AI WARFARE

The era of AI-enabled warfare has begun.

Will it become an era of warfare by AI?

Ing. Jiří Panuška

The Big Read Visual investigation + Add to myFT

The era of AI warfare has arrived

Autonomous systems are being rapidly integrated on the battlefield, as models advance in ways even their creators cannot fully predict



© Ministry of Defence of Ukraine; Palantir

Alison Killing, **John Thornhill**, **Charles Clover** and **Chris Campbell** in London and **Fabrice Deprez** in Kyiv

Published SEP 17 2026

268

Ing. Jiří Panuška

LinkedIn

PROJECT MANAGER	STRATEGIC DIRECTOR EUROPE	CO-OWNER, MANAGING DIRECTOR	ACTIVE RESERVE	CHAIR OF THE AI DEFENSE WORKING GROUP
Deloitte	SABMiller, Plzeňský Prazdroj	RCBG a.s. BC21 Červený Jelen H5 Plzeň FIRE 4	Information and Cyber Forces Command	Czech Association of Artificial Intelligence

+ CZECH CHAMBER OF COMMERCE: EMERGING AND DISRUPTIVE TECHNOLOGIES

AI is changing war at its core

01	**AI is making war faster, cheaper… and above all, completely different.**	Getting from detecting a target to striking it used to take 20 minutes, today it takes less than two. A computing module that recognises targets costs about $250.	**20 → 2** minutes from detection to strike
02	**The ability to use and develop AI is fast becoming the main advantage at every level of command… and beyond.**	This applies to the drone, the headquarters and operational planning, but also to industry and procurement. Ukrainian units buy modules on a state online marketplace.	**3 to 4×** more successful strikes with AI terminal guidance
03	**Data is the new fuel… even if data alone does not win wars.**	The US struck 13,000 targets in Iran in 38 days, yet the Iranian military system did not collapse. One of the targets was a school where more than 150 people died.	**13,000** targets in 38 days
04	**The decision stays with humans… for now.**	Sometimes only 15 to 20 seconds are left to assess a target. A Russian drone has already killed without a human deciding on the strike.	**15 to 20 s** to assess one target

Source: Financial Times, The era of AI warfare has arrived, 17 Sep 2026

01

AI is making war faster, cheaper... and above all, completely different.

From hours to a few minutes

Effective use of AI decides who gets from detecting a target to a precise strike faster. And cheaper.

FOUR STEPS FROM DETECTION TO STRIKE

1 DETECT
Intelligence, surveillance and reconnaissance detect the target.

→

2 DECIDE
The commander picks a course of action for the weapons at hand.

→

3 STRIKE
The assigned weapon system strikes the target.

→

4 ASSESS
Headquarters assesses the effect of the strike.

FEEDBACK FROM ASSESSMENT

TIME FROM DETECTION TO STRIKE

Ukraine, start of the war in 2022
about 20 minutes

Ukraine today
under 2 minutes, sometimes seconds

Russia, Glaz/Groza system
from hours to a few minutes

US: TARGETS THAT CAN BE STRUCK PER DAY

Before Maven
fewer than 100

With Maven
1,000

With language models
up to 5,000

Source: Financial Times, 17 Sep 2026 (target numbers: a US intelligence official, according to Katrina Manson) · Russia: CSIS, 10 Feb 2026

Value for money in wartime

COMPUTING MODULE

$250

is roughly the cost of computing that recognises a target. Saker Scout has the power of a PlayStation 4.

Twist Robotics, drone maker

SHARE OF DRONES

2%

of drones find and recognise a target alone, by one estimate. Of five million drones, about 100,000 (calculation).

Oleksii Babenko, Vyriy Drone (estimate)

GROWTH

10×

is how much the number of successful AI-guided drone strikes has grown since the start of 2026.

Brave1, Ministry of Defence of Ukraine

SUCCESS RATE

3 to 4×

higher chance of success when AI guides the drone onto the target. Pilots also train faster.

Kateryna Bondar, CSIS

ESPECIALLY VALUABLE: TERMINAL GUIDANCE UNDER JAMMING



Source: Financial Times, The era of AI warfare has arrived, 17 Sep 2026 · UNITED24 Media, 8 Sep 2026 · quoted: Twist Robotics, Vyriy Drone, CSIS, a Ukrainian commander

Three wars, three forms

UKRAINE

The drone attacks on its own within a defined area

47

types of military equipment recognised by the Saker Scout drone

- The operator must be sure there are no civilians or own troops in the area. That is why only special units use it.

RUSSIA

The drone chose its own target and killed

3

dead after a strike on a petrol station in July 2026

- No human decided on the strike. The drone was controlled by an Nvidia Jetson Orin computing module.
- AI-enabled Shaheds attack Ukrainian vessels in the Black Sea.
- Russia has deployed far more AI-enabled drones over the past year.

US AND IRAN

Targeting at scale

13,000

targets in the first 38 days of the war

- Maven helped select and prioritise the targets.
- The war with Iran is still going on.

Source: Financial Times, 17 Sep 2026 · The New York Times, 24 Aug 2026 · Al Jazeera, 14 Sep 2026 · DefenseScoop, 22 Sep 2026

Military power is measured differently

WHAT USED TO COUNT

- SOLDIERS
- COMBAT AIRCRAFT
- TANKS
- BATTLESHIPS

WHAT DECIDES TODAY

Speed and accuracy of data processing

Autonomous weapons deployed at scale

WHY AUTOMATION

The West lacks drone pilots

"For NATO countries it is a matter of life and death, because they cannot build drone units fast enough. So they have to automate more."

Lorenz Meier, chief executive of Auterion

WHERE AI IS TODAY

Narrow tasks at the front, so far

Its biggest contribution so far is in situational awareness and intelligence.

Financial Times; Anthony King, University of Exeter

Source: Financial Times, The era of AI warfare has arrived, 17 Sep 2026 · quotes not verbatim

02

The ability to use and develop AI is fast becoming the main advantage at every level of command… and beyond.

Each level of command is at a different stage

LEVEL	WHAT AI DOES	EXAMPLE	STATUS
PLANNING of operations and battles	The commander states the intent, for example “I want to defend this position”, and the system proposes a battle plan.	Ukraine: a new centre is meant to turn the armed forces into an AI-driven army.	VISION FOR NOW
HEADQUARTERS situational awareness	Merges data from many sources into one picture of the battlefield and helps prioritise targets.	DELTA (Ukraine) and Maven (US), now used by more than 100,000 people. Cross-checking data by hand is “very laborious”.	DEPLOYED AT SCALE
SOLDIER AND DRONE strike	Stabilises the drone in flight, recognises equipment and guides the drone to the target even when the link is lost.	Saker Scout and terminal guidance modules.	DEPLOYED, NARROW TASKS

Source: Financial Times, 17 Sep 2026 (Anthony King, Jack Watling, Danylo Tsvok) · DefenseScoop, 22 Sep 2026 · quotes not verbatim

The advantage is also built outside the military

Ukraine's defence minister Mykhailo Fedorov: "We must be faster than the enemy at every stage."

UKRAINE: FROM DATA TO UNITS (AS OF APRIL 2026)

DATA

Brave1 Dataroom

A secure environment with real combat data, such as video and thermal footage of Shaheds. Firms get access after screening.

→

COMPANIES

over 200

companies make AI-enabled drones.

→

PLATFORM

over 300

AI solutions are registered on Brave1. Units buy modules on the state marketplace Brave1 Market.

→

UNITS

over 70

AI and computer vision systems are already in combat use.

THE OTHER SIDE: NON-STATE ACTORS

Non-state actors misused a language model to develop a drone swarm meant to select human targets on its own.

This comes from an Anthropic report of September 2026. It recorded misuse of the Claude model by actors from China, Russia, Ukraine, Iran, Yemen, Sudan and Taiwan.

Source: Kyiv Independent, 19 Apr 2026, Ministry of Defence of Ukraine data · Ministry of Defence of Ukraine, 21 Jan 2026 · Financial Times, The era of AI warfare has arrived, 17 Sep 2026

03

Data is the new fuel… even if data alone does not win wars.

Many sources, one picture of the battlefield

WHAT HEADQUARTERS RECEIVES

- Drone video
- Satellite imagery
- Electronic signals
- Field reports
- Sensor data

BATTLE MANAGEMENT SYSTEM

DELTA (Ukraine)
Maven (US)

Processes data at a scale and speed staff officers cannot match. In 2024, US Central Command combined 179 data sources this way.

WHAT COMES OUT

Targets and their priority
the system helps find and prioritise targets

Proposed course of action
based on available weapons

Forecasts
campaign endurance and ammunition use

WEAK POINT

Data is often incomplete, outdated or ambiguous.

Even carefully selected drone footage can be incomplete, corrupted by sensor faults or environmental interference, or wrongly labelled.

Source: Financial Times, The era of AI warfare has arrived, 17 Sep 2026 · CSIS, 2 Jun 2026 · quoted: Jack Watling, RUSI; Anthony King, University of Exeter; Heidy Khlaaf, AI Now Institute

Bad data, wrong target

IRAN, FIRST DAY OF THE WAR: THE SCHOOL IN MINAB

over 150

dead, mostly children (Military Times reports at least 168)

According to preliminary findings, US command used outdated intelligence that did not include the school. The building used to be part of a military compound. Any role of AI in the error has not been publicly established.

Anthony King: the systems rest on statistical correlation. When the input data is wrong or outdated, the result can be catastrophic.

CAMOUFLAGE

In Ukraine, vehicles are painted with dazzle camouflage that confuses image recognition.

Financial Times

SOLDIER

Recognising a soldier accurately and autonomously is still a problem, let alone telling which side they are on.

Artem Martynenko, one of the creators of DELTA

ACCURACY

In 2024 tests, Maven identified objects correctly in about 60% of cases, human analysts in 84%. In bad weather or poor visibility it fell below 30%.

Military Times, 24 Mar 2026, citing Bloomberg

"If you bake in heuristic mistakes, whether that's the AI's mistakes or human, then of course that can accelerate the rate of error." Jack Watling, RUSI

Source: Financial Times, 17 Sep 2026 · Military Times, 24 Mar 2026 (citing CNN and Bloomberg)

Faster targeting does not mean victory

THE ASSUMPTION BEHIND THE STRATEGY

We target faster than the enemy → **We strike more targets** → ASSUMPTION: **The enemy collapses**

"There's really no plan B if that doesn't work out." *Franz-Stefan Gady, IISS*

WHAT HAPPENED

IRAN

The Iranian system did not collapse

"That's data-centric warfare. That's using AI at scale," says the Pentagon's AI chief. But it did not decide the war.

UKRAINE

Tactics change fast, no breakthrough comes

AI has raised the success rate of Ukrainian drones, turning a defensive war of attrition into one that is more survivable.

"AI helps you achieve what you want. That does not mean that what you want to achieve will win you the war."

Olivier Schmitt, Royal Danish Defence College

Source: Financial Times, 17 Sep 2026 · DefenseScoop, 22 Sep 2026 · Carnegie Europe, 16 Apr 2026 · FT quotes not verbatim

04

The decision stays with humans… for now.

Humans decide, but have no time to do so

"The human remains present, but without real time to contest the machine." Raluca Csernatoni, Carnegie Europe

WHERE THE HUMAN STANDS IN THE STRIKE DECISION

A human approves every strike

The system proposes a target, a human confirms it. Under pressure, though, people tend to accept what the system recommends.

Israel in Gaza: 15 to 20 seconds to assess one target

→

A human sets the rules in advance

They set the targets, the required confidence and the attack area. Inside it, the drone attacks without further command.

Ukraine: Saker Scout drone

→

No human decides

The drone selects the target and attacks on its own.

Russia, July 2026

REAL HUMAN CONTROL DECLINES

LAW

Whether a person may be targeted depends on who they are and what they are doing. A soldier may surrender or be wounded, and a machine cannot judge that.

Jessica Dorsey, Utrecht University

WHO TAKES THE BLAME

When the system fails, the operator takes the blame, despite having little control over it. Researchers call this the moral crumple zone.

Madeleine Elish, Google DeepMind

"Humans are responsible for how war is waged."
Jessica Dorsey, Utrecht University

"A commander somewhere will ultimately be held responsible, not a machine or a software engineer."
Lieutenant General Karen Gibson, former intelligence chief of US Central Command

Source: Financial Times, 17 Sep 2026 · Carnegie Europe, 16 Apr 2026 · Military Times, 24 Mar 2026 · FT quotes not verbatim

Technology is outpacing the rules

Soon the question may not be how far militaries let AI go, but whether governments and companies can set limits at all.

TECHNOLOGY

Models evolve in ways even their creators cannot fully predict.

1 JULY

Adviser to Ukraine's defence minister: navigation, target search and attack will be fully autonomous.

Al Jazeera

6 JULY

Kateryna Bondar (CSIS) reports the first documented civilian deaths from a Russian drone that chose its own target.

The New York Times, 24 Aug 2026



RULES

15 FEBRUARY

The Pentagon threatened Anthropic over its ban on fully autonomous weapons. In March it designated the company a supply chain risk.

Axios; Anthropic, 5 Mar

5 SEPTEMBER

UN talks ended without a new treaty on autonomous weapons. According to HRW, the US and Russia weakened the text.

Human Rights Watch

NOVEMBER

A UN conference will decide whether to start treaty negotiations. 76 states want them.

Human Rights Watch

Source: Financial Times, 17 Sep 2026 · Al Jazeera, 14 Sep 2026 · Axios, 15 Feb 2026 · Anthropic, 5 Mar 2026 · Human Rights Watch, 7 Sep 2026

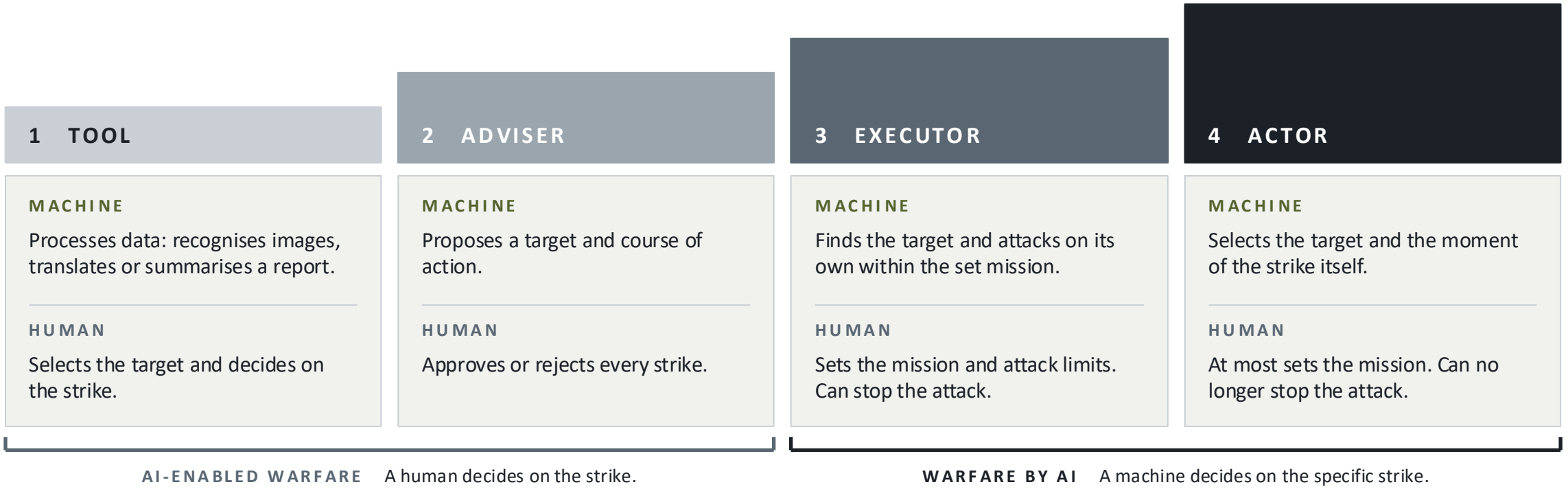
05

Current state and outlook

US · EU and NATO · China · Ukraine · Russia · North Korea · Iran · rest of the world

Four levels of autonomy

Two questions decide: does a human approve the specific strike? And can they stop an attack under way?



The placement of actors is the author's estimate, not a country's overall capability.

Source: author's framework based on Human Rights Watch, Losing Humanity, 2012 · ICRC, 3 Mar 2026

The US is betting big on autonomy

TODAY

$54.6bn is what the Pentagon requests for autonomous warfare in fiscal year 2027. In fiscal year 2026 it was $225.9 million.

- **The Replicator programme** for mass drone deployment ended in late 2025. A new autonomous warfare group took over.
- **Defense Secretary Hegseth** announced a new sub-unified command for autonomous warfare.
- **Maven's user base** has doubled since January.
- **The rules lag behind:** a Pentagon directive requires appropriate levels of human judgement. Lawmakers call overseeing thousands of systems a "mathematical impossibility".

OUTLOOK

Only $1 billion of the $54.6 billion is in the base budget. Congress must decide on the rest in a separate law.

LUCAS attack drones will get Shield AI's Hivemind swarm software. According to the maker, a human will still decide on strikes.

LEVEL OF AUTONOMY



1 Tool | **2 Adviser** | 3 Executor | 4 Actor

Documented in combat: adviser (Maven in Iran). The budget shows interest in autonomy, no higher level is documented.

Source: Defense One, 22 May 2026 · DefenseScoop, 22 Sep 2026

Europe defends against drones and insists on rules

TODAY

€1.07bn

from the European Defence Fund for 57 projects, including AI and counter-drone defence (April 2026)

- **The EU drone action plan** (February 2026): joint counter-drone defence, Eastern Flank Watch and a drone alliance with Ukraine.
- **NATO** bought Maven from Palantir for Supreme Headquarters Allied Powers Europe.
- **The fund** does not fund lethal autonomous weapons for strikes against people without meaningful human control. It may support early warning and defensive countermeasures.
- **The EU AI Act** does not apply to systems used exclusively for military and defence purposes.

OUTLOOK

European drone defence is due to be fully functional by the end of 2027, Eastern Flank Watch by the end of 2028.

NATO subscribes to six principles of responsible use. A system that behaves in unintended ways must be possible to disengage or switch off.

LEVEL OF AUTONOMY



1 Tool | **2 Adviser** | 3 Executor | 4 Actor

Documented: adviser, procurement for NATO command. No combat use is documented.

Source: European Commission, 11 Feb and 15 Apr 2026 · NATO NCIA, 14 Apr 2025 · European Parliament, 23 Oct 2025 · EU Regulations 2021/697 and 2024/1689

China tests swarms, chips hold it back

TODAY

1 : 200

in a January test shown on state television, one soldier supervised some 200 autonomous vehicles

- **Data centres:** in 2024 the US had over 4,000, China about 400. The count alone is not enough to judge military AI.
- **US export controls** limit China's access to the most powerful chips.
- **The overall gap with the US** is one China cannot close for now, says Sophie Wushuang Yi of Tsinghua University in Beijing.
- **No combat** evidence exists, China is not at war.

OUTLOOK

China may lead in drone swarms, says Chen Yi-fan of Tamkang University in Taiwan.

The Communist Party fears losing control over data, notes Sam Bresnick of the Center for Security and Emerging Technology at Georgetown.

LEVEL OF AUTONOMY



1 Tool 2 Adviser 3 Executor 4 Actor

Documented: tool. The 200-vehicle demonstration showed coordination, not independent target selection.

Source: Defense News, 7 Apr 2026 · Modern War Institute, West Point, 17 Mar 2026 · Federal Reserve, 6 Oct 2025

Ukraine wants AI in every drone

TODAY

20 → 71%

strike success rate of one brigade with terminal guidance (figure from the maker, The Fourth Law)

- **Terminal guidance:** the cheapest module starts at $150. The maker says it makes the whole drone a tenth dearer, from $500 to $550, but gives no price breakdown.
- **Strike range** grew from 3 to 10 km, according to the maker.
- **The Avengers system** detects 70% of enemy equipment in drone video. It identifies one item in 2.2 seconds.
- **Officially,** the operator still has the final say on target and strike.

OUTLOOK

The Ministry of Defence wants computer vision and AI in all front-line drones.

"We're moving toward a world where one operator programs 100 drones." Bryan Pickens, former US Special Forces soldier

Yaroslav Azhnyuk, head of The Fourth Law, expects a breakthrough in full autonomy within 6 to 12 months.

LEVEL OF AUTONOMY



Documented in combat: the machine selects targets itself within a defined area. Whether the operator can stop it is unknown.

Source: Forbes, 9 Aug 2026 · Defence Industry Europe, 18 Aug 2026 · Al Jazeera, 14 Sep 2026

Russia builds autonomy on American components

TODAY

over 50%

of AI components in a sample of 705 from captured Russian drones come from companies headquartered in the US

- **The V2U drone** lacks components for operator control, according to CSIS. It likely flies on its own in jammed airspace, selects targets and attacks in groups.
- **Drones** carry out up to 80% of the Russian army's fire missions.
- **Language models:** in documented cases, the military adapts the open models Llama, Mistral, Qwen and DeepSeek.
- **In February 2026** Putin set up an AI commission. Its members include the defence minister and the director of the FSB security service.

OUTLOOK

By 2030, Russia wants to produce about 130,000 large drones a year.

It wants to raise computing capacity from 0.073 to 1 exaflop by 2030.

LEVEL OF AUTONOMY



Documented in combat: the machine selects targets itself. According to CSIS, human intervention is likely impossible.

Source: CSIS, 10 Feb and 13 Apr 2026

North Korea learns on the Ukrainian front

TODAY

11,000

North Korean soldiers sent by the regime in 2024 to help Russia in the Kursk region (first contingent, estimate)

- **According to Kyiv,** the soldiers learned there to fly reconnaissance drones and direct rocket fire.
- **Kim Jong Un** called AI in drones a “top priority” (September 2025).
- **Since November 2024,** the regime has announced mass production of suicide drones.

OUTLOOK

The soldiers will bring home experience from the most advanced drone war.

How far the regime has really got cannot be independently verified. Most claims about its AI drones come from the regime itself.

LEVEL OF AUTONOMY



1 Tool 2 Adviser 3 Executor 4 Actor

Little is documented. The regime claims more than can be verified.

Source: Al Jazeera, 19 Sep 2025 · Korea Times, Nov 2024 · Business Insider · Bulletin of the Atomic Scientists, 25 Jun 2026

Iran: stronger propaganda, same strategy

TODAY

24 h

is all the Iranian propaganda group Explosive Media needs for a two-minute animated video

- **Fake footage:** Iran spreads AI-generated videos of invented strikes, for example on the aircraft carrier Abraham Lincoln.
- **Cyber attacks:** Iranian state hackers misused Google's Gemini model.
- **Drones:** in June 2025, Ukraine found an Nvidia Jetson Orin module in an Iranian-designed Shahed shot down over the Sumy region.
- **Iran's claims** about an AI-enabled Shahed-161 drone are unverified.

OUTLOOK

AI "almost certainly enhanced Iran's asymmetric tactics … but has not fundamentally altered the strategic logic." Recorded Future

The Jetson module can process images on board the drone. The find comes from Russian use, Iranian deployment is not documented.

LEVEL OF AUTONOMY



1 Tool 2 Adviser 3 Executor 4 Actor

Documented: tool in propaganda and cyber attacks.

Source: Recorded Future, 16 Jul 2026

AI is spreading more slowly than drones

USING IT, FOR EXAMPLE

countries actively using military AI

China · Israel · North Korea · Russia · South Korea · Ukraine · United Kingdom · United States

Selection by Steven Feldstein, not a complete list.

HAVE THE MEANS, FOR EXAMPLE

countries with the capacity to adopt it

Brazil · India · Pakistan · Saudi Arabia · Singapore · Turkey · United Arab Emirates

Selection by Steven Feldstein, not a complete list.

WHAT SLOWS THE SPREAD

Difficult military integration

High costs

Access to chips

ISRAEL

The Gospel and Lavender systems propose targets to the military. Google and Amazon supply cloud services to the state and the military under the $1.2 billion Nimbus contract.

2 Adviser
level of autonomy (estimate)

Source: Bulletin of the Atomic Scientists, 25 Jun 2026

What the selected cases show

The placement is the author's estimate based on publicly described cases, not an official classification or a country's overall capability.

	1 Tool	2 Adviser	3 Executor	4 Actor
USA	●	●		
EU and NATO	●	●		
China	●			
Ukraine	●	●	?	?
Russia	●	●	?	?
Israel	●	●		
North Korea	●			
Iran	●			

● documented case ? machine selects the target itself, whether a human can stop it is unknown

WHAT THE TABLE SHOWS

Autonomous targeting in combat.

Among the cases selected for this presentation, it is described for Ukraine and Russia.

Human intervention is uncertain.

For both, it is not certain whether a human can stop the attack. That is exactly what separates level 3 from level 4.

Interest is not yet capability.

The US, Europe and China invest in autonomy or demonstrate it. The cited sources do not document such combat use for them.

Source: slides 21 to 28

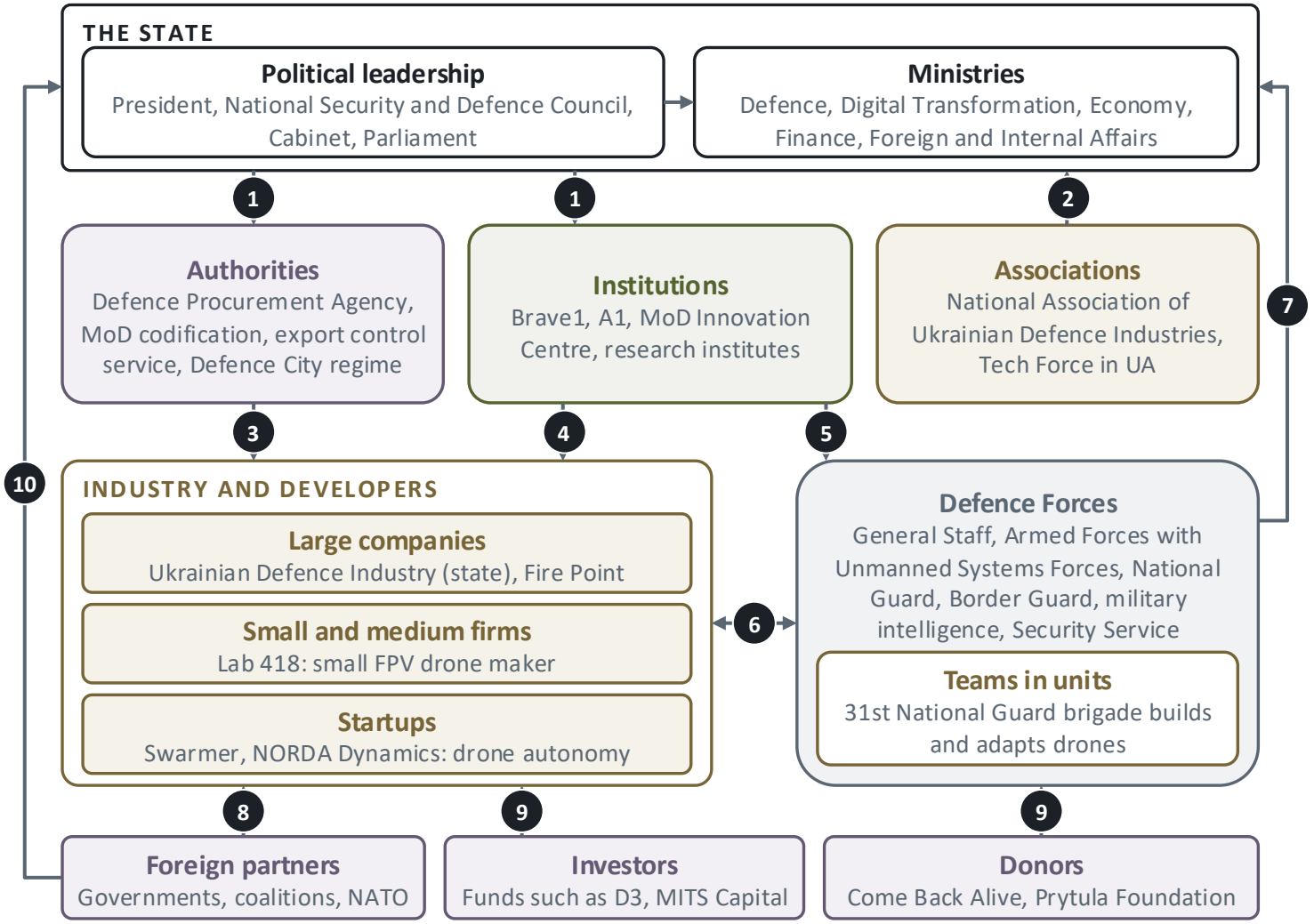
06

What the Czech Republic can do

Ukraine as a model? · What can be adopted · National EDT ecosystem · CZ1 AI Centre

Digital core · Operations · AI · Innovation · Supply

Stakeholders



HOW THEY CONNECT

1. Political leadership sets priorities, laws and budget; ministries and the Cabinet run the authorities and set up the institutions.
2. Associations speak for firms: Tech Force in UA has a memorandum with the MoD; NAUDI backs controlled exports.
3. Authorities contract and pay, approve products through codification and issue export permits; the Defence City regime gives tax and customs relief.
4. Institutions give grants, field tests, investor links and data for training AI.
5. The MoD Innovation Centre and A1 give units DELTA, Avengers and the SPECTR pilot.
6. Industry delivers equipment; units state needs, give feedback, order via Brave1 Market and adapt drones themselves.
7. The General Staff turns unit needs into requirements for the ministries.
8. Partners fund production in Ukraine and buy Ukrainian products under export permits.
9. Investors back startups (D3 in Swarmer, MITS Capital in NORDA Dynamics); donors fund equipment for units.
10. Partner governments agree funding, coalitions and NATO cooperation with the state.

Source: author's own functional map from public sources, as of 6 Oct 2026 · examples, not a complete list · sources and qualifications in the notes

Digital core · Operations · AI · Innovation · Supply

Ukraine's defense-tech ecosystem

1 2 3 Badges mark actors and tools that are steps in a loop

WHO TAKES PART

- **Political leadership** — Priorities, laws, budget
- **Ministries and General Staff** (1 2) — Requirements, budgets, approval
- **Defence Forces** (1 2 3) — Units of all services
- **Ukrainian industry** (1 2 3) — Private and state
- **Foreign partners** — Funding, NATO, suppliers
- **Investors and donors** (1) — Venture funds, volunteers

WHAT THEY RUN

MINISTRY OF DEFENCE

- **DELTA** (2 3) — Shared picture, coordination — Avengers AI, Labs-trained
- **Avengers Labs** (3) — AI training on battle data
- **A1 · MoD AI centre** (1) — Research, SPECTR staff AI pilot
- **Codification** (1) — Approves products where required
- **Defence Procurement Agency** (1 2) — Contracts, payments, DOT-Chain

BRAVE1 Digital Transformation, MoD and others

- **Grants and testing** (1) — Field tests, investor links
- **Brave1 Dataroom** (3) — Air-threat data for AI
- **ePoints** (2) — State-funded bonus points
- **Brave1 Market** (2) — Units order from industry

HOW IT WORKS

1 Development — from need to product

Units state needs → **Brave1, investors, A1** → **Industry** develops and tests → **MoD** approves where required → **Agency** buys using combat-data ratings → **Industry** delivers to units

field feedback

2 Results & money — results earn extra equipment

Units operate with **DELTA** → Hits verified via **DELTA** → Credited **ePoints** ePoints credited → Order in **Brave1 Market** → **Procurement** Agency contracts → **Industry** delivers directly

equipment in use

3 Data & AI — battle data trains AI

Units operate with **DELTA** → **DELTA** stores mission data → **Labs**: DELTA data / **Dataroom**: air data → **Industry** trains AI models → AI in new products

better products

Source: author's own functional map from public sources, as of 6 Oct 2026 · sources and qualifications in the notes

Digital core · Operations · AI · Innovation · Supply

AI in the defense-tech ecosystem

1 2 3 4 5 Badges link actors and data to the chains below

WHO DEVELOPS AND USES AI

- **MoD Innovation Centre** (1) — DELTA, Avengers, Labs
- **A1 · MoD AI centre** (3) — SPECTR, data rules
- **Brave1** (2) — Grants, tests, Dataroom
- **Ukrainian industry** (2 5) — Own models and devices
- **Defence Forces** (1 2 3) — Operators, crews, staffs
- **Foreign partners** (4 5) — Firms, buyers, co-funders

DATA SOURCES

- **DELTA (MoD)** (1) — 75,000+ video transmissions a day
- **Avengers Labs (MoD)** (1 2 4) — 5 million labelled frames, mostly DELTA
- **Brave1 Dataroom** (2) — Visual and thermal air-threat data

AI CHAINS	DATA	DEVELOPED BY	AI TOOL	RUNS IN	USED BY
1 **Target recognition** In use	**DELTA**	MoD Innovation Centre	**Avengers**, trained on **Labs**	**DELTA**, Vezha module	Operators, analysts; people decide
2 **Autonomy in devices** In use	**Labs**, **Dataroom**, other sources	**Industry**, grants and tests by **Brave1**	Guidance, navigation, interception	On the drone or interceptor	Drone and interceptor crews
3 **Staff analysis** Pilot	Combat data, **A1**	**A1**, MoD AI centre	**SPECTR**: patterns, enemy options, plans	Secure environment; **DELTA** link in development	Staff officers several units
FOR PARTNERS ABROAD					
4 **Partners' AI** Building	**Avengers Labs**; access after export control	Partner firms; UK first, up to 12 firms	Partners' own products	Planned partner products	Partners; Ukraine aims to speed up autonomy
5 **Products for partners** Building	Combat experience	**Ukrainian industry**; 11 Drone Deal frameworks	AI content not specified	Drones, interceptors, software	Partner forces; Drone Deal contracts not yet reported

HOW THE PLATFORMS CONNECT A1 → DELTA: commander's assistant in development · DELTA → Brave1 Market: verified hits unlock orders
DELTA feeds Avengers Labs; no DELTA feed to Dataroom documented · A1 and Brave1: no formal link documented

Source: author's own functional map from public sources, as of 6 Oct 2026 · sources and qualifications in the notes

DELTA and SPECTR compared

	DELTA (In use) — Operational system of the Defence Forces	SPECTR (Pilot) — AI platform for staff work, developed by A1
What it does	Shared picture, mission planning and reports, target coordination, messaging	Analyses combat data, finds patterns, anticipates enemy actions, suggests plans
Built by	MoD Innovation Centre	A1, the MoD Defense AI Center (launched March 2026 with UK support)
Status	In use; MoD ordered deployment at all levels in August 2025	Pilot; several combat units test it (MoD, 25 September 2026)
Users	Commanders, operators and analysts at all levels	Staff officers
Input data	Drone and camera video, sensors, reports; 75,000+ video transmissions a day	Combat data and battlefield information, kept in a secure environment
Role of AI	Avengers recognises targets; MoD also lists AI forecasting of enemy actions in DELTA	AI is the core: analysis and recommendations
Decisions	People assess the information and decide	Recommends options; Ukraine's stated rule: a person decides
Reported scale	200,218 confirmed drone hits in the bonus programme, June 2026	Test units not named; no public performance data

HOW THEY CONNECT A1's commander's assistant is to become available in DELTA and other systems; the teams are integrating it (A1 head). Public sources do not show the SPECTR tests running inside DELTA.

Source: author's own comparison from public sources, as of 6 Oct 2026 · sources and qualifications in the notes

Avengers Labs and Brave1 Dataroom compared

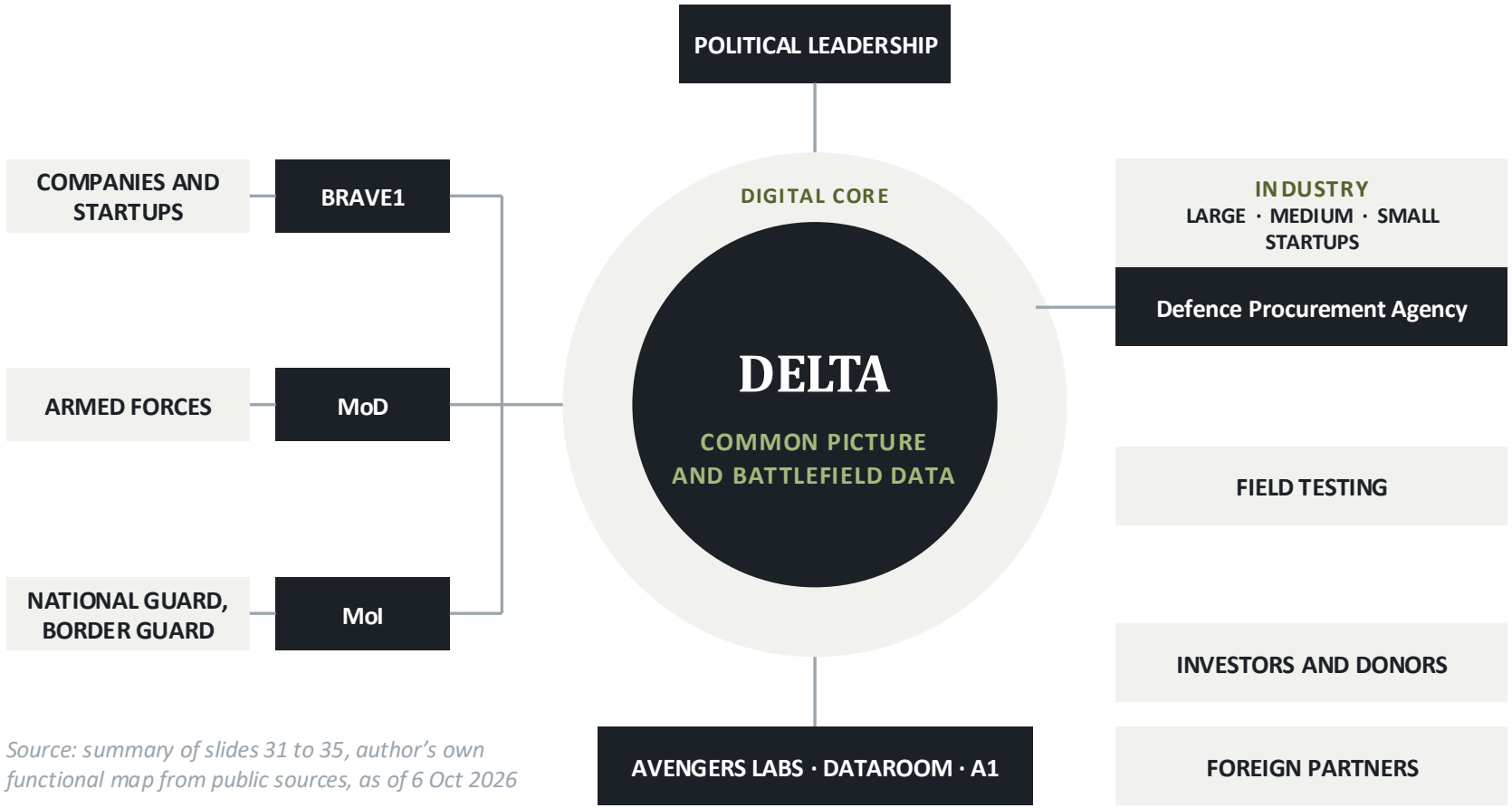
	Avengers Labs (Vetted access) MoD platform for training AI on battlefield data	Brave1 Dataroom (Vetted access) Brave1 environment for training and testing AI
Run by	MoD Innovation Centre, the team behind DELTA	Brave1 with MoD, Digital Transformation, Armed Forces, military intelligence research institute, Palantir
Launched	August 2026 for Ukrainian companies; UK joined in September 2026	January 2026
Data	About 5 million labelled frames, mostly DELTA: ground and air targets	Visual and thermal images of air targets, Shahed drones as first priority
Main use	Detection and autonomy for unmanned systems	Detecting and intercepting enemy drones
Access	Vetted companies under licence, 30+ by September 2026; partner countries can join	Ukrainian companies after security compliance; 100+ by June 2026
Data handling	Anonymised and delayed; training inside, no download	Download rules not published
Link to DELTA	Most data from DELTA; the dataset also trained Avengers	No direct DELTA feed documented
Technology	Platform developed by the MoD	Built on Palantir software

IN COMMON Real combat data, controlled access, companies train their own models inside a state environment
KEY DIFFERENCE Labs takes ground and air targets from DELTA and is open to partner countries; Dataroom focuses on air threats for Ukrainian companies

Source: author's own comparison from public sources, as of 6 Oct 2026 · sources and qualifications in the notes

Ukraine’s ecosystem at a glance

The state runs the platforms, industry supplies, and units feed back needs, results and data



Source: summary of slides 31 to 35, author’s own functional map from public sources, as of 6 Oct 2026

THREE FEEDBACK LOOPS

Development
from a unit’s need to a product

Results and money
points for equipment per verified hit

Data and AI
battlefield data trains new models

AI IN PRACTICE

Target recognition
Avengers in DELTA, in service

Device autonomy
guidance and interception, in service

Staff analysis
SPECTR by A1, pilot phase

PARTNERS AND EXPORTS

Avengers Labs
UK first, up to 12 firms

Drone Deal
11 frameworks, no contracts reported yet

Export permits
within 30 days under Drone Deal

Adopt the speed of the loop, not just the technology

WHAT CAN BE ADOPTED

1 One mandatory hub, not an agreed standard

Integration is enforced by the system, not by a memorandum. DELTA has been mandatory at all levels of the Defence Forces since August 2025.

2 The user defines demand

In the bonus programme, the unit chooses equipment itself in Brave1 Market. The Defence Procurement Agency signs the contract and pays.

3 A verified result is the currency

A hit verified in DELTA earns the unit points for more equipment. DELTA data also trains AI.

4 Data is an asset, not a by-product

The battlefield dataset is opening up to companies and allies. Access is agreed bilaterally, the first partner is the United Kingdom.

What is still being worked on

Not everything runs through DELTA.

The non-profit OCHI video archive runs outside DELTA. Brave1 Dataroom has no documented data flow from DELTA.

One institution holds the data, another awards the points.

Proof of a hit sits in the Ministry of Defence system, points and the marketplace are run by Brave1 with the Ministry of Digital Transformation.

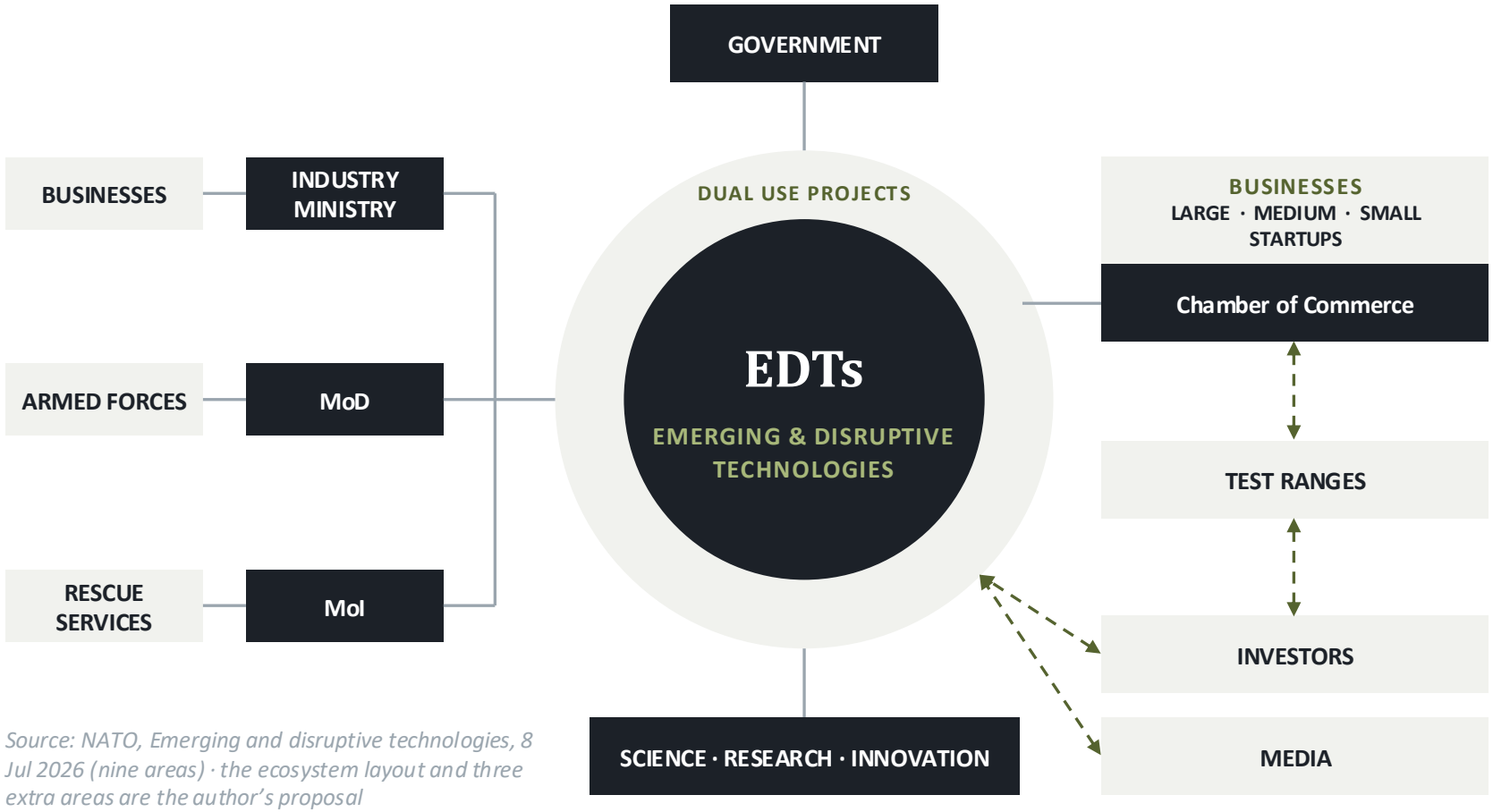
A lot rests on one organisation.

DELTA, Avengers and Avengers Labs are all built by one Ministry of Defence innovation centre.

Source: author's own analysis from public sources, as of 6 Oct 2026 · evidence in the notes to slides 31 to 35

National EDT ecosystem

Emerging and disruptive technologies



Source: NATO, Emerging and disruptive technologies, 8 Jul 2026 (nine areas) · the ecosystem layout and three extra areas are the author's proposal

NINE NATO EDT AREAS

- Artificial intelligence
- Autonomous systems and Robotics
- Quantum technologies
- Biotechnology and human enhancement
- Space Technologies
- Hypersonic systems
- Novel materials and manufacturing
- Energy and propulsion
- Next-generation communications networks

+ THREE EDT AREAS, CZECH PROPOSAL

- Directed energy
- Advanced Sensing
- Chips, microelectronics, semiconductors

CZ1 AI Centre

Move AI from pilots into the military's everyday work, with a human in the decision.

CENTRE LEADERSHIP — A small core of civilian data and AI experts and experienced officers. Priorities are set by a board of military users.

DATA

- Rules for collecting, labelling and sharing data
- Data from exercises, simulators and reconnaissance
- Bilateral access to allied data, such as Avengers Labs

INFRASTRUCTURE

- Secure environment for training models
- Training for firms and universities, no downloads
- Interface standard for existing systems

PILOTS

- Staff analysis and planning support
- Processing reports and sensor imagery
- Measuring benefit in exercises

ROLL-OUT

- Successful pilots into codification and procurement
- User training in units
- Feedback from units into development

ACROSS THE CENTRE — Law, ethics and data security. A human always decides on the use of force.

LINKS

Armed forces
users, needs and exercise data

Companies and universities
model training in the centre's environment

Allies
data access, NATO cooperation

EDT innovation process
grants, testing, DIANA accelerator

WHAT THE CENTRE DOES NOT DO

It does not fund startups, run a marketplace or build its own large command system.

Source: author's proposal based on Ukraine's A1 · Ministry of Defence of Ukraine, 28 Mar and 25 Sep 2026

Will the era of AI-enabled warfare become an era of warfare by AI?

Yes. Gradually, but at a growing pace.

The shift will not come all at once. The machine takes over individual decisions where humans cannot keep up or lose the link.

1 TOOL	2 ADVISER	3 EXECUTOR	4 ACTOR
	AI-ENABLED	BY AI	

WHAT PUSHES THE MACHINE ACROSS THE LINE

Jamming *part 1*
Jamming cuts the link with the operator, so demand for autonomous terminal guidance grows.

Speed *part 4*
Only seconds are left to assess a target. The human becomes the bottleneck.

People and cost *parts 1 and 5*
Drone pilots are scarce, and makers say terminal guidance adds only a fraction to a drone's price.

WHAT CAN HOLD IT BACK

Reliability *parts 3 and 4*
A machine cannot yet reliably recognise a soldier, let alone which side they are on or that they are surrendering.

Rules *part 4*
There is no new treaty on autonomous weapons yet. But humanitarian law applies to them, and humans must comply with it.

Chips and models *part 3*
Whoever controls them can slow deployment. Russia relies on American components, export controls hold China back.

Source: summary of parts 1 to 5, sources given on the individual slides · ICRC, 3 Mar 2026

What it means for us

DRONES OVER EUROPE

In autumn 2025, reported drones closed airports in Copenhagen, Oslo, Munich, Berlin and Brussels. Who sent them has not been officially confirmed.

Counter-drone defence concerns everyone who runs critical infrastructure.

> *Who among us knows what to do when a drone appears over our site?*

CIVILIAN COMPANIES IN DEFENCE

According to CSIS, the companies best at integrating AI into Russian weapons are those selling to both civilian and military customers.

A defence supplier today need not be an arms maker. Software, data or component manufacturing is enough.

> *What do our companies outside the arms industry make that has military use?*

COMPONENTS IN ENEMY HANDS

In a sample of 705 AI components from Russian drones, over half come from companies headquartered in the US.

Control of dual-use goods is a security issue.

> *Do we know where our components and software end up?*

SPEED OF PROCUREMENT

In less than a year, Ukrainian units ordered over 500,000 drones and other systems through the state marketplace.

The advantage goes to whoever buys and learns faster. Contracts planned years ahead cannot match that pace.

> *How long does it take us to deploy a new technology?*

Source: Euronews, 20 Nov 2025 · CSIS, 13 Apr 2026 · Ministry of Defence of Ukraine via The Defense Post, 26 Jun 2026

Key takeaways

01	AI is making war faster, cheaper… and above all, completely different.	slides 5 to 8
02	The ability to use and develop AI is fast becoming the main advantage at every level of command… and beyond.	slides 10 and 11
03	Data is the new fuel… even if data alone does not win wars.	slides 13 to 15
04	The decision stays with humans… for now.	slides 17 and 18
05	AI is spreading more slowly than drones… for now?	slides 20 to 29
06	What can be adopted from Ukraine is the speed of its innovation loop… not just specific technology.	slides 31 to 39

Sources

MAIN SOURCE

Financial Times: The era of AI warfare has arrived, 17 Sep 2026

Read in full. Quotes from it without a published English original are not verbatim. Other sources are used in excerpts; the speaker notes state what comes from them, with links.

The placement of actors on the autonomy scale and the conclusions on slides 29, 41, 42 and 43 are the author's own estimates.
The Ukrainian ecosystem on slides 31 to 37 is the author's own functional map and analysis from public sources, as of 6 Oct 2026; individual sources are given in the speaker notes.
The CZ1 AI Centre proposal on slide 39 is based on Ukraine's A1 (Ministry of Defence of Ukraine, 28 Mar and 25 Sep 2026); DIANA accelerator: BusinessInfo, 17 Dec 2024.

ANALYSES AND INSTITUTIONS

CSIS (Kateryna Bondar): Russian command, 10 Feb 2026; Russian drone ecosystem, 13 Apr 2026

CSIS (Matt Mande, Gregory C. Allen): Maven Smart System, 2 Jun 2026

Carnegie Europe (Raluca Csernatoni), 16 Apr 2026

Bulletin of the Atomic Scientists (Steven Feldstein), 25 Jun 2026

Recorded Future, Insikt Group, 16 Jul 2026

Human Rights Watch: Losing Humanity, 2012; UN talks, 7 Sep 2026

Modern War Institute, West Point

European Commission: drone action plan, 11 Feb 2026; European Defence Fund, 15 Apr 2026

European Parliament Think Tank, 23 Oct 2025

ICRC: autonomous weapons and humanitarian law, 3 Mar 2026

Federal Reserve, 6 Oct 2025

EU Regulations 2021/697 (EDF) and 2024/1689 (AI Act)

NATO NCIA, 14 Apr 2025

NATO: emerging and disruptive technologies, 8 Jul 2026

Ministry of Defence of Ukraine, 21 Jan 2026

Shield AI, 19 May 2026

MEDIA

DefenseScoop, 22 Sep 2026

Defense One (Anna Miskelley), 22 May 2026

Defense News, 7 Apr 2026

Military Times, 24 Mar 2026 (via CNN, Bloomberg, 2024)

Al Jazeera, 19 Sep 2025 and 14 Sep 2026

Axios, 15 Feb 2026; Anthropic, 5 Mar 2026

Kyiv Independent, 19 Apr 2026

Forbes (David Kirichenko), 9 Aug 2026

Defence Industry Europe, 18 Aug 2026

The Defense Post, 26 Jun 2026

The New York Times, 24 Aug 2026 (reprinted by GV Wire)

Euronews, 20 Nov 2025

UNITED24 Media, 8 Sep 2026

Korea Times, November 2024

Business Insider