure on this assumption.

War is essentially a human endeavour and a clash of wills between two adversaries. Past campaigns have shown that air or sea power has rarely impacted morale of the population to an extent that they force the government to submit. It is only when territories are conquered, and population subjugated that governments surrender. Mearsheimer makes a critical observation, “Armies are of paramount importance in warfare because they are the main military instrument for conquering and controlling land, which is the supreme political objective in a world of territorial states. Naval and air forces are simply not suited for conquering territory.”

### AT: NC3---1NC

#### No NC3 hacking.

Futter ’16 [Andrew; 2016; International Politics Professor at the University of Leicester; “War Games Redux? Cyberthreats, US–Russian Strategic Stability, and New Challenges for Nuclear Security and Arms Control,” European Security 25(2), p. 171-172]

It is of course highly unlikely that either the USA or Russia has plans – or perhaps more importantly, the desire – to fully undermine the other’s nuclear command and control systems as a precursor to some type of disarming first strike, but the perception that nuclear forces and associated systems could be vulnerable or compromised is persuasive. Or as Hayes (2015) puts it, “The risks of cyber disablement entering into our nuclear forces are real”. While the growing possibility of “cyber disablement” should not be overstated (notions of a “cyber-Pearl Harbor” (Panetta 2012) or “cyber 9–11” (Charles 2013) have done little to help understand the nature of the challenge), cyberthreats are nevertheless an increasingly important component of the contemporary US–Russia strategic context. This is particularly the case when they are combined with other emerging military-technical developments and programmes. The net result, especially given the current downturn in US–Russian strategic relations, and the way cyber is exacerbating the impact of other problematic strategic dynamics, is that is seems highly unlikely that either the USA or Russia will make the requisite moves to de-alert nuclear forces that the new cyber challenges appear to necessitate, or for that matter to (re)embrace the “deep nuclear cuts” agenda any time soon.

Assessing the options for arms control and enhancing mutual security

Given the new challenges presented by cyber to both US and Russian nuclear forces and to US–Russia strategic stability, it is important to consider what might be done to help mitigate and guard against these threats, and thereby help minimise the risks of unintentional launches, miscalculation, and accidents, and perhaps create the conditions for greater stability, de-alerting, and further nuclear cuts. While there is unlikely to be a panacea or “magic bullet” that will reduce the risk of cyberattacks on US and Russian nuclear forces to zero – be they designed to launch nuclear weapons or compromise the systems that support them – there are a number of options that might be considered and pursued in order to address these different types of threats and vulnerabilities. None, of these however, will be easy.

The most obvious and immediate priority for both the USA and Russia is working (potentially together) to harden and better protect nuclear systems against possible cyberattack, intrusion, or cyber-induced accidents. In fact, in October 2013 it was announced that Russian nuclear command and control networks would be protected against cyber incursion and attacks by “special units” of the Strategic Missile Forces (Russia Today 2014). Other measures will include better network defences and firewalls, more sophisticated cryptographic codes, upgraded and better protected communications systems (including cables), extra redundancy, and better training and screening for the practitioners that operate these systems (see Ullman 2015). However, and while comprehensive reviews are underway to assess the vulnerabilities of current US and Russian nuclear systems to cyberattacks, it may well be that US and Russian C2 infrastructure becomes more vulnerable to cyber as it is modernised and old analogue systems are replaced with increasingly hi-tech digital platforms. As a result, and while nuclear weapons and command and control infrastructure are likely to be the best protected of all computer systems, and “air gapped”14 from the wider Internet – this does not mean they are invulnerable or will continue to be secure in the future, particularly as systems are modernised or become more complex (Fritz 2009). Or as Peggy Morse, ICBM systems director at Boeing, put it, “while its old it’s very secure” (quoted in Reed 2012).

### AT: NC3---2NC

#### NC3 is totally disconnected from the internet.

Caylor ’16 [Matt; 2-1-16; Command and Staff College; “The Cyber Threat to Nuclear Deterrence,” War on the Rocks, <http://warontherocks.com/2016/02/the-cyber-threat-to-nuclear-deterrence/>]

The perception that cyber threats will ultimately undermine the relevance or effectiveness of nuclear deterrence is flawed in at least three keys areas. First among these is the perception that nuclear weapons or their command and control systems are similar to a heavily defended corporate network. The critical error in this analogy is that there is an expectation of IP-based availability that simply does not exist in the case of American nuclear weapons — they are not online. Even with physical access, the proprietary nature of their control system design and redundancy of the National Command and Control System (NCCS) makes the possibility of successfully implementing an exploit against either a weapon or communications system incredibly remote. Also, whereas the cyber domain is characterized by significant levels of risk due to a combination of bias toward automated safeguards and the liability of single human failures, nuclear weapon safety and surety are predicated on balanced elements of stringent human interaction and control. From two-person integrity in physical inspections and loading, to the rigorous mechanisms and authority required for weapons release, human beings serve as a multi-factor safeguard while retaining the ultimate role to protect the integrity of nuclear deterrence against cyber threats.

To a large degree, the potential vulnerabilities caused by wireless communications and physical intrusions into areas holding nuclear material are already mitigated via secure communications that are not linked to the outside and multiple layers of physical security systems. While there has been a great deal of publicity surrounding the Y-12 break-in of 2012, the truth is that the three people involved never got near any nuclear material or technology.

Without state-level resourcing in the billions of dollars, the technical sophistication required to pursue a Stuxnet-like attack against nuclear weapons is most likely beyond the capability of even the most gifted group of hackers. For all intents, this excludes terrorist organizations and cyber criminals from the field of threats and restricts it to those nations that already possess nuclear weapons. Nuclear-weapon states, however, have the full-spectrum cyber threat capability referenced in the Defense Science Board report and would most likely be influenced by an understanding of the elements of classic nuclear deterrence strategy. In the case of first strike, no cyber weapon could be expected to perform at a rate higher than any conventional anti-nuclear capability (i.e., not 100 percent effective). Therefore, an adversary’s nuclear threat would be perceived to endure, thereby negating and dissuading the effort to use and employ a cyber weapon against an adversary’s nuclear force. Additionally, just as missile defense systems have been historically controversial due to perceived destabilizing effects, it is reasonable to conclude that these nuclear-weapon states would view the attempt to deploy a cyber capability against their nuclear stockpiles from a similar perspective.

Finally, the very existence of nuclear weapons is often enough to alter the risk analysis of an adversary. With virtually no chance of remote or unauthorized detonation (which would be the desired results of a sabotage event), the most probable cyber threat to any nuclear stockpile is that of espionage. Attempted cyber intrusions at the U.S. National Nuclear Security Agency (NNSA) and its efforts to bolster cybersecurity initiatives provide clear evidence that this is already underway. However, theft of design information or even more robust intelligence on the location of stored nuclear weapons cannot eliminate the potential destruction that even a handful of nuclear weapons can bring to an adversary. Knowledge alone, particularly the imperfect knowledge that cyber espionage is likely to offer, is incapable of drastically altering an adversary’s risk calculus. In fact, quite the opposite is true. An adversary with greater understanding of the nuclear capabilities of a rival is forced to consider courses of action to prevent escalation, potentially increasing the credibility of a state’s nuclear deterrence.

Despite the growing sophistication in cyber capabilities and the willingness to use them for espionage or in concert with kinetic attack, the strategic value of nuclear weapons has not been diminished. The insulated architecture combined with a robust and redundant command-and-control system makes the existence of any viable cyber threat of exploitation extremely low. With the list of capable adversaries limited by both funding and motivation, it is highly unlikely that any nation will possess, or even attempt to develop, a cyber weapon sufficient to undermine the credibility of nuclear weapons. In both psychological and physical terms, the threat of the megabyte will never possess the ability to overshadow the destructive force of the megaton. Although the employment of cyberspace for military effect has brought new challenges to the international community, the role of nuclear weapons and their associated deterrence against open and unconstrained global aggression are as relevant now as they were in the Cold War.