The Untold Story of Operation Spider Web

9 JUNE 2025

Ferdinand Wegener



What happened in Russia on the 1st of June 2025 will go down in history as one of the world's greatest surprise attacks. In one fell swoop, a significant portion of Russia's strategic bomber fleet went up in smoke. As EPIS senior fellow Tizian van Kerkom rightly remarked: "If Hollywood doesn't make a movie about this operation, someone isn't doing their job".

In this article, I don't want to go too far into the sequence of events during the operation. This has been done to perfection by other think tanks, chief among them the always great CSIS, this time with "How Ukraine's Operation "Spider's Web" Redefines Asymmetric Warfare" by Kateryna Bondar,

available here. Instead, I want to share my experience of coincidentally being in Ukraine at the Black Sea Security Forum in Odesa during Operation "Spider's Web" and having visited the Long-Range Strategic Aviation Museum in Poltava in 2018, a museum that seems to have become instrumental in training Artificial intelligence for the drones used in the operation. I will also highlight certain aspects of the operation that seemed of particular interest to me, with the usual heavy focus on the aviation side of things.

Covering the Basics

On June 1st, 2025, at least 117 drones lifted off from hidden compartments within the roofs of prefabricated homes, sitting in the cargo beds of trucks close to major Russian air bases. While astonished bystanders were filming the swarm of drones taking to the air, the drones themselves were also filming, but not only to produce footage for social media. Simultaneously across the country, at four key air bases, thousands of miles away from each other and one as far away as Siberia, 4000 km from Ukraine, the drones picked their target while others filmed the damage before then themselves starting their attacks.

The target was, at least in part, the third wing of the Russian nuclear triad, the flying spear of the nuclear tip. Ukraine says 41 planes were hit, visual evidence confirms at least 21 so far. It is unclear how many of the hit planes were damaged beyond repair or outright destroyed. Kyiv claims 34 % of the strategic bomber fleet lays in ruins, which might be a bit high, but even going by only the released visual footage, at least 20 % of Russia's fleet are damaged and therefore temporarily or permanently unavailable.

The Ukrainian operation seems to have come, coincidentally or by ways of good intelligence, at just the right moment in time, as, judging by some Tu-95s turning into burning husks a lot quicker than expected from the damage to a small FPV drone warhead, some of the bombers were already fuelled up and ready to attack Ukrainian cities. That only happens shortly before flight operations begin, or the Russians are a lot more complacent than even we came to expect. Additionally, in some drone videos, the Tu-95 can already be seen with underslung cruise missile armaments like the KH-101 attached to their wings. By hitting them just in the nick of time, Ukraine not only averted an imminent Russian attack, but also took those expensive and slow to manufacture munitions out, in addition to the carrying bomber. Everyone wins, except for Russia. After being accused of not having the cards right now by US-President Donald Trump in the White House, Ukraine appears to have quite a full deck at its disposal.

The mission was an overwhelming success, with slight setbacks, as expected with an operation of this complexity. The damage at Dyagilevo airbase seemed to have been minimal, also footage exists of some drone trucks that seem to have burned out on route before reaching their targets

and deploying their drones. This just leaves us to wonder how much bigger the damage might have been.

Operation Spider Web was supposedly planned and executed within 18 months. That is an interesting figure, as it makes one wonder what other operations Ukraine has in store for Russia, which started only 17 months ago and aren't quite ready yet. With the attack on the Kerch Bridge, some other operations by the SBU seem to be playing out unhindered by increased Russian security efforts.

Apparently, the drivers of the trucks transporting the hidden drones didn't know about their dangerous cargo until it was too late. Explaining that to the Russian FSB while they are looking for a scapegoat to pin their own failure on might be quite difficult. It does open up the extra security risk of totally uninitiated everyday Russian citizens unknowingly carrying out a secret Ukrainian sabotage operation deep behind the frontline. Now, everyone is a suspect, even the ones that don't even know they are doing something suspicious. It might be hard to find someone like that before it is too late.

What Was Hit and What Is Left?

Russia's strategic bomber fleet will never be the same after Operation Spider Web. It consisted mostly of old Soviet types, most impossible to replace. The primary target seems to have been the Tupolev Tu-95 "Bear". This plane holds the unwanted distinction of being the least stealthy plane on the planet, owed to its overall shape and counterrotating prop layout, built long before stealth became a utilized concept in aviation design.

The Tu-95 had its first flight in November 1952, just a few months (April 1952) after its American equivalent, the aptly named B-52. And like the B-52, going from version B-52A to B-52H and J, the Tu-95 went through many modernizations and iterations, arriving at the Tu-95M and MS. Externally, these planes might look similar to their predecessors that took flight 73 years ago, but internally, almost everything has been changed, from sensors, avionics, flight controls, weapons compatibility and even engines. Like the US B-52, the Tu-95 is Russia's most numerous strategic bombers, with over 500 built and about 60 in service (B-52: 744 built, 76 in service). Both are out of production, but still perform vital tasks for their air forces, bringing their large payload capacity and range to the strategic table. Long thought of as obsolete, they both seem irreplaceable, both not scheduled to retire before 2040, over 80 years after their first flights.

Also struck was the Tu-22M3, first flying in 1972. This is a sleek, swept wing bomber, built for high speed that was meant to mostly carry anti-ship missiles quickly out to sea, countering US carrier strike groups in lieu of Soviet carriers capable of that feat. It was, together with the Tu-95, the main target of the Ukrainian drones and is the second most numerous Russian bomber type in service. Both are responsible for many of the cruise missile

strikes on Ukraine, carrying KH-101 and other expensive and hard to intercept armaments.

On the list of potential targets, present but not targeted at some of the bases, was the enormous Tu-160 "Blackjack", also named "White Swan" for obvious reasons. Aptly described as a mix of the characteristics of the Tu-95s massive payload (45 tons) and the Tu-22M3s high speed (upwards of Mach 2) by defence expert Perun, the Tu-160 is Russia's largest and most advanced bomber. It only exists in very small numbers, with 33 built and about 16 in service, with another 10 on order.

The Tu-160 was not hit by Ukrainian drones to my knowledge at this time, and was certainly not a focused target. This is explained by the fact that even if the Tu-160 is Russia's most advanced aircraft, it is seldom used against Ukraine. Other platforms are the workhorse for Russian missile strikes, like the Tu-95s. Not striking a Tu-160, if that was a possibility, in lieu of other targets, was a mistake in my opinion. I arrive at this conclusion considering the outsized moral boost given by destroying or damaging Russia's most advanced bomber and leading to its first combat loss ever. It would also be a poetic retribution, given that Ukraine gave up its Tu-160 to Russia, which then used them against Ukraine. It would have been the cherry on top of an already quite sweet moral victory pie.

Also hit were two Beriev A-50, Russia's sole AWACS platform. These planes are the eyes and ears of the Russian Air force, providing radar coverage and battlefield awareness far greater than a fighter jet's radar could provide. They are exceedingly rare. They were based on the Il-76 transport plane, with Beriev, better known for building complex seaplanes, as system integrator for the radar. The exact number in service is rumoured to be very low, possibly less than 10. Sadly, the two A-50 struct by Ukraine were clearly not part of that exclusive club, as the airframes were in storage, with engines missing and moss growing on top of the rotodome (the rotating radar housing). That doesn't mean a totally wasted strike, though, as destroying stored A-50s means there are fewer spare parts to repair the dwindling number of ones still in service.

An odd choice for a target was the sole An-12 transport, sitting on a runway next to some parked Tu-95s. This ancient cargo plane isn't the most intimidating of aircraft and seemed like a waste of a good drone at first. But it was sitting right next to some rearmed Russian bombers, and it is rumoured it was struck because it was believed that the An-12 was there to ferry those munitions and a lot of the cruise missiles were still inside. If that turned out to be true couldn't be verified.

Overall, Operation Spider Web isn't only a significant military victory but also a huge moral boost to Ukraine. There were celebrations we had the pleasure of partaking in ourselves in Odesa and everywhere across Ukraine. To exemplify the feeling and the great Ukrainian sense of wartime humour, on the app "Alert", which warns the population of incoming Russian air attacks, a little icon appeared. On the screen, where usually little planes

or ships symbolize that cruise missile carriers are active against Ukraine, a little grey convoy of trucks was driving not into Ukraine, but into Russia, with a little disclaimer that read Operation Spider Web.

The strike is very significant, but maybe not as impactful as one might believe from the numbers. Yes, a large part of between 20 % to 30 % of Russia's strategic bomber fleet was destroyed or damaged. Yes, strategic bombers have, per airframe, an outsized carrying capacity. And yes, strategic bombers often carry some of Russia's most advanced and hard to defend against weapons like the KH-101 cruise missile. But, to caution against an overabundance of optimism, overall, strategic bombers do make up only a small number of the aircraft in service with the Russian military and other aerial delivery platforms are far more common, like fighter bombers. Additionally, although deadly, cruise missile strikes do make up only a small percentage of overall munitions used by Russian forces.

Don't forget about the tactical bombers, multirole fighters, fighter bombers, attack helicopters, drones and attack aircraft! And don't forget about glide bombs, ground launched cruise missiles, Shahed drones, dumb fire rockets, free fall bombs and so on. Sometimes, even Mig-31 interceptors launch the infamous Kinzhal missile, also known as a ground-launched Iskander missile, now modified to be air-launched. All these systems have their drawbacks and cruise missiles are the strongest arrow in the quiver, but Russia was never the most high-tech military and not the biggest user of precision strike weapons. Therefore, although a specific and dangerous threat (at least per munition), is greatly reduced, the bulk of Russian Aerial weapon delivery platforms and methods remain largely untouched. The Russian air threat is diminished after Operation Spider Web but not banned.

Why Was Russia Not Prepared?

So how did a Ukrainian strike on Russian airfields come as such a surprise to Russia after three years of war and countless long-range strikes by Ukraine on its air assets? Where were the shelters for aircraft? Why were planes just sitting on the runway fully fuelled and armed? Is it all just complacency? And does the West face the same danger?

Complacency certainly played a role, as well as Russian hubris. Russia certainly thought some bases were too far from the frontline to be struck by the Ukrainians. And they didn't expect this attack, but would have been quite unable to stop it, even if they knew. In test scenarios, the Pantsir and Tunguska short range air defence systems performed very poorly against small drones, needing thousands of 30mm rounds to down a single one. Detection also comes very late, with the drones flying low and slow. Russia uses very few hardened aircraft shelters and did not build any new ones after the war started. The US has a slight advantage here, having about 45 such shelters for a total bomber fleet of about 141 bombers. But the West quickly has to learn from Russia's mistakes, even if the Russians might not. Access

roads around bases are almost impossible to rid of civilian traffic, because US and European bases are too close to populated areas. But placing a few short range air defence systems like Skynex around the bases, maybe with some M230LFs with their new 30mm proximity fuse shells as a supplement, would be a good start.

Museum Pieces Educating Artificial Intelligence

Poltava was an odd choice for a visit, even back in 2018. I convinced a friend of mine to go, purely to see one plane: The Tu-160, pride of the Soviet Strategic bomber fleet. Not sympathetic to the Soviet cause at all, the aviation nerd in me just had to see this Mach 2 marvel of engineering, even if built by "the enemy". We took the 4 am train in Kyiv to go on the 5-hour train ride to the city. We visited Poltava itself, a city with a surprisingly rich history, from the fortifications still present from the battle of Poltava in 1709 between the Swedish and Russian Imperial forces to the rumoured assassination attempts against Adolf Hitler, who was scheduled to visit the city in 1943 but left the frontline early for Berlin after inspecting the worsening situation in Zaporizhzhia.

Poltava's air museum itself is a sight to behold and a joy for any fellow aviation enthusiasts. Once a Soviet airbase, taken over by the Germans in WW2, then recaptured by the Soviets, it became partly a museum, partly a Ukrainian military aviation base by 2018, in use against the so-called "Separatists", fighters supported by the Russian state. After taking our passports, our amazing guide, a former Soviet bomber pilot, and our translator, an active-duty Ukrainian helicopter technician working on the base, took us to the airfield.

Photos were restricted in some directions, as fully combat loaded Mil Mi-8 helicopters with hard points full of rocket pods were starting against their targets on the runway next to us, only separated from the museum by a wire mesh fence. We were the only visitors on the huge airstrip, covered in all sorts of aircraft, including all the strategic bombers now targeted by Ukraine. The Tu-95 sat right next to every generation of Tu-22, ending with the now in service Tu-22M3 (technically all quite different aircraft, instead of mere iterations of the previous model). The jewel of the museum though is the gigantic Tu-160, nicknamed "White Swan", with its sleek white fuselage, swept wings, and an impressive 56-meter wingspan when fully extended. That is two meters larger than the already huge US B-52, while also being capable of reaching speeds exceeding Mach 2, twice the speed of sound. The plane can carry a total of 45 tons of ordnance in two weapons bays featuring two impressive internal rotary launchers, each carrying 6 missiles, looking like the cylinder of a gigantic revolver.

The Tu-160 in Poltava is the only one in the world accessible to the public, as all others are in Russian active service, and the only one left painted in Ukrainian Air Force colours, with the Ukrainian coat of arms

in blue and yellow proudly displayed on the enormous vertical stabilizer. Ukraine inherited 19 Tu-160s from the Soviet Unions, but 8 were given to Russia in 1999 for gas debt relief, while the rest were scrapped in accordance with the nuclear disarmament treaties that are now widely criticized.

While the thought seems romantic, a giant white Swan with the blue and yellow flying for Ukraine against the Russian aggressor, the truth is that the plane would have rather been a white elephant for the country's military, a plane highly impractical and far too large, expensive and difficult to base and maintain for the comparatively small Ukrainian Air Force. Instead of a shining white beacon of hope, Ukrainian Tu-160s would have become a beacon for Russian precision weapons, probably all falling victim to targeted strikes while still sitting on the runways. Instead of being helpful, they would have just been a drain on Ukraine's already limited resources.

That doesn't mean however that these planes can't be useful now. According to multiple sources, including the Kyiv Post and Jonathan Fink, the expert host of Ukraine focused YouTube channel Silicon Curtain, who was with us at Black Sea Security Forum in Odesa, the planes displayed at Poltava were used to train artificial intelligence in identifying and attacking specific areas of the Soviet, now Russian, bomber types. This AI was to help the human controllers with the latency in the control signal introduced by the large distance from the target and take over in case of a temporary loss of signal. After sitting motionless on the airfield tarmac for decades, the planes still became relevant in educating the most modern of technologies, contributing their part to the war effort without ever even moving an inch or starting an engine.

No Western Help?

According to Ukrainian sources, Operation Spiderweb was a fully domestic affair by the SSU/SBU. It seems all but confirmed that only domestically produced drones were used to actually target the Russian bombers. The plot and the logistical implementation, including building the containers with the hidden compartments, also seems to have been an entirely Ukrainian master stroke. However, there seems to be some doubt about the official story that only Ukrainian intelligence was involved with the targeting data and information on the Russian air bases. How did they know where the Russian bombers were when, without satellite data? Were the Russians that complacent to never move their planes around? In part yes, in other parts: unclear.

Very likely, the Americans had no part of Operation Spiderweb whatsoever. A strike on nuclear Russian assets, helped by the Americans, would have been quite an escalation and Trump is much more on a path of appeasement towards Putin than a path of confrontation. Also, with the White House still leaking like a sieve (although slightly less than under Trump's first term) and a single Tweet or Truth social post enough to destroy 18

months of Ukrainian secret planning and intelligence operations, involving the Americans seems more of a hindrance than a benefit in this case.

That doesn't rule out all Western assistance though. And not disclosing that assistance is also not an argument against its involvement, because overstating Ukrainian intelligence gathering capabilities helps both the Ukrainians and whoever might have helped them lay waste to at least a fifth of Moscow's nuclear bomber fleet without raising bilateral tensions. Not many nations however, even if willing, posses the intelligence abilities to aid Ukraine in this scenario. Really, only one comes to mind: Great Britain, a staunch Ukraine ally from day one and home of Western Europe's most capable military (Sorry, dear France). According to Simon Woodiwiss, a former British infantry officer who went to Ukraine just a couple of weeks after the Russian invasion to help and who is now Director of Objective Ukraine, a well-connected business support & risk management firm based in Kyiv, it seems quite likely that UK resources have been assisting the Ukrainian intelligence agencies in realizing Operation Spider web. In his assessment, the British assistance is a plausible reaction to ongoing and intensifying hybrid warfare attacks by the Russians.

Putting a Price Tag on Putin's Pearl Harbour

So, we know approximately how many planes the operation cost Russia, but what did it cost Russia? We, understandably, like to put things in numbers. Numbers that can be compared. Numbers like planes destroyed, percentage of the fleet, but most ideally, money. Money is universal. If we have a monetary figure, we can imagine how much of the defence budget needs to be spent to re-build the bomber fleet, or how many schools could have been built instead. The number we hear for Operation Spider's web, for example from the Kyiv Post or United24, is 7 billion US dollars. That is billion with a b. That is a lot of money. But where does that number come from?

Truthfully, pricing this disaster inevitably leads to a pricing disaster. What is the price tag for a strategic Russian bomber? The Tu-95s were built in the Soviet Union and transferred to Russia after already being paid for, so technically, they were free. But then again, they are out of production now, so technically again, they are priceless, unobtainable even with the deepest of wallets. Should we use the price the Soviet Union had to pay within the confines of a heavily subsidized military industry to acquire a newly built Tu-95? But even with that price in hand, be it inflation adjusted or not, the Tu-95 is forever out of stock.

Then again, what does losing "7 billion US dollars" worth of planes cost the Russians? At the moment, nothing. No state bank accounts get raided, no deposit dependent on the condition of the Tu-22M3 gets withheld, no strategic bomber insurance premium goes up. Losing military equipment costs nothing. Replacing military equipment, that is where the money is.

So, let's look at replacements. The Tu-95 and the Tu-22M3 are out of production, in all their variants. But the Tu-160 is still in, admittedly super low rate, production. So, how many Tu-95s equal one Tu-160? Are we replacing plane per plane or ton per ton of payload capacity?

And how long will that take? With Russian aircraft manufactures cranking out an astonishing one or two Tu-160M per year, will we wait a few decades for the full replacement to arrive or invest heavily into adding more production facilities, therefore increasing the price tag? And how much does the Tu-160M/M2 cost anyways? It is still in production, so there must be a number, right? Well, we don't have it, but it is by my estimation way north of 100 million US dollars, probably closer to 200 million dollars, when entangling it from the web of subsidized materials and state-owned enterprises. If it were cheap, we would have seen a lot more effort going into building more of them. So far, Russia has only ordered 10 new Tu-160Ms to be built, not coming close to the fleet size the USSR fielded. And that order was made long before Operation Spiderweb.

So, with replacements either unavailable, stuck in the backlog of a decades long order queue or too expensive, what will the Russians do?

Most likely, they will compromise. They will increase Tu-160M production numbers slightly, either by expanding production lines or, more likely and far cheaper than buying new machinery, they will just announce a change to the Excel Chart that makes up the Tu-160M production backlog, changing the number "10" to a generous "20" or some other, similar figure. That costs nothing at the moment, but on paper it brings them back to slowly regenerating their fleet. That being done, they will have to accept a reduced number of strategic bombers in their fleet and a therefore reduced capacity for deep strikes with cruise missiles. This doesn't cost money, but this does, in terms of war, cost something far more important: military potential. With the strategic air assets reduced by 20% to 30%, some capabilities like specific strike sizes will be a thing of the past, while other assets like tactical aviation and ground launched cruise missiles will have to pick up the slack. This will have a monetary cost, in addition to the military one.

But the key takeaway is: assigning monetary value to the destroyed equipment is understandable for comparison's sake and might provide some sort of baseline, but is otherwise a bad way of measuring military success. Instead, one should look at the reduction in capability that took place, and that, in this case, is mighty impressive all by itself, without the need for a price tag.

A World Wide Web of Gratitude

Ukraine should, ironically, be taking a page from US-Vice-President JD Vance's playbook. Similar to his nonsensical "Have you said thank you once?", addressed to President Zelensky in the Oval Office, referring to US aid deliveries, Ukraine should ask the world for a hearty "Thank you"

for the service of deleting a large chunk of the Russian bomber fleet. The operation led to significantly reducing Russia's aerial offensive potential, and, maybe most importantly, its nuclear first strike capacity. The sign of gratitude by the world could ideally come in the form of weapon deliveries. Alas, Ukraine is probably too humble for that.

A Spider Bite Poisoning Peace?

The operation went down right before peace talks with Russia were supposed to begin again in Turkey. It seemed almost inevitable that propagandists would use the attack on Russia's air assets to infer that Ukraine is not serious about peace. That could not be further from the truth. Simply put, the Ukrainian delegation knew what US-President Donald Trump is still wondering about: That Russia is just tapping everyone along, going into round after round of fruitless negotiations and sabotaging them with absurd demands about the future of Ukraine. It seems only fair then, that Ukraine would take the reins for once and sabotage not only the "peace talks" but also a big portion of Russia's bomber fleet. A friend from Kyiv suggested that the Ukrainian side should have started the meeting with the Russian delegation in Turkey by throwing paper airplanes at them. Considering how the peace talks usually go, this might still have been more productive than the Russians presenting their unachievable paper demands. The strikes so close to the peace talks with Russia are a clear sign that Ukraine, rightly, accesses the chances of a real peace treaty at this time as zero.

Cheerful Celebrations and Russian Retaliation in Odesa

The news broke during lunch in Odesa, on June 1st, 2025. We, as the EPIS delegation to the Black Sea Security Forum, were having traditional Ukrainian food with some contacts from the conference. While eating Varenyky and drinking Kvass, we heard of the first reports, saw videos of drone after drone striking parked Tu-95s and Tu-22M3s, and read as much as we could on the details of the operations. We cheered and clinked our glasses to a successful operation. The day before, a special guest appearance at the Black Sea Security Conference, held at the beautiful historic Odesa Opera House, was cancelled at the last minute. The guest was to be Kyrylo Budanov, Chief of the Main Directorate of the Intelligence of Ukraine. Apparently, he had been too busy to give his speech. Understandable.

That night, we hosted a little get-together for EPIS in Odesa's premiere bar. The spirits were high, and the atmosphere was happy and excited, with multiple toasts going to the Ukrainian forces and countless discussions on the impact this operation would have on the war. But, underneath the cheery sentiment also lay some worry about the night ahead. A former Western intelligence official told us, the Russian strikes wouldn't come that night, but the night after. While Odesa was targeted by 40 Shahed drones the night before, he was right, and during nighttime, the alarms stayed

quiet. Much was expected from the Russian retaliation. Russia couldn't just let a quarter of its bomber fleet burn to the ground and not strike back, right? And, Russia had been striking mostly civilian targets in retaliation for Ukrainian intelligence sabotage operations for far less.

Sadly, the retaliation came and right after we had boarded our transport out of Odesa, the city was struck by a Russian air attack, mostly targeting civilian areas. Some areas lost power and multiple Shahed drones could not be intercepted by the air defence in time, leading to six fires and an unknown number of casualties in the city. The same situation was repeated in most cities of Ukraine, with heavy attacks against the Kyiv and all front-line cities. This is the terrible price Ukrainian civilians are forced to pay for legitimate operations against Russian military targets. Until Russia is defeated, these terroristic retaliatory attacks will go on.

EPIS