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Transcript

CHINA IN THE WORLD PODCAST

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Episode 112: Technology and Innovation in an
Era of U.S.-China Strategic Competition
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Haenle: Welcome to the China in the World podcast. We're recording today from the Carnegie Endowment's Washington DC office, the home of the Carnegie Endowment, the home of the Carnegie Endowment's other podcast, the Diplopod. I encourage all our listeners to check out the Diplopod.

Today I'm excited to welcome Elsa Kania to the podcast. Elsa is an adjunct fellow at the Center for a New American Security in the Technology and National Security program. She's an analyst, consultant, and a co-founder of the China Cyber and Intelligence Studies Institute. Elsa is becoming a leading voice on technology in China and has testified before the U.S. China Economic and Security Review Commission and the House Select Committee on Intelligence. Most importantly from my perspective, Elsa was previously a Carnegie-Tsinghua Center Global Intern and the first ever Young Ambassador to join the China in the World podcast. Elsa, thank you very much for joining us.

Elsa: Thank you. It's wonderful to be here.

Haenle: So, over the past two days, Elsa, you've participated along with me and other U.S. and Chinese experts in the Carnegie-Tsinghua Center's Track 1.5 Dialogue on U.S.-China. We've heard from American and Chinese experts and officials, many U.S. government officials from the Trump administration. I just want to begin to get a sense from you of what your major takeaways of the last two days of discussions have been, and what is your own assessment then of where we stand in terms of the bilateral relationship?

Kania: It's been great to have a chance to take part in the Dialogue because it is a vital time to be thinking about the future trajectory of U.S.-China relations. Throughout our conversations, I'd say the trade war really overshadowed a lot of what we were thinking about in terms of how to reconcile the deep interdependence and in a sense entanglement between the U.S. and Chinese economies and innovation ecosystems with a focus on great power rivalry and what it's starting to be seen as a new era of strategic competition.

I think the convergence between a trade war and the growing and really intensifying concerns about China's ambitions in science and technology, particularly emerging technologies such as artificial intelligence, I think that convergence has really resulted in a fairly tricky dynamic. Increasingly, there does seem to be even a talk of a disentanglement or partial disengagement between the U.S. and China that I think could be stabilizing perhaps in so far as some of this entanglement has contributed to the current frictions, but also I think has to be very carefully managed to avoid collateral damage to our own competitiveness and to the U.S. and Chinese economies in the long term.

Haenle: You know it's interesting, there was a bit of a mix I thought in the people that we invited in to discuss the state of the relationship even within the Trump administration, some kind of talking about what seemed to be a more traditional approach. We need to have a constructive relationship with China, we need to work on our areas of difference and build cooperation where

we can, and then on the other hand, there were some who as you say, were much more interested I think in sort of the reassessment of the U.S.-China relationship and really questioning previous assumptions that we have been using with regards to U.S.-China, and more I think as you say of thinking about things we haven't thought about before, whether or not this interdependence that we have on the economic side with China is good, and should we move to a different kind of approach, so I thought that was also very interesting.

You mentioned the technology aspect and this is an area, Elsa, that you've done quite a bit of research, in particular the U.S.-China technology competition. Technology development and innovation is increasingly becoming a contentious part of the U.S.-China relationship, but in the private sector and among academic institutions in the United States and China, it's also an area of cooperation. I wanted to ask, given your research in this area: given the rising tensions in the bilateral relationship, how can we balance the need for both cooperation where we can spur innovation and development technology with the need to also protect our own technology innovation edge and own national security really?

Kania: That is a critical question these days, and I worry it may be difficult to find that balance. Certainly, in technology as in the U.S. and China relationship as a whole, we really have a juxtaposition of competition and cooperation these days, and although there can be talk of an AI arms race among other things, I think it is important to recognize the mutual benefits of engagement and cooperation in innovation. I hope we can sustain that despite reasons for concern particularly in technology that does have a number of impactful military applications. In terms of striking a balance, I would say that there have been cases where the openness of the U.S. innovation ecosystem has been exploited and started to provoke severe concerns about the consequences when, for instance, intellectual property theft has at certain points been quite pervasive both through human means and through cyber espionage. When academic engagement and scientific cooperation that, in many cases, should be welcomed, can also become problematic when there are direct links to counterparts who may have direct ties to the development of military technologies or surveillance capabilities.

I'd say also a major concern has been Chinese investment in strategic technologies particularly in Silicon Valley but also in vital ecosystems like Boston and for biotech and otherwise and that has provoked a reevaluation of what level of openness is favorable and appropriate with some of the proposed reforms to CFIUS, for instance, the Committee on Foreign Investment and the United States that are underway. I think absolutely there are reasons for greater scrutiny and for concerns that, in some cases, highly targeted investments and acquisitions can be a vehicle for technology transfer that is legal but concerning when it is driven by strayed priorities and imperatives. At the same time, we have to recognize that investment is integral to American innovation and if as we increase scrutiny in response to real and serious concerns, we also have to sustain that openness as much as possible, including to Chinese investment, because not all Chinese investment is necessarily problematic.

I would differentiate based on whether the fund or investor in question has clear or direct ties to the Chinese central or local government or to, in some cases, companies or military-linked

organizations as well. So, I would say we really have to look at these activities on a fairly case-by-case basis.

Haenle: And that's often hard to do or hard to know. I mean, I was surprised this week watching the NBC Today Show in the morning. I was getting ready for work and there was a profile of a Chinese student who'd come to the United States and studied for a particular professor and brought back the technology, started his own company and so it's really entering, I think, in many ways this, you know, where average American citizens are learning about these kinds of incidents.

You testified recently before the House Permanent Select Committee on Intelligence about the threat of China to America's status as an innovation leader. And so, I wonder if you could just talk a little bit about some of things that you see as concerns. You have mentioned some of them, but how do we address these threats, and at the same time, as you are alluding to, we also need as America to stay true to our values without sort of targeting entire populations of people. So, you know, how does one do that?

Kania: Again, not an easy question, but one that I think is really vital to consider with as much nuance and balance as possible these days. So, I'd say that China poses both a threat and a challenge to American leadership and innovation. I'd say that the near-term threat is again tech transfer through licit and illicit means. China has a long history of industrial espionage. Dr. James Mulvenon's work, for instance, has documented those tactics and techniques quite extensively and the Section 301 Report that came out earlier this year also had a very detailed account of some of these activities in ways in which they have been problematic.

One dimension, for instance, has been Chinese cyber espionage geared toward data and IP theft including, in some cases, targeting universities that pursue sensitive research, or recently, targeting a navy contractor that was also engaged in sensitive military research. So, certainly, these threats are immediate in many respects, and I think there is a need for targeted counter-measures focusing first and foremost on activities that are clearly unlawful and for which we have existing instruments to respond including through indictments such as of hackers from the former 3PLA in the past from after the APT1 Report which exposed the activities of Unit 61398 of the Chinese military...

Haenle: This is in the Obama administration?

Kania: Yes. And there has, I mean, I think it's worth noting that some of these efforts have been successful, at least in part. On the cyber front, there was a decrease in IP theft through cyber means in the aftermath of the APT1 Report and then the indictment and the Xi-Obama agreement. Though, it's worth noting that part of that decline can be attributed to other factors such as an anti-corruption campaign within the Chinese military, given that some of those activities underway may have been linked to corruption or moonlighting on behalf of Chinese military units that could have freelanced, in some cases, on behalf of state-owned enterprises.

Another influence there was also the reorganization of Chinese military cyber forces under the Strategic Support Force and perhaps a reassertion of command and control in refocusing of their activities on those more directly relevant to military intelligence and the development of offensive capabilities. So, on the cyber side of things, I think there, we have existing...

Haenle: Other factors to consider?

Kania: Other factors to consider, but also, reasons to believe the continuing to pursue legal counter measures can have some effect. Naming and shaming is not a perfect solution but can have some impact. Though I think we have seen not a mitigation but a transformation over the threat given part of the unintended consequence of those efforts was demonstrating that Chinese cyber threat actors needed to engage in better operational security and some, perhaps, have stepped up their game since then. So definitely, in certain respects they cat-and-mouse game in that domain.

I'd say that with regard to Chinese investment, as mentioned, not every investment necessarily conveys a clear or direct risk, but in some cases, this can be a mechanism for, for instance, increasing situational awareness of sensitive technologies in ways that could inform future targeting and acquisitions. Certain investments could also be intended to prevent the U.S. military from working with some of these same companies if they are more cautious to do so after learning that a company has received investment from China or, I'd say when an investor takes on, for instance, a board position on the startup or gains more direct access or has a clearer role within the company, that also may provoke more concerns. And I think the, again, the tricky thing here will be as there is greater scrutiny and awareness of these dynamics, we may see more obfuscation of who exactly is the investor and what their linkages may be back to mainland China, or more specifically, to elements of the Chinese government, and whether they're operating independently in accordance with commercial imperatives.

I'd say that a significant proportion of Chinese investment is indeed driven by the pursuit of opportunities, but some amount of it also can be clearly linked back towards local governments that often described this as intending to build a bridge and draw back technologies in their quest to become China Silicon Valley in a sense. I think along those lines beyond investments, I also discussed in my testimony some of the questions that arise with incubators and accelerators that may actually bring in startups and, in some cases, may provide them real and legitimate opportunities to access the Chinese part market, to pursue partnerships in China, and otherwise, but also could perhaps in some cases also enable direct access to sensitive technologies and again are often characterized in Chinese language sources, at least, as intended to enable a bringing in or drawing back of tech and talent to China at a time when talent arguably is the major motivator and battlefield of competition in a lot of these fields.

Haenle: In the U.S.-China technology competition field, one of the specific areas that's talked about a lot is artificial intelligence. And you've done, you've written on this, and you talk extensively on artificial intelligence and the implications of AI development for China's own

development in relations with the U.S. You wrote an article on this where you explain both the positive and negative implications of China's AI development for America's interests. One of things in your article you mention that AI will enhance both China's economic development and military modernization, while also reinforcing the party's ability to control the population through domestic surveillance, all of which are integral to the regime's security and legitimacy.

Talk more about why you think China has targeted AI as a strategic technology. In the Made in China 2025, something that we talked extensively about over the last couple of days, and many other subsequent government policy plans, what does it mean for U.S. interests? How should we cooperate? Can we cooperate with China on AI? What are your views on that?

Kania: A great question. So, to start I'd say it's actually striking how rapidly and recently AI has become a clear priority for the Chinese government. Actually, in Made in China 2025, AI was not a clear focus of that initiative. It was mentioned, but it wasn't one of the leading priorities within that initiative. Even in mid-2016, China's national innovation plan, which also focused on next-generation science and technologies, and launched 15 different megaprojects, included a focus on big data and robotics but did not explicitly highlight AI to the degree we've seen it prioritized since. So, what changed? I'd say...

Haenle: This is new. This is a new priority from the Chinese leadership.

Kania: I'd say there, well, it's not new in so far as Chinese companies like Baidu have been prioritizing AI for a couple of years now, and in certain cases, well before the Chinese government started to recognize it as such a priority. Baidu had an AI first agenda well before Beijing did and I think that is important to note as well because some of these companies have since been branded national champions but they owe their success very much to their own dynamism and their own efforts, though certainly many will benefit tremendously from having strong state support and funding going forward.

I'd say that there appear to have been a couple of catalysts for Beijing deciding to highlight AI as a strategic technology, and one of those appears to have been AlphaGo. AlphaGo's defeat of Lee Sedol in the spring of 2016, which was, by some accounts, ten or fifteen years before anyone had anticipated that an AI could beat a human in the game of Go, a game that, although sometimes reduced to a cliché, does have a history and cultural salience within China- I'd say that moment really captured a lot of attention among Chinese leaders both in the government and also in the military who saw this as a sign of how rapidly AI was advancing and also that Western AI, broadly speaking, was well ahead of China at that point.

It's worth noting that AlphaGo was made by DeepMind, which has been acquired by Google and was seen thus as a sign of the sophistication of U.S. AI and ironically perhaps, given recent events, given Google's reluctance to work with the U.S. military, Chinese military leaders actually also saw that event as an indicator of where the U.S. military might be thinking of going with AI given its demonstrated applicability to, for instance, decision support that an AI could really outthink humans in a sense in a game that requires fairly complex tactics and stratagems.

Certain Chinese military leaders extrapolated from there and said that this demonstrates the clear potential of AI to enhance command decision making and potentially achieve superiority on the battlefields of the future. So that was one catalyst.

Haenle: Fascinating. If it was Chess or Checkers, it may be different, but it was Go. It was Chinese Go, and that makes a difference. That's fascinating.

Kania: So it seems, and there actually have been a couple of Chinese teams that have since started to work on Go, and may someday challenge AlphaGo or its successor, so that would be an interesting metaphor and moment geopolitically and otherwise if we see an AI showdown in Go. There was actually a tournament that Google convened in China last summer where AlphaGo also beat China's top player, Ke Jie, and I think that was another illustration of Google's apparent dominance in the field.

I think to add to that catalyst I'd also say that as of, really as of mid- to late-2016, the U.S. government did appear as if it was about to launch a major national strategy and initiative in AI through a series of plans and reports released, including through the efforts of the Office of Science and Technology Policy. Those documents seem to have received a lot of attention in Beijing. Again, somewhat ironically perhaps, because there does not appear to have been all that much follow-through on those particular plans since then, but some of the basic ideas and elements of them, such as a focus on STEM education and building a broader human capital pool and workforce as well as concern over, for instance, AI safety and standards and attention to some of the broader societal disruption that may result, a lot of those elements which, I mean again many are basic elements of a policy geared toward innovation but many that happened to have been in these U.S. plans and policies have since actually been implemented on the ground in China.

Haenle: Interesting. Well I followed your work with great interest and I look forward to continuing to follow your work in technology in AI and other areas, especially with the intersection with China. I want to step back before we end, and I just want to ask you about your own career.

I met you through your thesis advisor, Ian Johnston, at Harvard University, but how did you ultimately get interested in China and defense technology issues and policy issues, and how have you interwoven these fields together?

Kania: I suppose I've been curious and I have a good and bad habit of when I'm fascinated with an issue really chasing it down wherever it takes me. I suppose I came to focusing on AI actually by a concentration on the Chinese military. Looking at the Chinese military's cyber capabilities and then the Chinese military's development of unmanned systems. From there, I started seeing references to AI and to the notion of intelligentization, which seems to be a concept that has emerged and since been highlighted by Xi Jinping himself as a new guiding principle for Chinese

military modernizations. I honestly almost stumbled across certain references to AI and the context of Chinese military modernization and was curious enough to follow that thread where it took me.

I also happened to start working on these issues around the time that some of the initial preparations for China's national AI plan were underway. The AI 2.0 Megaproject and was following some of the deliberations and considerations in its development. Since the plan has been launched, I have continued to track the issue fairly closely and really been startled by how quickly things have moved and how rapidly developments are happening on the ground in China. I suppose for me, I've really followed issues I'm fascinated with intellectually and continued to write and research and sort of seen where that's taken me professionally and otherwise. That's the advice I would have for anyone in this field: find what you are curious about or passionate about and don't be afraid to take risks if need be and see where that can take you.

Haenle: Well thank you very much. Thank you for joining the China and the World podcast. We will continue to follow your work. If you're in Beijing, especially as a former Carnegie–Tsinghua Young Ambassador, we encourage you to come visit the center, talk about your work. We'll pull together a group of Chinese scholars and of course, the current Young Ambassadors would be very enthusiastic to hear from you and hear what you've done since 2013 when you yourself were a Young Ambassador in Beijing. So thank you Elsa for joining us.

Kania: Thank you, and I will look forward to making it out to Beijing, hopefully sometime soon. And I'm always happy to stop by the Carnegie–Tsinghua Center.

Haenle: Thank you.

Kania: Thank you.