COVER STORY

The PLA's Unlikely Wingman

AVIC, China's aerospace behemoth, has been known to try to steal U.S. aviation trade secrets. It's also been allowed to buy them.

BY ELI BINDER AND KATRINA NORTHROP — OCTOBER 25, 2020

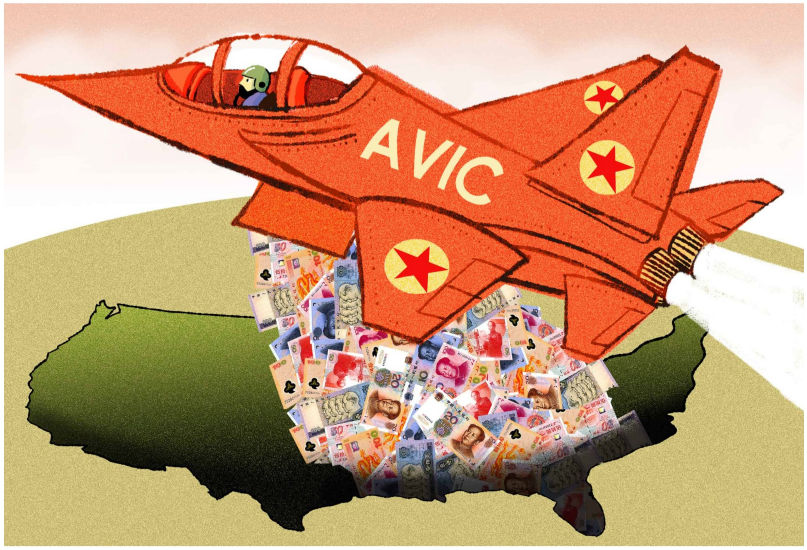


Illustration by Richard Neubecker

In May of this year, an 84-year-old inmate in a North Carolina federal prison died from Covid-19. Dongfan Greg Chung's death barely registered on the local news, but Chung held a unique status in U.S. judicial history: in 2009, he became the first person to ever be convicted of economic espionage.

Born in Liaoning Province, Chung fled with his family to Taiwan when he was 10 years old during the Chinese Civil War. He moved to the U.S. in the 1960s, becoming a citizen and settling down in Orange County, California, with his wife and two sons. He worked as an aerospace engineer for Rockwell International, and the unit he worked for was bought by Boeing in 1996. His life appeared relatively simple until one day in 1985 when a letter from a subsidiary of the Aviation Industry Corporation of China (AVIC) arrived, inviting him to visit China. AVIC makes the People's Liberation Army's fighter jets, and the subsidiary wanted Chung to discuss a range of topics, including aircraft fatigue design and helicopter rotors. Chung eagerly said yes.[1]

What followed is now archetypal in terms of fears over scientists born in China transferring American technologies to their homeland. When federal agents raided Chung's home in 2006, they found a crawl space with tasking letters from various divisions of AVIC, as well as 300,000 pages of documents from Boeing databases, which Chung had carefully collected or printed out for the state-owned conglomerate. Chung had been involved on a project for NASA, and some of the materials he'd saved for AVIC were related to the U.S. Space Shuttle and Delta IV rocket.

Federal prosecutors charged Chung with stealing Boeing's trade secrets, but to those involved, the case was about more than just giving a Chinese company a commercial edge.

"In our minds at the time, AVIC and the Chinese government were almost one and the same," says Ivy Wang, a prosecutor on the case. "It was clear from the tasking letters and communications, they were not asking Chung to give them this technology for the benefit of AVIC against commercial rivals. It was, to paraphrase: 'Give us this technology to help the motherland.'"

When prosecutors raided Chung's home, they found stolen plans for the Delta IV rocket, among others, in his crawl space. Pictured above, the Delta IV Heavy rocket with NASA's Parker Solar Probe, lifting off in August 2018. *Credit: NASA Kennedy, Creative Commons*

Chung was sentenced to 15 years in prison, and in the years since, economic espionage cases with a link to China have increased by approximately 1,300 percent, according to FBI director Christopher Wray. Fears over lone actors like Chung doing the bidding of the Chinese state have their root in "the thousand grains of sand" theory: the idea that China's intelligence efforts rely on a flood of nontraditional actors like students and scientists who each collect small grains of sand only to recreate the beach for China.[2]

But while the U.S., for better or worse, has been eager to convict cases like Chung's in the years since, it has only recently started to pay attention to a potentially more significant source of technological transfer: when Chinese companies, especially state-owned ones, partner with leading U.S. firms. In June, a month after Chung died, the Pentagon released a list of 20 companies, including AVIC, that it says are controlled by the Chinese military. (AVIC did not respond to an interview request from *The Wire*.) The goal was to increase scrutiny on these companies, but some analysts say it is too little too late. For the 11 years Chung sat in federal prison, the company that recruited and coaxed him to steal aviation trade secrets has been free to do business in the United States.

Just four months after Chung was convicted, AVIC formed a joint venture with General Electric. The deal was supposed to help AVIC produce a commercial jet to compete with Boeing and Airbus, and it found support at the highest levels of government. U.S. Commerce Secretary Gary Locke attended the launch of the joint venture in Chicago along with the Chinese Commerce Minister in January 2011. In a press release, GE Aviation said, "We cannot afford to be afraid of China."[3]

Representatives from AVIC, COMAC (Commercial Aircraft Corporation of China Ltd.), and GE (General Electric) clasp hands during a signing ceremony in July 2010 in Shanghai, China.
Credit: Imaginechina via AP Images

Indeed, in the most literal sense, the U.S. economy couldn't afford to turn away AVIC's investment. The global financial crisis had sent most of the world — but not China — into a deep recession, and many American companies were struggling. Flush with cash, Chinese companies like AVIC went on a buying spree. Since 2008, AVIC has spent over $3 billion acquiring about 20 different engineering, aerospace, or automotive companies in the United States and Europe.

Even though AVIC had a history of stealing trade secrets, violating sanctions,[4] and attracting suspicion from U.S. intelligence agencies, federal authorities did not stop the company from scooping up businesses from Saginaw, Mich., to Beumont, Texas. "You're not stealing trade secrets if you're buying them," Thomas P. O'Brien, the U.S. Attorney for the Central District of California when Chung was tried, tells *The Wire*.

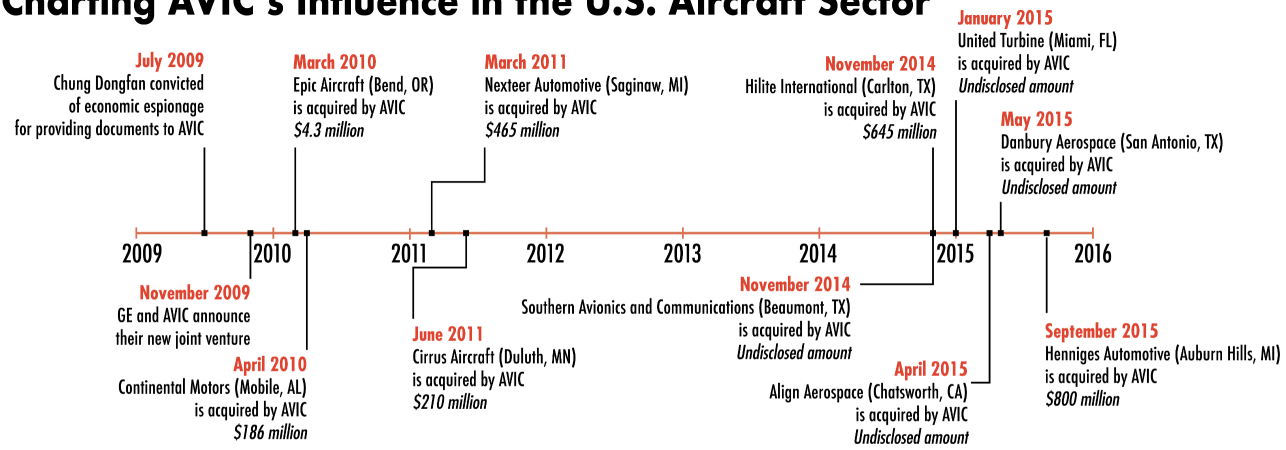
Depending on who you ask, AVIC's string of acquisitions in the U.S. represent either a grave mistake, one which allowed the PLA to quickly modernize and close the gap with the U.S., or good economic opportunities during America's time of need. The messy reality may be a mixture of both.

In June of 2011, for example, AVIC bought Cirrus Aircraft, a private plane maker based in Duluth, Minn., for $210 million. Cirrus, according to Brian Foley, an aviation strategist, was "one of those homegrown American stories where the airplane was conceived and first built in a barn in the Midwest and went on to become a market leader." It specialized in the SR22, a single-engine aircraft, which continues to be one of the world's best-selling private planes. But Cirrus was sinking under considerable debt when AVIC offered a deal it couldn't refuse.

"This deal helped Cirrus get through a really uncertain time and retain those good American jobs during the global financial crisis," says Don Ness, who was mayor of Duluth at the time of the deal. "There wasn't a long line of potential buyers for Cirrus."

Foley said it felt like a "foreign country came in and took away a patriotic brand like Coke or Disney or Nike." But the Committee on Foreign Investment in the United States (CFIUS), the federal interagency body that reviews foreign acquisitions for national security concerns, let the deal go through. A month later, the Air Force granted Cirrus a contract for their SR20's to be used in the Air Force Academy cadet training.

Charting AVIC's Influence in the U.S. Aircraft Sector



Now, even though Cirrus has been owned by AVIC for nearly a decade, there is no mention of AVIC, the PLA, or even China on its website. "I'm sure there are many Duluthians who probably don't know" the company is Chinese-owned, says Brian Hanson, who was the director of business and community development in Duluth at the time of deal. Nor do they probably care, as the company has grown immensely since. Cirrus now has over 1,500 employees, up from around 500, and it has added three facilities in North Dakota, Tennessee and Texas.

But even if Americans then and now see the deal as commercial, AVIC may not.

HINDSIGHT IS 20/20

AVIC is a behemoth in the aerospace industry, with over 100 subsidiaries doing business in 67 countries, more employees worldwide than Boeing Co. and Airbus combined, and an annual revenue of $68.5 billion[5] last year — double that of Northrop Grumman, the American defense contractor.

Originally known as China's Ministry of Aerospace Industry, its first priority is to supply aircraft to the People's Liberation Army. It makes all the fighter jets for China's Air Force and Navy, as well as its stealth bombers, unmanned drones and attack helicopters.[6] But as China transitioned to a market economy in the early 1990s, AVIC emerged as a company wholly owned by the state and began branching out into commercial products as well — a transition that was not without bumps in the road.

In 1993, for example, an AVIC subsidiary that wanted to manufacture commercial aircraft approached the U.S. aerospace company McDonnell Douglas for machinery. McDonnell Douglas received approval for the deal from the Commerce Department, but not long thereafter the company discovered AVIC had sent some of the equipment to a facility that made military aircraft and missiles.[7] AVIC (and McDonnell Douglas) was indicted for the incident — the first time a Chinese government entity was indicted for violating U.S. export controls — but the company continued to build up its commercial operations nonetheless, following a policy that Beijing termed "civil-military integration."

"This diversification strategy has been an important priority of Chinese defense firms, and AVIC has been in the vanguard of that," says Tai Ming Cheung, the director of the University of California, San Diego's Institute on Global Conflict and Cooperation. Cheung estimates that today around 60 percent of AVIC is commercial and 40 percent is military.

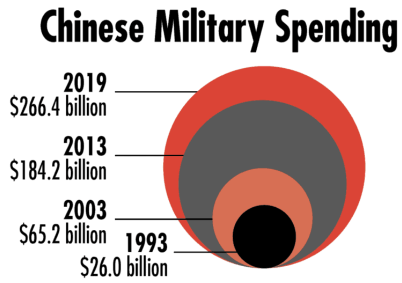
Under Xi Jinping, the policy of "civil-military integration" got a facelift. In 2015 he rephrased it to be "military-civil fusion" — emphasizing the military part — and he designated it a national priority. That same year, in a social responsibility report, Lin Zuoming, the AVIC president who inked the joint venture with GE, noted that "AVIC always regards civil-military integration as its historical mission."

In its most simple form, military-civil fusion encourages acquiring commercial technology and repurposing it to enhance military prowess. Militaries around the world take advantage of commercial technology, but analysts say that the degree to which this policy plays a role in China's state planning is unique.

"The Chinese system writ large is very different than ours," says Brendan Mulvaney, director of the China Aerospace Studies Institute at the Air Force's Air University. "And the interplay between state-owned enterprises and civilian companies and the military in China is all far more intertwined than it is in the United States."

But, Mulvaney and others note, the U.S. was slow to realize exactly what was happening. At the same time Xi was prioritizing military-civil fusion, he was also boosting China's defense spending. When AVIC was founded in 1993, for example, the official budget of the People's Liberation Army was $7.45 billion. Last year, according to data from the Stockholm International Peace Institute, the Chinese military spent over $260 billion, second only to the U.S. military, which spent $731 billion.

In the past decade, AVIC has used that cash to partner with U.S. defense contractors like Honeywell, GE, and Textron, and it bought a handful of American companies in potentially sensitive areas like avionics, engines, and automotive sealants.[8] At least seven AVIC-related deals passed the CFIUS review process between 2010 and 2015. At the time, observers say, policy makers were more concerned with subprime mortgages and wars in Iraq and Afghanistan than China's plans to one day expand influence and project military power abroad.



China's spending on the People's Liberation Army (PLA) since its inception in 1993.
Data: Stockholm International Peace Research Institute

"In the 2000s and early 2010s, the U.S. — especially the defense industrial base — was focused elsewhere, like on terrorism. Doing business was important," Cheung says. "And in the early 2010s, AVIC was overflowing with money."

Moreover, for many of these deals, there wasn't a clear military application to the technology involved. Only in retrospect, analysts say, did certain patterns emerge.

"They're acquiring A, B, and C from these different companies," Mulvaney says. "Acquisition A isn't really a big threat, and B isn't a threat, and C isn't a threat. But when you link those things together, we realized that it allowed them to build a kind of rocket or fix their jet engine problem. … When you put them all together, then you're like, holy cow, now I totally see what they're doing."

Alanna Krolikowski, a professor at Missouri University of Science and Technology who studies innovation in China and the United States, similarly says that too many people focus on the finished product China acquires, rather than the larger production systems involved. "These acquisitions don't simply plop a better fighter jet in the lap of China's military," she says. But certain acquisitions "can contribute to that holistic improvement and upgrading of the industrial base."

But experts also caution that conglomerates like AVIC are difficult to understand and not every move the company makes is necessarily tied to China's military. "There are too many people assuming that these companies are a monolith with an executive stroking a white cat in his floating volcano headquarters," says James Mulvenon, director of SOS International's Intelligence Integration and a leading expert on China's Air Force. AVIC's Cirrus acquisition, for example, doesn't cross the threshold to national security threat for

Mulvenon.

AVIC displayed a J-31 gyrfalcon stealth fighter plane model at 2015's Beijing International Aviation Expo.
Credit: WANG ZHAO/AFP via Getty Images

"We shouldn't really be wasting our time on four-seater commercial aircraft," he said.

Even if each move AVIC makes isn't part of a meticulous strategy, however, those familiar with the company say the U.S. should be clear-eyed about its mission. "AVIC's number one objective, its foremost requirement, is to support the military-civil fusion policy," says Patrick Jenevein, whose company, Tang Energy, formed several wind power and energy generation joint ventures with AVIC, which were active from 1996 to 2014. The projects involved jet engines and propellers for wind turbines, and Jenevein says it became clear to him that AVIC wasn't driven by the goal of generating electricity in central and western China, where the joint ventures were operating.

"They were trying to learn the technology," he says. "It wasn't that they were particularly concerned about delivering electricity reliably. It was: How do you keep a military airplane in the sky?"

At one point Jenevein was given the honor "friend of AVIC," but is now involved in several lawsuits with the company over the joint venture in the United States.

"If they happen to make a few bucks, wonderful, but that's icing on cake," Jenevein says of AVIC's business goals. "That's not a requirement; it's not even an expectation. And to the extent that it happens, they're most happy that it appears to be a commercial deal that can distract Americans."

BETS AND BENEFITS

In 2011, General Motors was in a bad way. In the wake of the financial crisis, the company had declared bankruptcy, been bailed out by the Obama administration, and was looking to shed unprofitable divisions, including Nexteer Automotive, a small-town steering company that had been bought by Buick, a GM division, in 1909.

"Nobody was investing in businesses at that time," says Robert Remenar, Nexteer's chief executive during the financial crisis. "Then low and behold, an investment banker shows up from AVIC."

It was a bold move for AVIC to buy Nexteer. The company had a strong union presence that was proud of its patriotic history: it had made mortars for the military during World War I and machine guns during World War II. Remenar remembers the vice president of the United Auto Workers Cal Rapson was upset about selling an American icon to the Chinese

government. "He said: 'Bob, these are Chinese communists.' I said: 'Cal, you're a socialist, they're communists, what's the difference? They committed in writing to respect the United Auto Workers agreement and not move jobs out of Saginaw, Michigan.'"

Remenar also had concerns about selling to a Chinese defense company, but he was reassured that American companies in more sensitive fields than steering, like GE, were doing business with AVIC. And after close scrutiny, Remenar says, U.S. regulators with CFIUS approved the $465 million deal.

AVIC's investment helped Nexteer make the transition from hydraulic to electric steering — a crucial component for electric vehicles, which is a Beijing priority. In 2013, AVIC listed Nexteer on the Hong Kong Stock Exchange, and its value has since more than doubled. Its manufacturing still takes place in Saginaw.

Given the economic outcome of deals like Nexteer and Cirrus, many involved don't think it was a mistake to do business with a Chinese defense contractor. "I look at Cirrus as a success story of how our two countries can work together," says Ness, the former Duluth mayor. "That transaction benefitted American workers and showed that it was possible for these two massive economies to work towards mutual benefit."

The single-engine SR22 aircraft, manufactured by Cirrus, continues to be one of the world's best-selling general aviation aircraft. AVIC purchased Cirrus in 2011.
Credit: James, Creative Commons

But, while the Nexteer and Cirrus deals may have produced economic returns, the national security calculus has changed considerably in the intervening years. According to many experts, China's military is still behind the U.S. military, but it is catching up — fast. And deals like the Nexteer and Cirrus acquisitions may have played a small role in that.

"Ultimately, a good deal of defense-related technology made its way into China, which directly or indirectly helped improve China's military aircraft industry," says Larry Wortzel, a commissioner on the U.S.-China Economic and Security Review Commission. Wortzel thinks some of the CFIUS rulings in the past decade are to blame. "In a relatively short period of time the People's Liberation Army has been able to equip its Air Force and Naval Air Force with modern fighters, stealth technology, top of the line radar systems, new helicopters, and up-to-date unmanned aerial vehicles."

But while China's military has certainly improved in the past decade, the associated risk of that improvement is very much a matter of opinion. Kevin Wolf, Assistant Secretary of Commerce for Export Administration during the Obama Administration, was a member of

CFIUS at the time. While he is legally barred from discussing cases, he says "the assumption for state plans for the diversion of technology for military use was baked into the CFIUS analysis."

"If you're looking at something that was approved," he adds, "it's very likely that they were items of low sensitivity so if they were diverted [to the PLA], there would be low likelihood of harm."

In the current political climate, however, a "low likelihood of harm" no longer cuts it. The tide has turned so aggressively in recent years that companies in much less sensitive areas than those AVIC acquired are targeted by the Trump administration and rejected by CFIUS. Thanks to the 2018 Foreign Investment Risk Review Modernization Act — which broadened the type of transactions that CFIUS has purview over — the committee has taken a much more active role in controlling investment on national security grounds. It has since blocked a Chinese joint venture with a company that makes body braces and an acquisition of hotel management software.

Given these precedents, it's difficult to imagine a Chinese defense contractor like AVIC getting the green-light today to acquire an American toothbrush company, let alone an aviation company. "There has been a change in U.S. policy debates from regarding Chinese investment as an opportunity, such that the United States should be looking to attract and leverage it to support the American economy, to instead seeing such investments more as a threat," says Elsa Kania, Adjunct Senior Fellow at the Technology and National Security Program at the Center for a New American Security. "And the reality is somewhere in the middle."

Indeed, for some, these changes pose problems of threat dilution. "If you are indiscriminate about your worries about national security, it distracts from things that are actually troubling," says James Fallows, The Atlantic writer and the author of *China Airborne,* a book about China's ambitions to rival the U.S. in aerospace development.

It also means the U.S. could miss out on investment opportunities, especially in times of need. In the wake of Covid-19, for example, as the American economy again finds itself in dire straits, it's unlikely Chinese money will be allowed to save small communities like Duluth and Saginaw.

"In 2008, the chief policy goal was to shore up the economy and save companies," says Greg Levesque, CEO of Strider, a tech startup combating nation-state directed intellectual property theft and supply chain risks. "The national security concerns took a back seat to economic priorities, and China took advantage of that."

> **"There are too many people assuming that these companies are a monolith with an executive stroking a white cat in his floating volcano headquarters."**
>
> *— James Mulvenon, director of SOS International's Intelligence Integration and a leading expert on China's Air Force*

It's unlikely to have the opportunity again. According to Hugo Meijer, Director of the European Initiative for Security Studies and author of *Trading with the Enemy: The Making of US Export Control Policy Toward the People's Republic of China*, one of the key considerations that drives export control decisions, including for deals like AVIC's, is whether China can procure the technology from sources outside the U.S..

"The idea during the Obama administration was to put higher fences on fewer items. They thought: 'We have to accept the fact that there's less we can control, but the defense-related technology that we can, we have to protect.'"

But the rest of the world, he says, is also waking up to the security implications of Chinese investment. Starting this spring, countries such as Germany, India, and Australia moved to tighten regulations on foreign takeovers, worried that the Covid-19 induced economic crisis will leave companies open for Chinese acquisition. In May, seven Republican senators wrote a letter to Treasury Secretary Mnuchin urging him to do the same. And last week, the U.S. National Security Council released a list of sensitive technologies, including aerospace engineering, and regulations on how to prevent them from ending up in the hands of adversaries, like China.

"The era in which any Chinese company, especially an element of the Chinese defense industry, could be unrestrained in pursuing investments, acquisitions or partnerships, in the United States is over and decidedly so," Kania says.

But even those most quick to point out AVIC's connections to the PLA say we shouldn't rush to condemn the past decade of business engagement. "We made a bet," says Jenevein, who had the wind joint venture with AVIC. "And the early returns on that bet were really good for both countries. It's only recently that the bet looks bad. But don't skip the good returns that we had in between."

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Pole Position

BY EYCK FREYMANN

In public, Chinese diplomats and climate negotiators deny that they see any link between climate change and geopolitics. But there is a deeply cynical consensus within China's academic and policy communities that climate change creates geopolitical opportunities that China can exploit — and must exploit before its rivals do. Greenland was the proof of concept for this strategy. And it caught the U.S. flat-footed.

Transsion's Triumph

BY GARRETT O'BRIEN

A look at Transsion's monumental growth, unique marketing strategies and future growth potential.

Q & A

Jörg Wuttke on China's Self-Destruction

BY ANDREW PEAPLE

The EU Chamber of Commerce in China president talks about China's self-inflicted problems; how he gets away with being so outspoken; and why he believes in China's comeback gene.

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