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Assessment of tomorrow

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NATO is testing a new logic of warfare: a common network instead of individual systems

REPMUS 2026, a major international exercise dedicated to testing unmanned maritime systems, concluded in Portugal on 25 September, with 1,500 participants from 36 navies and hundreds of unmanned vessels, aircraft and other assets.

For NATO, however, the most important aspect of this year's exercise was not a new drone or a single technology demonstration.

The central question was whether a large number of different systems, produced by different companies and operated by different countries, could be connected to a single network and receive tasks from a common command system.

As part of the Task Force X-Arctic project, NATO's Allied Command Transformation reports that almost 300 different elements involved in the project are connected to a common digital network.

These include not only unmanned assets, but also sensors, software and other components needed to collect data, aggregate it and turn it into tasks.

During the exercise, the software, aligned with the commander's objectives, assigned tasks to individual assets and modified them as circumstances changed.

NATO says this is the first time this type of architecture has been tested on this scale.

That is more important than the number of drones. NATO is trying to solve a problem that is likely to be critical to the wider military use of autonomous systems: how to turn dozens or hundreds of different assets into a single unit that provides the commander with useful information and reacts quickly enough to be of value in real operations.

For an alliance of 32 states, that task is more complex than for a single national army, because members use equipment from different manufacturers, different communication systems, and their own rules of command.

The most important result is not a new drone, but a new way of controlling it

In typical unmanned operations, an operator controls a single aircraft, vessel or a small group of similar assets.

This approach has clear limitations when dozens of systems are in the air, on the sea surface and underwater in the same area.

If each of them requires a separate operator and its own data stream, the number of personnel and communication channels quickly becomes a bigger problem than the number of drones.

Task Force X-Arctic is trying to shift some of that work to software. The commander defines the desired outcomes, priorities, and constraints.

> The existing chain of command will be able to manage significantly more drones and sensors without the number of operators

The system then selects which available resources can perform particular tasks, monitors the results, and updates the schedule as the situation changes. Data collected by one sensor can be made immediately available to other parts of the network, instead of remaining locked within the system of a single country or manufacturer.

This approach fundamentally changes how large numbers of unmanned systems can be integrated into a single operation.

If proven reliable, the existing chain of command will be able to manage significantly more drones and sensors without the number of operators, communication links, and data processing centres needing to grow in direct proportion to each new system.

This would allow autonomous assets to move beyond being individual additions to conventional military platforms and instead be employed in greater numbers as part of the same coordinated operation.

A key component of combat power

NATO has spent decades working out how to get member armies to operate together, but autonomous systems make that long-standing challenge far more demanding.

It is no longer sufficient for two units simply to communicate over compatible radio links.

If one country uses an underwater sensor, another an unmanned surface vessel and a third data-processing software, the value they share depends on whether information can move from one system to another quickly and securely enough.

NATO's new Digital Strategy, adopted in January, moves firmly in that direction.

> The alliance wants common standards for connecting national systems

The alliance wants common standards for connecting national systems, secure data exchange, and networks that can function even when connections are disrupted or partially broken.

The idea is not that all members should buy the same equipment; the goal is that different equipment can be integrated into a common system without years of technical adaptation.

If this approach succeeds, the criteria used to evaluate military equipment will also change.

Range, speed, sensor quality and payload will remain important, but manufacturers will increasingly need to demonstrate that their systems can share data securely and be integrated into NATO's joint command structure. For an alliance whose military strength is distributed across numerous national armies, this is not a minor technical issue but a prerequisite for ensuring that available assets are genuinely employed as a single force.

Baltic experience

Task Force X-Arctic builds on the experience NATO has already gained in the Baltic states.

In 2025, more than 70 air, surface and underwater unmanned systems were deployed there to monitor the maritime domain and critical underwater infrastructure.

According to Allied Command Transformation, such a fleet provides comparable coverage at roughly one third of the cost that a similar use of manned frigates would require.

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In February this year, eight NATO members agreed to accelerate cooperation on the procurement and introduction of new systems for maritime surveillance, sensors and other tasks.

This shows that NATO is using Task Force X not only to test new technologies, but also to determine more quickly which ones have sufficient practical value to enter regular use.

This approach corresponds to the plan adopted by the Allies at the 2025 summit in The Hague, under which new technological products, where possible, should be tested, procured and incorporated into the armed forces within 24 months of the need being identified. For large defence programmes, this is a very tight deadline.

Task Force X should enable NATO first to test new technology under conditions as close as possible to actual military use, and then to acquire the systems that prove useful more quickly and introduce them into units.

The real test begins when communication stops being reliable

The exercise in Portugal showed that the joint network can connect far more participants and resources than during the first trial in Iceland in June and July. The next test will be more demanding: whether the system can operate reliably when the platforms are far apart, when data transmission is difficult and when the adversary interferes with radio links, satellite navigation or network access.

NATO is therefore planning new tests in northern regions and, in 2027, a broader evaluation of the surveillance system for the North Atlantic and the Arctic.

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Only under such conditions will it be possible to assess more thoroughly how applicable the current solution is outside the controlled environment of a large-scale military exercise.

The core of the problem is the reliability of the connection. If a communications breakdown simultaneously interrupts data exchange and prevents a joint overview of the situation, the value of the entire system in operational service is significantly reduced.

NATO is therefore looking for networks that can continue to function even when communications are seriously disrupted. Task Force X-Arctic has yet to demonstrate how close it is to that goal.

Decisions made by software

Another problem concerns command. NATO states that the commander determines the target, decides whether to accept the system's recommendation and retains responsibility for the outcome.

This is relatively straightforward while the number of resources involved is small, but it becomes significantly more complex when the software simultaneously schedules dozens of tasks and adjusts them as the situation evolves.

In such a system, the commander does not decide on every movement of the drone, the choice of sensors or the modification of an individual task.

Their role is to determine what the operation should achieve and the limits within which the system can allocate the available resources.

> The rules of accountability will have to evolve alongside the technology

That is why the decisions the software may take independently, those it may only propose, and those that must not be executed without the express approval of an operator must be clearly defined.

This becomes particularly important if, one day, the same network is used to connect data-gathering systems to weapons-bearing platforms.

Today's tests do not indicate that NATO has already reached that stage. They do show, however, that the rules of accountability will have to evolve alongside the technology, rather than only once such systems become part of regular military operations.

NATO will change how it selects and buys equipment

If tests in 2027 confirm that the system can operate reliably over long distances and with severely impaired communications, NATO is unlikely to respond by building its own large fleet of unmanned systems.

A much more likely step would be an agreement on common technical standards: under what conditions a national system can connect to the alliance network, what data it can exchange, how its security is checked, and how it receives tasks from the joint command.

Can the 32-nation alliance establish common rules for software, sensors and unmanned systems from different origins so that they operate in the same mission without slowing down command?

This would directly affect what NATO members purchase. A drone, sensor or other system that cannot interface with allied equipment will have less value in joint operations, regardless of how effective it is when operating independently.

Manufacturers will therefore have to allow for this type of connection when developing new equipment, while states will increasingly have to consider not only what a given system can do, but also what it can operate with.

Task Force X therefore poses a question that will be more important to NATO than the technology itself: can the 32-nation alliance establish common rules for software, sensors and unmanned systems from different origins so that they operate in the same mission without slowing down command?

NATO has standardised ammunition, procedures and communications for decades.

Now it will have to do the same for how digital systems exchange data, interpret tasks and pass on decisions.

This will determine whether autonomous technologies truly change how the alliance wages war or whether they remain a collection of national projects that work well only in isolation.