Game changer: how will the opening of exports affect Ukrainian UAV manufacturers?

Opening up UAV exports is a necessary step, which must be accompanied by strict controls

Opening up exports for UAVs should be accompanied by certain conditions:

- **Allowing exports of only surplus products:** meeting the needs of the Armed Forces of Ukraine should remain the top priority. Exporting surplus products, without jeopardizing the country's defence capability, can generate revenue for companies to increase production and reduce costs.
- **Strict export controls:** a robust export control mechanism should prevent illegal re-exports to third countries, protect unique technologies, and ensure that products do not end up in Russia, its strategic partners, or countries involved in terrorism.
- **Customization of exported products:** exported UAVs should be adapted in a way that excludes the use of sensitive technologies, ensuring national security while maintaining competitiveness in global markets.
- **Prioritization of partner countries:** export opportunities should be focused primarily on countries that supported Ukraine during the war, including NATO member states and countries with which Ukraine has signed security agreements.

Countries with which Ukraine has signed security agreements:

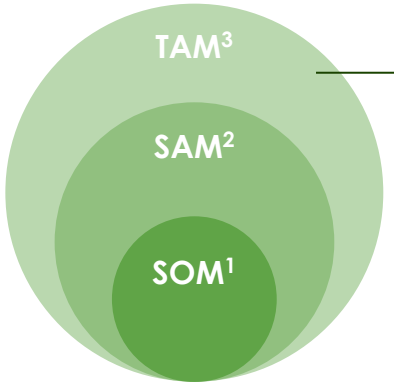
Sources: Technological Forces of Ukraine, Expert Interviews, DataDriven Analysis.

Opening up UAV exports will benefit not only domestic manufacturers but also the state as a whole

Sphere	Benefits for the state	Benefits for manufacturers
 Economic growth and market expansion	• Increased **foreign currency inflow** strengthens the national economy and **increases GDP**. • Creation of a new, **reliable source of tax revenu**es through defence exports. • Diversification of the export portfolio and establishment of Ukraine as a competitive player in the global defence market.	• Access to international markets allows for competitive pricing and **increases potential revenue**. • Diversified sales reduce dependence on **government contracts**, ensuring stability and profitability. • Global demand for proven technologies creates highly profitable **sales opportunities**, attracting foreign investment.
 Technological progress and innovation	• Expanding cooperation with foreign partners, which will accelerate technology transfer and **increase domestic R&D potential**. • Positioning Ukraine as a **centre of defence innovations**, increasing the interest of Western companies in localization of production.	• Cooperation with foreign partners expands access to advanced components, logistics and software, which leads to **improved product quality**. • Economies of scale from international sales **reduce production costs**, allowing more resources to be reinvested in R&D. • Modernized and expanded production facilities allow companies to **quickly adapt to new technological trends** in the defence sector.
 Building partnerships	• Participation in defence partnerships with global players will contribute to **strengthening political alliances** and security positioning. • Strengthening Ukraine's role as a supplier of defence products to NATO and other countries will **enhance its geopolitical influence**.	• **Improving the investment attractiveness** and **reputation** of Ukrainian companies in the global market. • Potential **creation of joint ventures** that can open the door for manufacturers to receive new contracts.

Sources: Technological Forces of Ukraine, Economic Truth, Radio Liberty, Expert Interviews, DataDriven Analysis.

Expanding the available market makes UAV manufacturers more attractive for partnerships and M&A deals



New opportunities with the expansion of Total Addressable Market (TAM)

- Entering foreign markets increases the attractiveness of Ukrainian UAV manufacturers for strategic partnerships and M&A opportunities.
  - The potential for creating joint ventures with foreign companies that would make Ukrainian manufacturers more competitive in foreign markets.
  - Interest in M&A is increasing, both for Ukrainian and foreign companies, which will contribute to market consolidation and opportunities for obtaining larger contracts.

SOM – Serviceable Obtainable Market. SAM – Serviceable Available Market. TAM – Total Addressable Market

Mergers and Acquisitions (M&A)

30%

of drone manufacturers are interested in both buying and selling the company in the future (Brave 1)

~$100K+

is the minimum cost for an investment fund to acquire a share of a UAV manufacturer[4]

Advantages of M&A with UA companies

- **Simplified regulation:** fewer complex regulatory barriers and faster approval processes from authorities in Ukraine.
- **Economic benefit:** typically lower valuation compared to international M&A, which can reduce development costs.

Advantages of M&A with foreigners

- **Increased market reach:** increasing brand awareness and opening access to international markets.
- **Access to technology:** gaining access to cutting-edge technologies and resources for development.

Joint ventures

- **Joint production and development:** working with foreign companies to assemble and improve UAVs in safe areas, adapting them to the needs of the front.
- **Path to foreign markets:** easier access to foreign markets, as well as gaining recognition and compliance with international standards.
- **Strengthening innovation:** pooling experience, technology, and joint developments contribute to the creation of higher-quality and competitive products.
- **Licensing potential:** opening access to future licensing agreements, which will provide long-term market access and cash flows for both companies.

Examples of manufacturers with joint ventures

UKRSPEC SYSTEMS

DeViRo

Notes: 1. Serviceable market. 2. Serviceable market. 3. Total available market: 4. Selling a stake to an investment fund in the early stages of raising capital by a UAV startup. Large established manufacturers have the potential to raise tens of millions of dollars. // Sources: Brave1, DataDriven Analysis, Expert Interviews

Industry overview

The definition of drones refers to three types of devices: aerial, ground, and sea

An unmanned vehicle (UAV), or drone, is a mobile device designed to operate without human intervention (driver or pilot) on board. These devices can be remotely controlled or fully autonomous, equipped with sensors for environmental analysis and self-navigation.

UAV[1]

An aircraft, which can take off, fly, and land without the physical presence of a pilot on board.

UAVs can be flown remotely or with varying degrees of autonomy. They are used primarily for aerial reconnaissance, both tactical and strategic, as well as for adjusting fire strikes on ground targets.

Ground drones

Ground vehicles that operate without a human on board and are designed to operate on various land surfaces are highly adaptable to a variety of applications.

They can be used for many tasks, such as surveillance, reconnaissance, and fire-fighting.

Marine drones

Surface drones: operate on water surfaces, perform patrols, protect water areas, and conduct anti-submarine warfare.

Underwater drones: designed to operate stealthily underwater, they are mainly engaged in destroying maritime targets but can also conduct reconnaissance and strategic navigation.

Notes: 1. Unmanned aerial vehicles.

System Versatility and Increasing Use of AI: Comparison of UAV Classes

Types of UAVs[1]	Description	Scope of application	Technical perfection	AI application	Cost factor	Examples[2]
FPV attack drones	Disposable attack drones with First Person View (FPV).	Ammunition carriers. Direct enemy engagement.	Faster and cheaper assembly; Improved video communication.	Auto-targeting.	$ Mass production without Chinese electronics.	TAF DRONES MADE IN UKRAINE; VYRIY; Чорний Ворон; FRONTLINE
Reconnaissance multicopters	Short and medium range systems like the DJI Mavic.	Monitoring troop operations and assisting FPV drones.	Automatic EW frequency change and DJI system replacement.	Automatic object detection and autonomous flight.	$$ AI hardware (chips and cameras)	DJI[3]
Reconnaissance drones	Medium and long-range surveillance systems.	Frontline surveillance and reconnaissance missions.	Intelligence boost through frequency switching and on-board data processing.	Flying in the absence of GPS. Automated decision making.	$$ Additional equipment on the drone (protection from obstacles, AI application)	DeViRo; Airlogix; UKRSPEC SYSTEMS; ATHLON·AVIA; SPAITECH; Skyeton; MARA Drone; BUNTAR AEROSPACE
Drone bombers	*Drones with a cargo compartment. Epitome: The Vampire drone.*	Ammunition shells that are dropped on enemy positions.	Improvement of ammunition drop systems.	Automatic enemy detection and tracking.	$$ Mass production with rapid destruction in mind	ВАІ ПТАХИ; SkyFall; SA SPARROW AVIA; VACA UAV DELIVERY
UAV for deep lesions	Long-range strike drones (Shahed, UJ-26 Beaver).	Strikes on targets deep inside enemy territory.	Increased range and load capacity.	Detection of moving objects such as trucks, trains and ships.	$$$ Production (motors, housing, electronics) for single use.	SPE UKRJET; AeroDrone

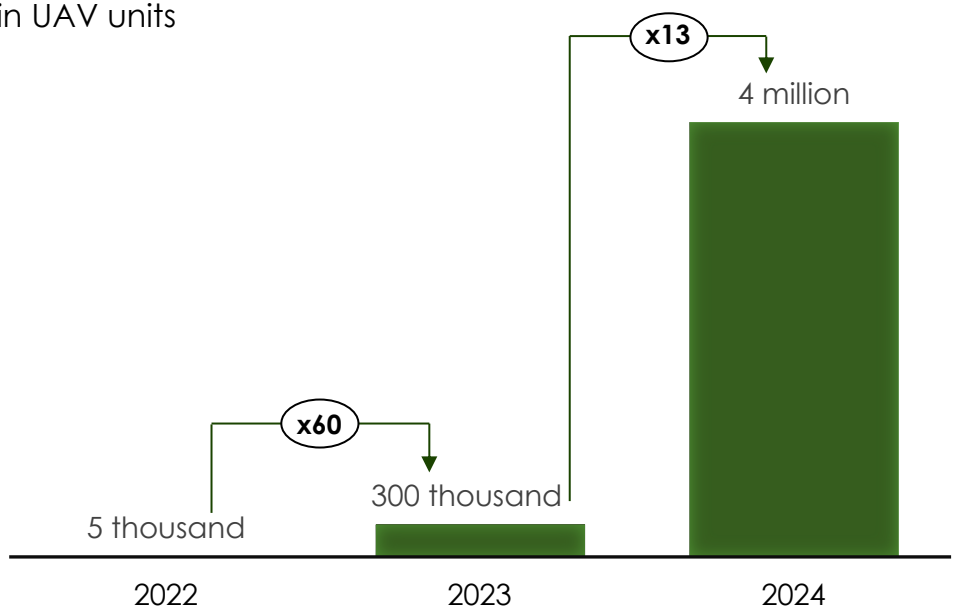
Low Moderate High

Notes: 1. Classification based on the model of the Ministry of Defence of Ukraine; 2. The selection of companies is illustrative; 3. The monopoly was taken by Mavic drones from the Chinese manufacturer DJI. Ukrainian alternatives are in the development stage, e.g. "Shmavik"

During the period of full-scale invasion, UAV production capacity increased 800 times by the end of 2024

Ukraine's UAV production capacity

in UAV units

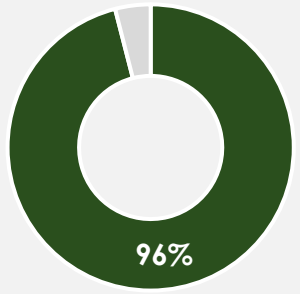


500+ Number of active Ukrainian drone manufacturers at various stages of development as of the end of 2024

1000+ UAV models appeared during the full-scale invasion

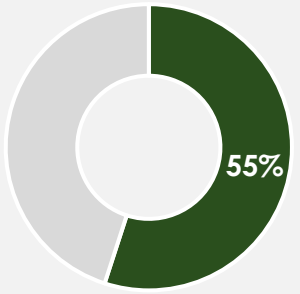
Share of domestically produced UAVs in government orders

in 2024



UAVs in codified developments[1] in Brave1

in 2024



This growth was made possible by the active support of the state:

- **Funding and initiatives:** Brave1 accelerator, grants up to $50,000, the Drone Army project, Anti-Shahed hackathon.
- **Creation of the Unmanned Systems Forces:** the creation of a separate branch of the Armed Forces of Ukraine accelerated targeted funding for the development of the UAV sector.
- **Significant domestic costs:** Western models turned out to be expensive and often less effective, and Chinese UAVs were risky for security. Ukraine focuses on its own manufacturers and is increasingly investing in their products.
- **Reduction of bureaucracy:** abolition of VAT on imports of drone components, transparent procurement, and certification.
- **Constant public communication** about the needs of the Armed Forces of Ukraine in UAVs (for example, the target is 1 million FPV drones in 2024).

Notes: 1. Two hundred developments from the Brave1 platform have been codified according to NATO standards. Sources: DataDriven Analysis, Glavcom, Minister of Digital Information, Ministry of Defence, Brave1, Defence Builder

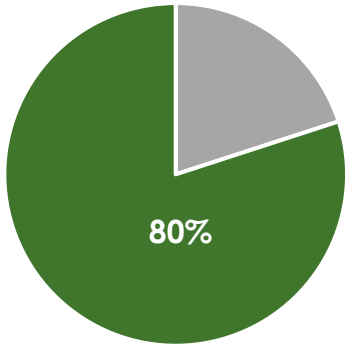
2025 is the year of full-fledged formation of the UAV market

Development of the UAV market

2022 — 2023 — 2024 — 2025

The emergence of the industry → Expected consolidation

FPV drone segment:



4 manufacturing companies control 80% of the FPV drone segment

Characteristics of the UAV market in 2025:

96% of all UAVs purchased by Ukraine are domestically produced

2,7$ billion will be allocated by the MoD [1] to drones in 2025 (~93% via the Defence Procurement Agency)

~4.5 million drones is planned to be purchased in 2025 by the MoD

x3

~1.5 million drones were purchased by the MoD and the SSCS [2] in 2024

Investment opportunities:

>$60 million were the investments in Ukrainian defence-tech companies in 2024

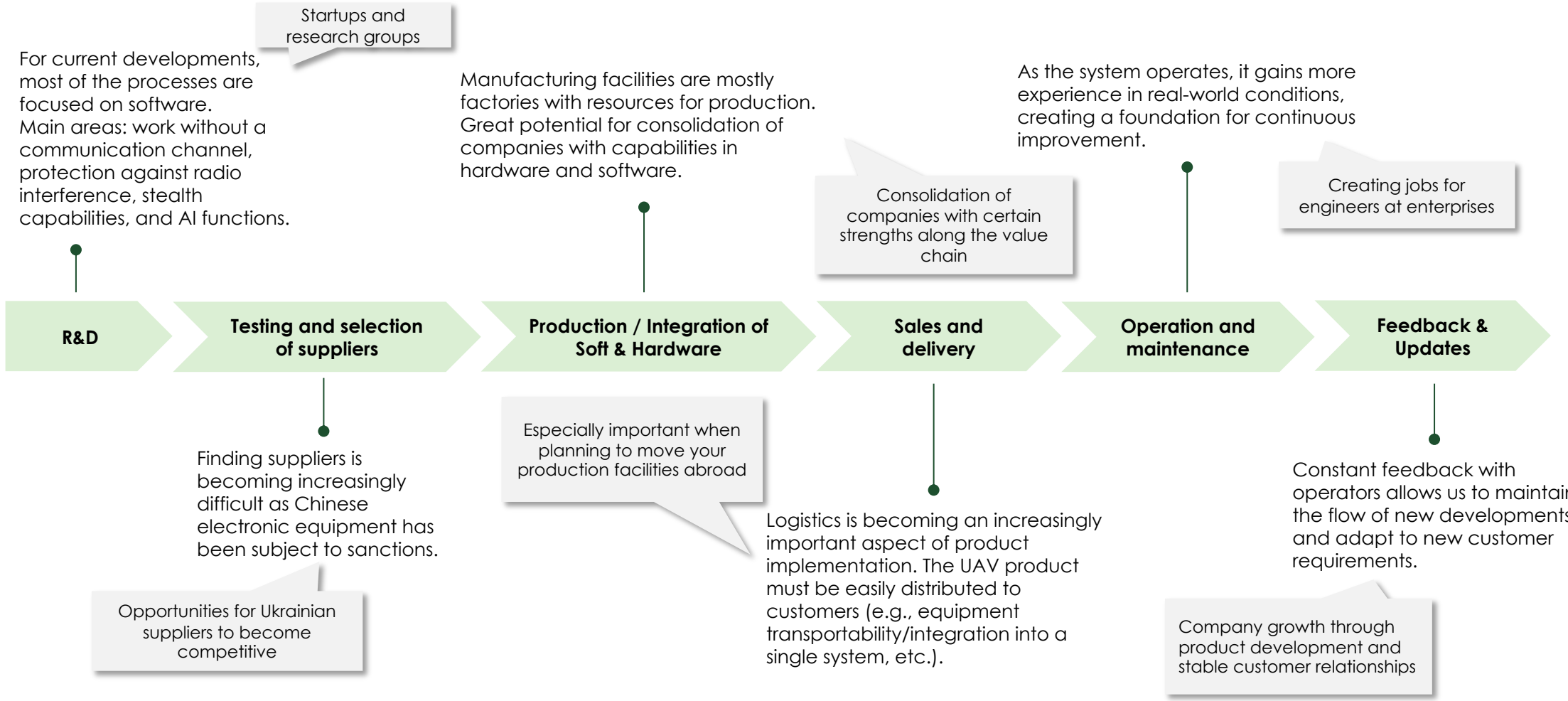
$1-3 million on average is raised by Ukrainian defence-tech companies during seed investment rounds

The trend towards M&A is also expected to **increase**, given the market formation and the desire of leading UAV companies to increase their own operational/technological capabilities in both UAVs and related sectors.

Notes: 1. The Ministry of Defence. 2. State Special Communications Service. Sources: Ministry of Defence, Minister of Digital Transformation of Ukraine, President of Ukraine, Ukrinform, Brave1, Forbes Ukraine, Militaryi, AVentures Dealbook, DataDriven Analysis, Expert Interviews.

Business model of a UAV manufacturer

UAV production value chain / UAV production path



The current model of UAV manufacturers has a large number of challenges and obstacles to doing business

Customers in the UAV[1] market:

GI[2]

Local govs.

Charities+ business

Individual units

Challenges of the “traditional” model:

- **Ukraine as the only sales market.** Reduces global competitiveness and increases the risk of losing business due to changes in the instability of state funding.
- **Lack of stable orders** for companies that are not contracted by the state. Accordingly, such companies are forced to look for alternative sources of financing, reduce production volumes, lay off staff, and relocate abroad.
- **Short-term procurement contracts** that lead to a situation where production facilities are either fully loaded or more than half are idle.
- **Limited profit from state drone orders** up to 25% of production cost.
- **Price regulation (a 25% markup on state contracts)** does not allow companies to invest in innovation and expand production. This leads to financial constraints and complications in manufacturers' operational activities.
- **Security risks.** Threat of leakage of confidential information, identification of production sites, and physical attacks on facilities.
- **Risks of ambiguity and opacity of public procurement** due to the presence of several mutually exclusive acts regulating this process.

Notes: 1. The selection of stakeholders is illustrative. 2. Government Institutions according to the resolution of the Cabinet of Ministers of Ukraine No. 363 “On Defence Procurement Issues.” Sources: DataDriven, Technological Forces of Ukraine, Forbes.

UAV manufacturers are shifting focus from hardware to software to remain competitive

	UAV manufacturers in 2022	UAV manufacturers in 2022
Focus	**Hardware-oriented developments** with an emphasis on low price and the possibility of scaling production.	**Focus on software development and improvement,** including autonomous navigation, AI, and electronic warfare countermeasures.
Target market	**Full focus on the domestic market of Ukraine,** meeting the needs of the Ukrainian army.	**Consideration of foreign markets,** in order to sell surplus products and obtain additional capital. Establishment of foreign joint ventures.
Technology	**Rapid development of prototypes** and their deployment in the field to gain tactical advantages on the battlefield.	**Focus on software improvements,** modularity, and interoperability to enable differentiation in international markets.

Benefits of technological transition

International Competitiveness

The focus on software development allows Ukrainian UAV manufacturers to create unique solutions with high added value that will stand out in the international market.

Attracting new investments

The introduction of innovative software for UAVs will increase the company's investment attractiveness and help attract more capital.

Adapting to the requirements of international markets

While the Ukrainian market requires inexpensive, fast solutions that can be applied immediately, foreign markets require sophisticated, future-oriented technologies.

Sources: Forbes Ukraine, RBC-Ukraine, DataDriven Analysis, Expert Interviews.

How will opening up exports affect the existing business model?

The increase in the Total Addressable Market requires UAV manufacturers to review existing business processes

Lifting the ban on the export of Ukrainian UAVs opens up a larger TAM (total addressable market), creating growth opportunities. However, to take advantage of these opportunities, **manufacturers need to completely rethink their existing business model and adapt to the needs of the international market**. Key areas that will require change:

Scaling production capacity

- Modernization of existing production lines to increase efficiency.
- Creation of new or expansion of existing production centres to increase order volumes.
- Ensuring reliable suppliers of critical components and materials to prevent bottlenecks.

Adaptation to international standards

- Implement processes to monitor compliance with export control laws and avoid legal risks.
- Obtain ISO certification, CE marking, and defence accreditation to ensure compliance with international regulations.

Securing financing

- Negotiations with private financial institutions to obtain low-interest loans for financing and modernization of production.
- Sale of a stake in the company to strategic investors or partners in order to raise capital without debt.

Improving compliance and security

- Implement advanced cybersecurity measures and protocols to prevent intellectual property theft and espionage.
- Maintain clear documentation and reporting processes to build trust with regulators and international partners.

Sources: DataDriven Analysis, Expert Interviews

Despite the extensive experience and adaptability of manufacturers, several obstacles can slow down the export

Stimulating factors:

Experienced production team

- A unique opportunity for Ukrainian companies to involve military personnel with real combat experience in the design and production of drones.
- Increased chances of creating a practical and high-quality product.

Mass adaptive production:

- Manufacturers are able to quickly adapt to the need for a certain type of product and promptly meet the demand for it.
- The operational coverage of military needs has already tested the adaptability of the offer of Ukrainian manufacturers.

Generating new ideas:

- Active combat operations and the constant need for innovation allow for the creation of a proposal for any technology useful in the field.
- Previous experience in using existing products provides a greater understanding of where new models should be improved.

Obstacles:

Unwillingness to compete outside Ukraine

- Complicated scaling of production for relatively small producers.
- In terms of production volumes, Ukrainian producers are inferior to Western ones. They will have to compete with, in most cases, larger players.

Import dependence on parts:

- The main source of individual parts for Ukrainian UAVs is China, which puts exports to NATO markets at risk.
- Although possible export restrictions on UAV components from the PRC can be physically circumvented, this may jeopardize production speed.

Imperfect state regulation:

- State procurement of drones in Ukraine is a bureaucratic and non-unified process that is directly dependent on budget planning.
- Licensing and contracting of product production in its current form can delay the development of the enterprise.

Sources: DataDriven Interview, Kyiv School of Economics, Technological Forces of Ukraine

Entering international markets is extremely attractive despite high competition and unstable investments

Export prospects:

Access to world markets:

- Ukrainian UAV manufacturers openly claim that the state cannot cover their entire supply.
- All surplus products can be exported abroad, maintaining stable profits and stimulating domestic production.

Acceleration of technology development:

- Competition with global manufacturers will bring Ukrainian companies out of the "vacuum".
- Profit restrictions by the state cease to be a problem, giving more control over one's own activities.

The possibility of new sources of financing:

- A Ukrainian product on the Western market will increase investment attractiveness for the most developed players in the sector
- Opening up exports will allow manufacturers to take out loans and increase production stability.

Threats to successful exports:

Lack of skilled labour

- The quality of technical education in Ukraine is inferior to that of its counterparts in Western countries.
- Demographic problems due to mobilization and outflow of specialists limit the production force quantitatively.

High competition outside Ukraine

- Numerous bureaucratic obstacles exist in Western markets, such as the NATO procurement system and protectionism.
- Ukrainian manufacturers will have to compete with companies already integrated into the system, which are aware of the market landscape.

Lack of stable investments:

- Although Ukrainian companies will have more ways to raise funds in the early stages, the process of raising funds still relies on them.
- The lending mechanism is not yet fully developed and operates on unfavourable terms, and cash flow visibility remains low.

Sources: DataDriven Interview, Kyiv School of Economics, Technological Forces of Ukraine

NATO markets simultaneously open up a number of prospects and limitations for Ukrainian UAV manufacturers

Prospects of the Ukrainian product

- The main task of Ukrainian manufacturers when entering the Western market is to bring innovations to it.
- Deep-strike drones and the latest control systems tested in full-scale war conditions may be promising for the alliance member countries.
- Projects such as Swarmer and Bavovna.AI offer their own software for drones, which is still a relatively niche product.

The issue of spare parts

- A potential source of difficulties in the entry of Ukrainian UAVs into NATO markets is the popularity of the use of Chinese spare parts.
- The member states of the alliance are trying to abandon close ties with China in the technological sphere.
- Ukrainian manufacturers are able to produce spare parts independently, including those for export. Stimulation of this production would be promising.

Difficult-to-predict demand map

- Western markets, in most cases, already have established major players interested in maintaining profits and their dominant position
- In unequal competition conditions, Ukrainian manufacturers may need to open separate subsidiaries abroad or create joint ventures.
- The EU strategy on the use of drones from 2022 can be used as a guideline.

Features of NATO procurement

- Before selling military UAVs, a license from NATO and entry into the unified procurement system are necessary.
- Among the manufacturers in the alliance countries, there are already significant players in the supply of military drones.
- Existing numerous technical limitations can cause an excessive number of changes to the initial product and, in combination with bureaucracy, seriously slow down the product's release for sale.

Sources: DataDriven interview

Given the multifunctionality of UAVs, manufacturers can position themselves in the dual-use sector

Post-war production: demand from state actors during hostilities is stable but risks decreasing if their intensity decreases. Expansion or a change in production focus is a possible option for drone manufacturers' post-war activities.

Definition of production strategy: some Ukrainian drone manufacturers, especially young and small in scale, do not yet have a precise algorithm in case of a decrease in demand for military UAVs, or in general, are not sufficiently knowledgeable in the field of dual-use technologies. For better orientation in the topic, it is worth starting with the following points:

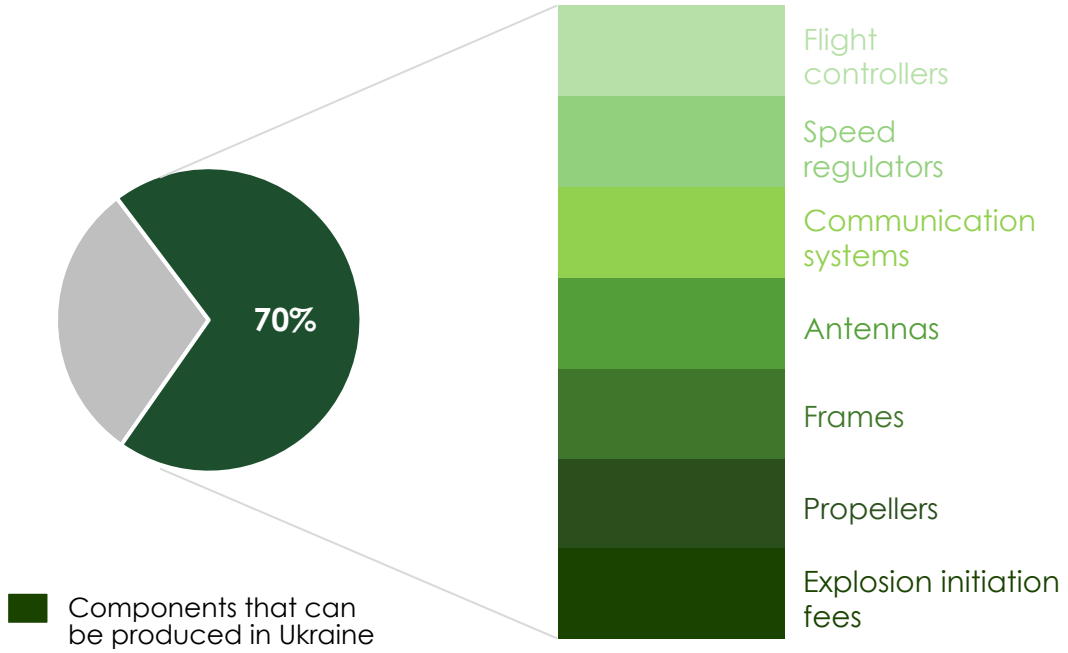
Transition to dual-use	Most military drones at the time of their production are potential dual-purpose drones. Although some details and methods of production of a purely military UAV and a dual-purpose vehicle coincide, for example, the launch and control systems will be fundamentally different, complicating the technological transition.
Potential abroad	The widespread use of private UAVs in the EU and the global growth in the number of civilian UAVs create opportunities in the dual-use market. However, this promising sector is highly competitive, led by dominant manufacturers from the West and China.
Regulatory mechanisms	Depending on the aircraft's actual purpose abroad, the manufacturer may undergo certification mechanisms other than those required by NATO. Permits for the use of UAVs may be required according to standards such as the EU UAV Strategy and ICAO regulations.
Defining a market niche	Before developing dual-use UAVs, manufacturers must assess their competitive advantages over existing models. To attract investment, they must decide whether to focus on a dual-use strategy or specialize in non-military applications for a clearer position in the market.

Sources: DataDriven analysis, Expert interviews.

Additional opportunities for UAV manufacturers

With China tightening export rules, Ukrainian manufacturers may need to produce UAV components, which is both an opportunity and a necessity

Components for FPV drones, the production of which can be localized in Ukraine



>15% of all manufacturers localized the production of components for UAVs in Ukraine

Advantages of Ukrainian UAV components over some foreign components

- **High quality control:** Ukrainian manufacturers carry out strict quality control, which significantly reduces the level of defects compared to some foreign components, primarily Chinese ones. This saves costs and ensures reliability.
- **Value for money:** Ukrainian components, such as speed controllers, offer higher wear resistance under higher loads, which gives them a clear advantage in performance.
- **Adaptability:** Ukrainian manufacturers can adapt components to customer needs in a short time. For example, Ukrainian manufacturers are constantly adjusting radio frequencies to meet the needs of the military, which would be prohibited for export from countries such as China.

Opportunities for exporting UAV components

- **Filling China's niche:** As NATO countries become increasingly wary of Chinese components, Ukraine has every chance of replacing China in certain aspects of the UAV supply chain.
- **Strengthening European manufacturers:** While EU countries prefer to develop their own UAVs, purchasing specific high-quality Ukrainian components is an attractive option for strengthening their own production capacity.

Notes: 1. supply chain // Sources: Texty.org.ua, Forbes Ukraine, DataDriven Analysis, Expert Interviews.

Along with NATO countries, Ukrainian manufacturers have the potential to export their products to Asian countries

The potential for future UAV exports to Asian markets opens a unique avenue for growth beyond NATO. The growing demand in Asia for advanced unmanned technologies, driven by their diverse applications in defence, agriculture, and infrastructure, coincides with Ukraine's manufacturing capabilities.

Advantages of Ukrainian UAVs

Application

Ukrainian UAVs have proven themselves in extreme conditions, offering versatile applications such as monitoring resources in remote areas, protecting borders and strategic facilities, operating in areas devoid of communication, and deploying in harsh weather conditions.

Adaptation

The Ukrainian product adapts to natural conditions, electronic warfare, and other threats, using military operations experience to meet the defence needs of developing countries.

Risks and opportunities of exporting outside NATO

The need for strict control

Ukrainian UAV manufacturers have significant market potential in regions such as West Asia and Africa. However, engaging with buyers in these regions requires careful consideration of political connections to preserve Ukraine's reputation and protect its innovations from potential exploitation by geopolitical competitors.

Targeting Southeast Asia

Asian markets are competitive and dominated by established players like the US, Israel, and China, but Ukraine can focus on countries with existing military ties, such as Thailand, the Philippines, and Malaysia, by winning government tenders or promoting its products independently.

Sources: DataDriven, Expert interviews.

About DataDriven

DataDriven provides research and consulting services that assist in operating in the Ukrainian market

DataDriven is a broad-based consulting agency…

Research

Using our many years of experience in collecting, analysing and interpreting data, as well as in creating recommendations for public and private stakeholders.

Consulting

To apply deep knowledge of Ukrainian politics and business to the benefit of our clients. To pave the way for the world to Ukraine, and for Ukrainian businesses to the world.

…with expertise in defence and dual-use technologies…

Our public research includes:

- **Commercial Humanitarian Demining Market in Ukraine** (April 2024)

- **Ukrainian defence tech market** (September 2024)

- **The impact of naval drones on warfare at sea** *(October 2024)*
- **Artificial Intelligence in Demining Processes** *(February 2025)*

…works with a wide range of clients:

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(comprehensive legal due diligence, market understanding, portfolio support)

Startups
(scale-up, technology validation, access to funding)

More information on dual-use, defence and demining practices here

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