

Eurosatory 2022

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The last time military officials, weapons contractors, and defence analysts met in the Paris suburb of Villepinte to attend the Eurosatory weapons trade fair was in 2018. Unfortunately, since 2018, much has happened. Not only did Covid-19 derail the exhibition's biennial schedule, but the war in Ukraine has brought western Europe closer to the brink of armed conflict than at any point since perhaps the 1980s. The Eurosatory 2022, which has in the past hosted almost two-thousand exhibitors and fifty-thousand visitors, features fifteen live demonstrations spread out over four days. This Info Flash will discuss some of the exhibition's highlights and present them within the larger context of trends in the defence industry and the world.

The Panther KF51

One highlight of the exposition has been the reveal of Rheinmetall's new main battle tank, the Panther KF51. The Panther KF51 is equipped with a "130mm cannon," which comes with "a fully automated ammunition handling system" (Rheinmetall, 2022a, p. 4). Additionally, the tank's weapon system can be further enhanced by the (optional) inclusion of "HERO 120 loitering ammunition." This so-called loitering ammunition is an aerial weapons system in which a 'round' is shot into the air and can remain there passively (hence 'loiter') until an enemy is located and subsequently targeted (Rheinmetall, 2022b). The HERO 120 variety of loitering ammunition, in particular, has a range of 40km and can stay airborne for up to 60 minutes. Crucially, this weapons system has recently gained notoriety during the 2020 Nagorno-Karabakh War and is assumed to have an enormous impact on future battlefields (Deveraux, 2022). By supplementing the Panther's weapon system with the capability to fire loitering ammunition, the tank's range can be extended to include "non-line-of-sight targets" (Rheinmetall, 2022a, p. 6). The Panther's armaments, its "12.7 mm coaxial machine gun" and remotely controlled weapon station, the NATTER RCWS, are of further interest (Ibid, p. 7). Notably, the latter effectively allows the Panther to counter airborne threats like drones.

Moreover, the Panther KF51 is further advertised as highly mobile and agile, with a combat weight of only 59 tonnes, and supremely flexible (Rheinmetall, 2022a, pp. 2, 10-14). In fact, the Panther is designed for a relatively small crew size of only three. This small crew size, which makes the tank particularly attractive to states with smaller armed forces, is enabled by the tank system's complete automation. As a result of this automation, "everything is possible from every seat," meaning that tasks, such as "sensor and weapon control assignments can be passed between crew members instantly [...] with no reduction of functionality." More generally, the Panther was developed by Rheinmetall independently of any governmental procurement effort (NTV, 2022). Therefore, Rheinmetall envisions the tank primarily as a successor system to the Leopard 2, which is currently deployed by 16 states worldwide (BPB, 2022).

In this context, the reveal of the Panther, which is set for production in “two and a half years,” is somewhat contentious (Sprenger, 2022). As noted above, the “Panther is the product of the company’s own, years-long development,” as opposed to a large-scale governmental procurement effort. Given the customer base of armament companies, the latter mode of production is more common; a recent example of such an effort is Airbus’s Tiger MkIII Helicopter programme, which was launched at the behest of Spain and France (see Krause, 2022a). Nevertheless, it is not Rheinmetall’s independent design of a new main battle tank that may be considered contentious. Instead, the larger context may be concerning for government officials, namely the joint Franco-German government project, the Main Ground Combat System (MGCS). Although the MGCS project goes beyond developing a single-vehicle (Uzulis, 2021), the project has been awarded to two of Rheinmetall’s key competitors, Krauss-Maffei Wegmann and Nexter. In contrast, Rheinmetall has only been allotted the “junior partner” role in the undertaking (Sprenger, 2022). Consequently, Rheinmetall’s somewhat surprising reveal of an entirely new tank has to be judged in the context of the MGCS project, especially as the project has been recently “treading water,” as one observer described the undertaking’s progress.

Whither interoperability?

Although, as noted above, Rheinmetall’s decision to independently develop an entirely new main battle tank remains uncommon, it is a trend gaining increased traction. This year’s Eurosatory demonstrated that large armament companies increasingly develop new combat systems, weapons, and vehicles unilaterally. This unilateral modality of design and production may be the norm in other industries; however, the arms industry is peculiar because its client base is usually restricted to states. Crucially, when states deploy their militaries, they do so ever more in unison with other states. To ensure the effective cooperation between militaries (i.e., interoperability), especially in a NATO, UN, or even EU context combat systems, weapons, and vehicles must be designed with such requirements in mind. Much time and resources are often spent on facilitating interoperability between militaries after the fact. To prevent such efforts, armament companies could increase communication and cooperation at early stages of the design.

Nevertheless, interoperability concerns are not entirely absent from Eurosatory 2022. Germany, for instance, agreed during the event to join the Finnish-led Common Armoured Vehicle System (CAVS) program (Frank, 2022d). CAVS, as the name suggests a new 6x6 combat vehicle, which is produced by Patria. Germany will be the fifth state to join the program, after the three Baltic states and Sweden. The CAVS project is expected to significantly increase the level of interoperability among the participants, a matter of great importance in light of current and future NATO deployments in the Baltic Sea Region. Likewise, many of the products on display at Eurosatory 2022, like Thales (2022) new Command Post System, emphasise their adherence to NATO standards like the Joint Consultation, Command and Control Information Exchange Data Model (JC3IEDM).

Novel Technologies for Old and New Threats

A general theme of this year's Eurosatory was showcasing new and innovative defence technologies. Although the emphasis on new and innovative technologies had already been the main thrust of Eurosatory 2018, where, for instance, the French SCORPION system was first presented (Delaporte, 2018), this year's Eurosatory featured many breakthroughs in defence technologies. These breakthroughs range from the completely digitalised Panther KF51 to more minor but no less crucial breakthroughs, such as AVON's CBRN protection gloves, which are touchpad compatible. Two areas of innovation deserve particular emphasis: non-civilian drone technology and unmanned ground vehicles (UGVs) with kinetic capabilities.

Drone technology has become a central force in modern warfare. Starting with the infamous usage of the US military's predator drones in the War on Terror, which continues to dominate public imagination, drones used by state actors for reconnaissance or kinetic missions have become a mainstay of how wars are fought (Byman & Merritt, 2018, p. 79). More recently, a new generation of (Turkish) drones have also been used with great effectiveness in more conventional battlespaces, most notably in the 2020 Nagorno-Karabakh and currently in Ukraine (Witt, 2022, *passim*). However, a particularly worrying trend has been the use of drones by non-state actors. Before its defeat, the Islamic State (IS) had started weaponising civilian drones by strapping them with explosives (Pomerleau, 2018). Although relatively cheap and low-tech, this approach to drone warfare presents a serious threat to conventional militaries, particularly the US armed forces, which have operated without severe threats to their air superiority for most of their modern existence. One US Airforce official noted, at the time, "our ground forces have not come under attack from enemy aircraft since the Korean War 65 years ago." Luckily, since 2018, defence contractors have developed a series of counter-drone technologies, many of which are on show at this year's Eurosatory.

UGVs with kinetic capabilities are vehicles or modules that, as their name suggests, do not require a direct human component. Instead, they are remote-controlled. Generally, UGVs can be tasked with various missions, such as reconnaissance or mine clearance. Nevertheless, what makes some UGVs have kinetic capabilities is the integration of weapons systems, which are also remote-controlled. This makes UGVs with kinetic capabilities crucially distinct from lethal autonomous weapons (LAWs). LAWs have been a matter of contentious public debate since at least 2017 (see, *inter alia*, Pflimlin, 2017; HRW, 2020). Even though UGVs with kinetic capabilities are less controversial than LAWs, they also face an uncertain future, at least in a regulatory sense. However, this does not stop UGVs with kinetic capabilities from garnering the attention of government officials and the defence industry. This interest was very much on show at this year's Eurosatory. Two highlights include SERA Ingénierie's new PHOBOS vehicle and Milrem Robotics' new THeMIS Combat UGVs. The former, a modular platform system, allows for much mission variety (Frank, 2022b). Meanwhile, the latter involves a more significant deal of autonomy. At the same time, the actual firing of weapons systems still requires remote controlling. The Milrem Robotics UGV system allows for the autonomous planning of routes and even target acquisition.

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