



# PROJECT MARIUPOL

*A RECORD OF EVIL*

***STAGE 1***

**OSINT  
FOR  
UKRAINE**

# OSINT FOR UKRAINE

OSINT FOR UKRAINE is an independent investigative (non-profit) foundation dedicated to using open-source intelligence to investigate international crimes committed in relation to the Russo-Ukrainian war, research influence and disinformation operations in Europe, and provide specialised and technical support to organisations aligned with our shared objectives. The foundation is founded by a multinational team of professionals who possess knowledge and professional experience in intelligence, OSINT investigations, international criminal, humanitarian, and human rights law as well as investigative journalism.

Our foundation is currently fully self funded as we are in search of funding sources for our investigations and to cover operational costs.

## **Current Mission**

Achieve political, social, and legal accountability for victims of international crimes committed during the Russian invasion and occupation of Ukraine. We achieve this mission by our threefold vision:

## **Justice**

Our International Crimes Investigations Group (ICIG) made up of investigators and legal analysts (ICL, IHL and Human Rights) conducts in-depth investigations, analysis of several international crimes committed in relation to the Russo-Ukrainian war, collection of potential evidence and searches for avenues of accountability for those violations by cooperating with several international and European accountability bodies and legal accountability NGOs.

## **Truth**

The Center for Influence and Disinformation Research (CIDER) employs Open Source Intelligence (OSINT) methodologies in conjunction with investigative journalism and academic research to systematically undertake investigations and comprehensive studies pertaining to Russian and foreign influence as well as disinformation campaigns within the European context.

## **Memory**

'Project Mariupol' is our two-stage project where we document international crimes committed in Ukraine. The first stage, 'A Record of Evil', is our standalone experimental project where we conduct sourcing and mapping of potential international crimes committed in Ukraine via open sources. This experimental project serves as a testament to how civilians and beginners in OSINT and investigations can source data on international crimes. The second stage, 'A Gateway to Evidence', after public feedback in stage 1 will aim to conduct legal analysis of information and data (by ICIG) and evidentiary archiving to increase the reliability of the project.

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# PROJECT TEAM

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## **Project Directors/Coordinators:**

Deniz M. Dirisu from 04/2022 till 11/2022

Nicoletta Banila from 11/2022 till 05/2023

Christian Mamo from 05/2023 till 11/2023

Daria Delavar Kasmai from 11/2023 till 02/2024

## **Technical Specialists:**

Vasile Popa

Filip Chudzyński

Richard Mwewa

Cătălina Hasnaş

## **Volunteer Team Members:**

Victoria Arnold

Fernando Matias Tabarez Rienzi

Eren Isak Roso Demirtas

Jose Luis Rodal

Aleksiina Kallunki

Ioannis Michelis

Janthe Van Schaik

Linda Hourani

Ben Bogardt

Daria Ponomarenko

# MISSION STATEMENT



**THE FIRST CASUALTY OF WAR IS TRUTH, AND THE MAIN CASUALTY OF WAR IS INNOCENCE; WAR CRIMES EXIST WHERE THESE TWO MEET.**

During the first few weeks of the full scale invasion (and still today), OSINT pages and channels on Telegram and Twitter have been tracking the war (uploading troop movements, tallying unit casualties from photos and videos, tracking planes via the 'flightradar' app). In mid-March, the first OSINT information on war crimes emerged with MAXAR satellite imagery of corpse-covered roads in occupied Bucha, Hostomel, and Irpin (towns near Kyiv). From then on, various OSINT investigation efforts have been conducted by both governmental and civilian organisations to document war crimes in Ukraine.

In this project, open-source intelligence (OSINT) is defined as a practice of collecting and analysing open-source information (digital information) to produce valuable insights and intelligence for various uses.

Additionally, open-source information is defined as 'publicly available information that any member of the public can observe, purchase or request without requiring special legal status or unauthorised access' (Berkeley Protocol on Digital Open Source Investigations, 2022).

**OSINT  
FOR  
UKRAINE**

# HISTORICAL EVOLUTION OF THE PROJECT AND ITS SIGNIFICANCE FOR OFU

The beginning: **Project Mariupol: A record of evil**. This article was written by the General Director in his university law blog during the first months of the war.

Project Mariupol represents the humble beginnings of OSINT FOR UKRAINE. It was the first operational project of OSINT FOR UKRAINE as a collective that was founded by Deniz M. Dirisu (Co-founder and General Director), Alexander Rietveldt (Co-founder and Treasurer), and Ivan Kostiyuk (Co-founder and Special Investigator) in April 2022. Deniz conceived the foundation and project during his master's thesis work, inspired by a lecture given by Hannah Bagdasar of Bellingcat during Deniz's Adv LL.M course on international criminal law taught by Professor Joe Powderely. Subsequently, the collective was launched together with Alexander and Ivan, friends and colleagues who banded together during their volunteering for humanitarian aid for Ukraine in the Netherlands at a supply depot.

At first, the project was manned solo by all three who sourced the first 200 - 250 items on the map alone and from there recruited more of their colleagues at Leiden University to help with sourcing information about international crimes in Ukraine, growing the team to around ten people. Towards the end of 2022, the current CTO, Vasile Popa, and Special Investigator to OFU, Vyacheslav Kolomeets, joined Project Mariupol, helping to bring the project to its next milestone to a 1000 items mapped under the direction of Nicoleta Banila, at the time assigned Project Manager.

From there, as the collective grew, so did the mission of OSINT FOR UKRAINE. In August 2023, the results of the first investigative work was published: a report titled 'The Russian Red Cross: True Humanitarians or the Kremlin's Accomplices?' From Project Mariupol and its volunteers, therefore, sprouted a new department - the International Crimes Investigation Group, consisting of hybrid teams of investigators and legal analysts. During the spring and summer of 2023, the project leadership was handed over to Christian Mamo, who, after his term as Project Manager, went on to lead the following department of OFU called CIDER - Center for Influence and Disinformation Research. In this department, our investigators and journalists expose Russian influence and disinformation groups in Europe - a task we thought necessary seeing all the disinformation about Russian war crimes emanating from pro-Kremlin assets. The inaugural project of CIDER was the investigation into the Russian House in Berlin exposing sanctions evasion and ties to far-right parties in Germany.

However, as with all projects, there are ups and downs. Towards the end of 2023, the project was facing difficulties in manpower and resources as the number of crimes to map grew exponentially. Therefore, in an attempt to complete the first phase of the project and its publication in 2024, Daria Delavar-Kasmai was brought on as Project Manager to oversee this phase of the project. Currently, OSINT FOR UKRAINE is a foundation with two operational departments and other supporting groups (Public Affairs, General Secretariat and Operational Security) with around 70 members (board, staff and volunteers).

# OBJECTIVES OF STAGE 1 PROJECT MARIUPOL

## A RECORD OF EVIL

1	<b>DOCUMENTING INTERNATIONAL CRIMES COMMITTED BY THE RUSSIAN FEDERATION IN UKRAINE.</b>
2	<b>ENGAGING NOVICE CIVILIAN OSINT PRACTITIONERS IN SYSTEMATIC GATHERING AND ANALYSIS OF OPEN-SOURCE INFORMATION.</b>
3	<b>MAP COLLECTED DATA ONTO AN ONLINE INTERACTIVE PLATFORM FOR ACCESSIBILITY AND TRANSPARENCY.</b>
4	<b>GATHER PUBLIC FEEDBACK TO ENHANCE THE PROJECT'S EFFECTIVENESS.</b>

# STRUCTURE OF THE PROJECT

Project Mariupol was structured around a team of around 15 - 20 volunteers, each contributing their knowledge and skills to the project under the leadership of a head coordinator. A central excel spreadsheet (staging sheet) was at the heart of the project's workflow, serving as the main working document. This spreadsheet was divided into seven subcategories, each representing a distinct aspect of the conflict and potential areas where international crimes might occur. These subcategories were:

## **POW and Internment Camps**

- mapping locations of POW camps, civilian internment/filtration camps and TAC's ("Temporary Accommodation Centers/camps") for abducted Ukrainian children in occupied Ukraine and Russia proper.

## **Aerial and Artillery Strikes**

- incidents of aerial and artillery strikes at civilian and protected objects or affecting the civilian population (death and injury).

## **Reports of Sexual Violence and Rape**

- collection of social media reports of sexual violence and rape in occupied areas of Ukraine.

## **Direct Attacks on Civilians**

- incidents of direct violence and attacks on civilians such as torture, kidnapping, and murder.

## **Violations against Prisoners of War (POWs)**

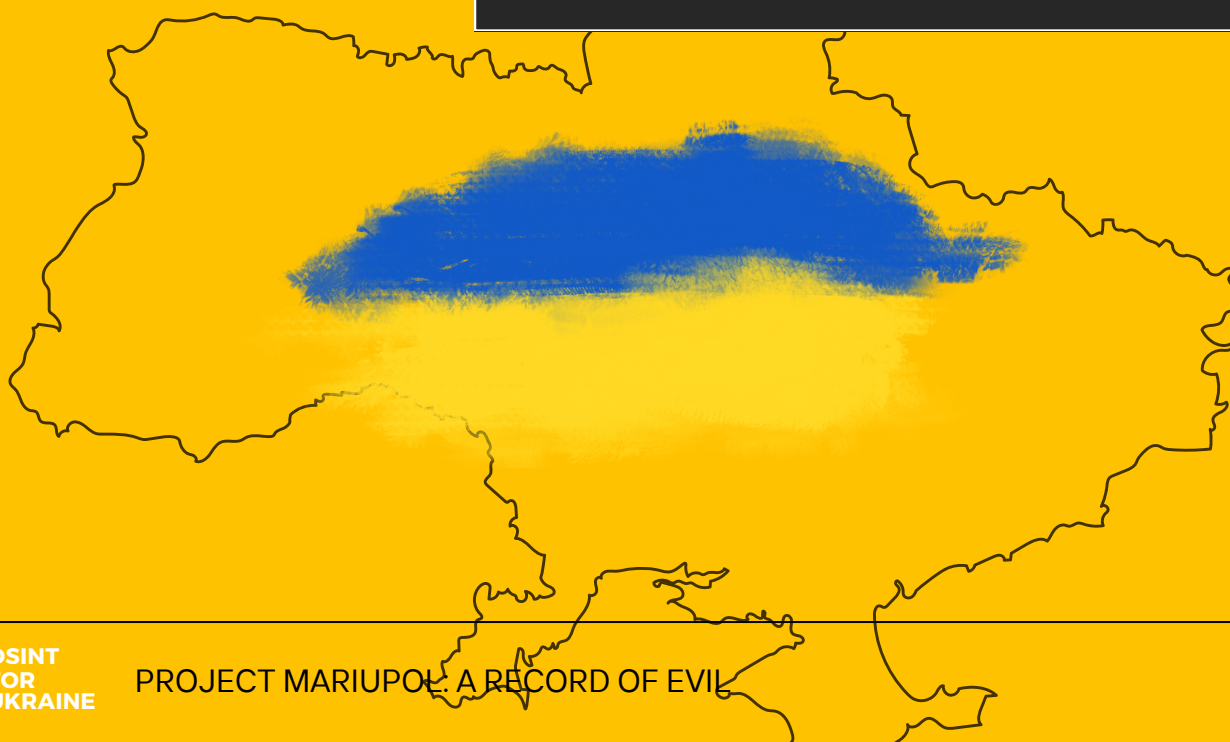
- incidents of direct violence and attacks on prisoners such as torture, kidnapping, and murder.

## **Killed or Injured Journalists**

- incidents of direct violence and attacks on journalists such as indiscriminate targeting, torture, kidnapping, and murder.

## **Miscellaneous Incidents**

- incidents that don't fall into the main categories such as theft of Ukrainian grain by Russia.





# STRUCTURE OF THE PROJECT CTD.

The categorical framework for mapping was established by Deniz M. Dirisu, the founding director of the project and General Director of OSINT FOR UKRAINE. The selection was crafted to reconcile legal prerequisites for international crimes with the abundance of violence-related content accessible in open digital sources in relation to the Russo-Ukrainian war. Working with these categories, the structure of the process was based on the traditional intelligence cycle. The four main steps in the process are:

## PLANNING AND DIRECTION



Each volunteer was assigned specific responsibilities within these subcategories and tasked with sourcing and mapping relevant information about events that could be classified as potential international crimes such as war crimes and crimes against humanity. This division of labour ensured that the workload was distributed efficiently and that each aspect of the conflict received thorough attention.

The allocation of regions to volunteers was based on their demonstrated involvement and experience, ensuring that each team is equipped with individuals who possess the necessary skills and understanding of the respective areas and categories.

Regular team meetings and updates ensured effective communication and addressed any challenges encountered during the process. The iterative nature of these meetings and discussions allowed for continuous improvement, ensuring that the project remained adaptive and responsive to the evolving dynamics in the field.

# 1

## COLLECTION/SOURCING



The primary source of information was social media platforms, where volunteers monitored and analysed posts, accounts, and discussions relevant to the specified subcategories in Ukrainian and Russian social media environments. Special attention was given to identifying and verifying content that could serve as actionable intelligence and/or potential evidence of crimes, including images and videos shared by eyewitnesses, journalists, or other sources.

The volunteers took care in finding the most unaltered and original version of the data, especially visual data in order to be able to produce a clear picture of the event/potential crime. After that, the volunteers collected the images and videos depicting potential crimes into individual Excel sheets with key information from the sources, ensuring a diverse range of sources was available to process and analyse.

# 2

# STRUCTURE OF THE PROJECT CTD.

## PROCESSING AND ANALYSIS



The collected data was analysed for relevance and reliability by the volunteers (by conducting basic verification and validation of information available), which enabled them to analyse the information and data to ascertain key facts for the documentation of the information.

The collected data was then documented in the project-wide Excel spreadsheet, with each entry containing crucial details such as dates, available location data including coordinates, sources (links to posts of images and videos), and a description of the event or potential crime. The Excel spreadsheet served as a central repository for organised, structured, and dated data, allowing for efficient collaboration among volunteers and facilitating the processing and analysis of information both past and present.

# 3

## PRODUCTION



The dataset was prepared for visualisation on the online interactive mapping platform developed by Forensic Architecture and available as an open-source tool. This involved structuring the information in a way that conveyed a clear and accurate representation of the various aspects of the potential international crimes documented on our Excel file database.

This stage involved the cooperation of the project team with the Research and Development branch of OFU, where under the CTO, the team not only prepared the mapping of the Excel database onto the platform, but also overlying it with the DeepStateMAP: Map of the war in Ukraine, where the movements of Russian units from the beginning of the full scale-war and before were recorded via open sources. This overlay onto our mapping of potential international crimes will in the future enable researchers to consider the attribution of accountability and liability for the potential international crimes mapped to individual Russian units that invaded and occupied Ukraine.

# 4

# VERIFICATION, VALIDATION, AND BIAS MITIGATION

Volunteers utilised various sources throughout the data collection process, including publicly available videos, photographs, social media posts, news reports, and official documents. Cross-referencing was one of the main techniques used to verify and validate information that was available.

It was important to use multiple sources for each incident and cross-reference between them - are their accounts consistent? Do they include photos/videos which offer useful different angles on a scene?

The usual rule was to verify events/potential crimes, images, and the facts pertaining to the event/crime with at least three different sources and from three different perspectives of sources: Ukrainian, Russian, and neutral/foreign. Due consideration was also given to whether a source is primary or secondary; if the latter, what sources it itself cites; what gaps there may be in the information; what bias may be present; what the motivation behind the source might be. Furthermore, different types of violations/categories required differing approaches when it comes to verification/validation, e.g.:

- **The unlawful detention of Ukrainian POWs in detention centres in Russia.** Addresses are easily found online and detention centres visible on Google Maps, so geolocation is simple, thus emphasis is on verification of the POWs' presence (for example, by cross-referencing official Ukrainian sources with independent Russian sources - prison monitoring/prisoners' rights groups - and Russian local residents' observations).
- **A drone attack on a Swedish press team in Stepnohirsk near Zaporizhzhia on 19 September 2023.** This was reported by the Swedish TV channel itself, the Zaporizhzhia police, Ukrainian regional government sources, and the Ukrainian press, as well as the individual journalists involved on their social media, and the accounts were consistent with each other. Geolocation, however, required more effort, and was done by means of cross-referencing the different photographs from each source, and comparing these with map and satellite imagery to narrow down possible locations in Stepnohirsk (the journalists' damaged car appeared to be on a small tarmac road ending at the edge of a built-up area, beside multi-storey residential buildings with scrub and trees opposite them); a more precise location was found by looking at the angle of shadows cast by objects in the photographs and checking these on the [suncalc.org](https://suncalc.org) website for the time of the attack.

# VERIFICATION, VALIDATION, AND BIAS MITIGATION CTD.

The use of SOCMINT, or social media intelligence, was critical to gather information, incorporating information and insights from social media posts by individuals, groups, OSINT collectives/channels, as well as contributions from international human rights organisations, non-governmental organisations, and official government announcements.

Examples of social media used are: unofficial Telegram channels and Facebook pages for individual Ukrainian cities/towns/districts, often with comment sections; official Telegram channels and Facebook pages of local mayors/heads of Ukrainian regional military administrations, and Ukrainian police and prosecutors; local residents' individual social media pages; Ukrainian and foreign journalists' individual social media pages; state-run and independent Russian social media. We were always aware of the probable level of knowledge and possible bias of all social media sources and cross-referenced them with each other and with official sources.



Lastly, the project maintained a proactive approach to quality assurance by closely monitoring developments from other OSINT/OSINV organisations (such as Bellingcat and Center for Information Resilience), which served as a mechanism to identify and rectify any potential inaccuracies or biases in sourcing and mapping.

## A CASE EXAMPLE FROM THE VOLUNTEERS

**29/12/23 entry at location: 47.8301557, 35.21925295**

*"On the morning of 29 December 2023, Russian forces launched a wave of missile strikes across Ukraine. In Zaporizhzhia, photographs and video footage quickly began appearing on Telegram channels, showing the aftermath of strikes on residential areas.*

*To geolocate this strike, I started from the presence of the damaged tram visible in photos and videos posted on the Zaporizhzhia Novini channel and by Anatoly Kurtyev, secretary of Zaporizhzhia city council. Although no identifying information was present in these images, searching through more local Telegram channels eventually identified the route (in a post on the Zaporizhzhia.Info channel) as No. 10 "Maydan Voli-Myasokombinat".*

*This allowed me to search along the route of the tram on Yandex Maps, and identify the location of the strike by visual comparison between street view imagery and photos/video taken on the morning of the attack, paying attention to the streetlamps and the distinctive gates of houses."*

# DOCUMENTATION AND THE MAP

As new information was collected and documented in the Excel spreadsheet, the head of the project and the head of Research and Development (R&D) periodically reviewed the data, ensuring its consistency and accuracy. Any sources flagged for revision were reevaluated to maintain the integrity of the project's findings.

Data was added by volunteers and reviewed by the project manager and the head of R&D in cycles of 2 weeks, with map software being developed by a team of two volunteer engineers and the head of R&D.

## Every data point contains:

- **Event description:** a short, 2-3 sentence description of the crime, where it happened (town, village, or city), as well as who and how was injured/killed/tortured.
- **Sources:** a minimum of two sources for every data point.
- **Category:** the category to which the alleged crime belongs.
- **Date:** the date of the crime.
- **Location:** the longitude and latitude of the location.

## HOW THE MAP WAS CREATED

The first iteration of the map was deployed using **maphub.net**. Here you may see the archived version of the map. However, the first version of the map had two significant problems:

- It was impossible to add more than one source link per data point.
- There was no timeline filtering, namely there was no way to check the data in a specific time range or on a specific date.

In order to solve these limitations, we forked the timemap-project, developed by Bellingcat and Forensic Architecture. Data coming from **maphub.net** was converted, using a Python script, to the format that was acceptable for the timemap, namely a json that contains three categories of data: events, sources and associations.

We also cross-referenced our data with part of the data coming from the Bellingcat's '*Civilian Harm in Ukraine Timemap*', **ukraine.bellingcat.com**. This map enhanced our dataset by almost 50%, especially the data regarding two categories: aerial strikes and direct attack on civilians.

After the conversion, the data was manually checked by the volunteers again. We modified the timemap UI in order to accept our data in the format that we needed. After this, we deployed our map UI to **map.osintforukraine.com** and our REST API (for serving the data) for **api.osintforukraine.com**. The data for alleged war crimes contains **2643** data points.

## THE USE OF DEEPSTATE UA MAP

The second step was integrating the data regarding the situation on the frontline on a specific date. This data was taken from **deepstatemap.live**. In order to integrate this data in our map, we implemented these steps:

- Pulling the DeepstateUA data in a json format (we took only the data regarding specific units of the Russian army).
- Converting to the timemap format (with the same keys: location, description, date).
- Removing the "source" key.
- Modifying the timemap UI in order to show the dislocation of the military units when a specified crime data point is accessed by the user.

# LIMITATIONS AND LESSONS LEARNED

Project Mariupol demonstrated the feasibility of training civilian and novice open-source intelligence (OSINT) practitioners in the sourcing and mapping of international crimes. The experiment showcased that individuals with limited prior experience in the field could, with appropriate guidance, contribute meaningfully to the process.

Despite the initial hurdles, it became evident that with practice and ongoing support, beginner OSINTers can grasp fundamental methodologies. However, the complexity of advanced techniques, such as geolocation, posed challenges in application. In instances where precise location data was unavailable or undeterminable, volunteers exercise prudence by utilising the geographic centre of the respective town or area. This pragmatic approach ensured that despite limitations in pinpoint accuracy, the overall integrity and reliability of the information/intelligence gathered remain uncompromised.

Furthermore, the significance of proper documentation emerged as a critical element in the success of OSINT endeavours. The project underscored the necessity of meticulous recording and cataloguing of findings to ensure transparency, reproducibility, and accountability. Given the substantial volume of data involved in international crime investigations, establishing robust documentation practices is imperative.

## REALIZATION



An important realisation was the limitation imposed by the experimental and educational nature of the project, preventing comprehensive archiving. Going forward, it is imperative to apply legal standards in data archiving, where feasible. This recognition emphasises the need for a balance between the educational objectives of such projects and the imperative to adhere to legal and ethical standards in handling and preserving information.



# VERIFYING WAR CRIMES USING OSINT IN 13 STEPS: A DEMONSTRATION

Author: Ben Bongardt



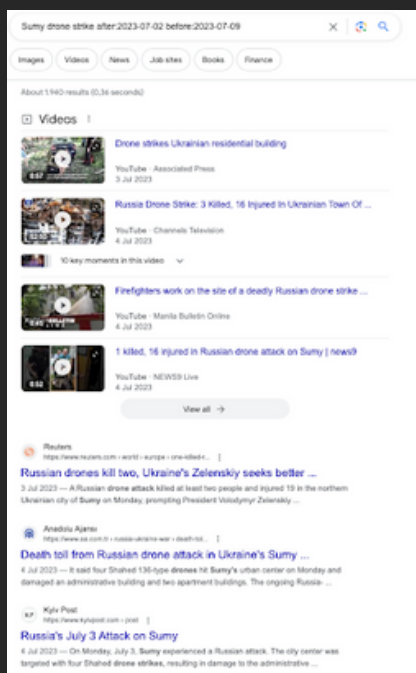
# 1

Beginning the investigation, a video surfaced on the social media platform X, posted by @JimmySecUK. Titled 'An Iranian supplied Russian "Shahid 136" suicide drone hits a civilian residential building in Sumy, north eastern Ukraine, earlier on Monday. At least one person was killed in the attack, the video showcases a flying object striking a building, followed by an explosion. While this only provides the starting point for the investigation, the alleged 'What', 'When', and 'Where' are now known, serving as information for further search queries.

Picture 1: @JimmySecUK showcasing the potential "Shahid 136" drone strike in Sumy (Source: "X")

# 2

As X offers limited guidelines on regulating dis/misinformation, this only provides a broad starting point for an investigation, and we must proceed with caution. Luckily, a date and location are provided, which allows us to narrow down the search items in question.



# 3

To assess whether this event truly happened, the first step is to conduct a broad search for the event. As seen below, the keywords 'Sumy drone strike' are combined with the timestamps that narrow down the time frame in which the attack supposedly happened.

Picture 2: Google search query "Sumy drone strike after:2023-07-02 before:2023-07-09"



### Four Shahed drones strike Sumy, killing one person and wounding 16

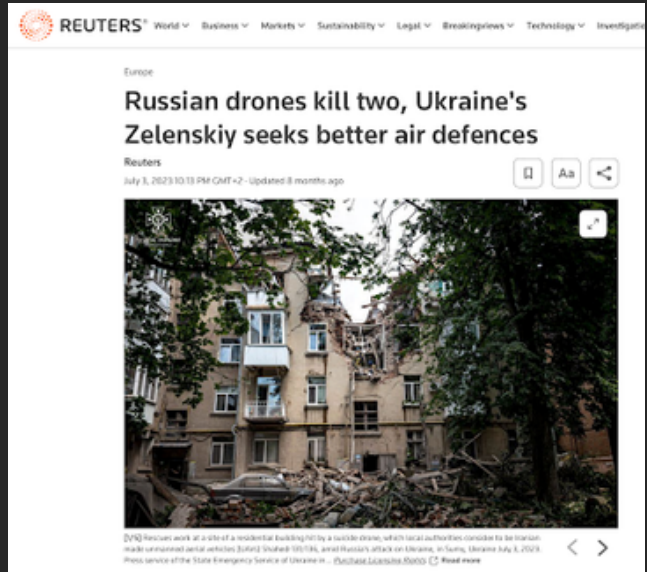
VALENTYNA ROMANENKO — MONDAY, 3 JULY 2023, 15:05



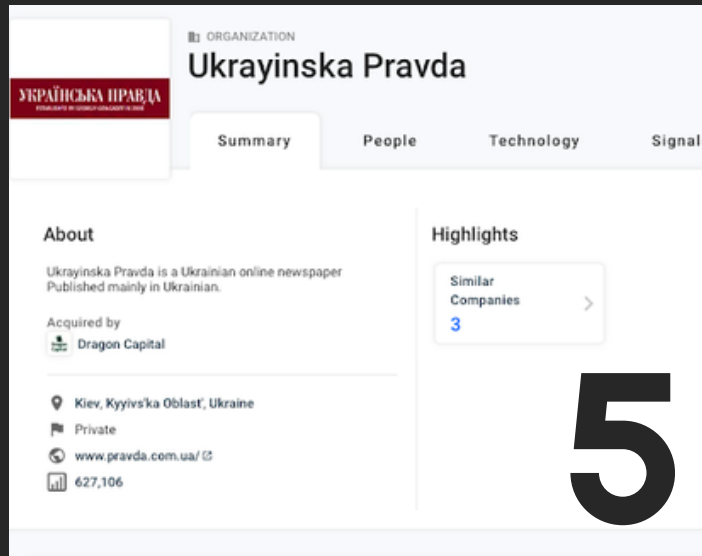
11067



4



Picture 3 (right): News article titled: "Russian drones kill two, Ukraine's Zelenskiy seeks better air defences (Source: Reuters)  
Picture 4 (left): News article titled: "Four Shahed drones strike Sumy, killing one person and wounding 16" (Source: Ukrainska Pravda)



5

While the search quickly yields many news articles describing an attack on the city of Sumy, past events have shown a spread of disinformation. News sources may be misinformed or even used as an organ of governments to spread disinformation. Therefore, it is vital to assess the ownership and characteristics of a news source.

As an example, the Ukrainian news-source Ukrayinska Pravda which reported on the drone strikes is analysed. Although it is not linked to the Ukrainian government, the researching party must be aware of potential biases that might arise. A Ukrainian news source is more likely to report on Russian wrongdoing than any other country's news source.

It is, therefore, important to compare local articles to other foreign news sources. Biases can be hidden to manipulate the viewer, making it even more important to review the text and language extensively. Tools and websites like AllSides often provide a general overview of media biases.

Picture 5: Ownership of Ukrayinska Pravda (Source: Crunchbase)

6 Additionally, Ukrainian authorities often use social media platforms like Facebook or Telegram to inform their population. These statements can be used and compared to traditional news sources.



★ As of 10:49, 4 arrivals of Shahed 136 UAVs were recorded in the center of the city. Sumy of Sumy region.

As a result of the hit, the administrative building and 2 apartment buildings were damaged.

● As of 13:00, 16 were wounded in advance, 1 person died. The affected were assisted.

KYIV, July 3 (Reuters) - A Russian drone attack killed at least two people and injured 19 in the northern Ukrainian city of Sumy on Monday, prompting President Volodymyr Zelenskiy to call for a major upgrade of anti-aircraft defences.

Picture 6 (Top): Statement from Sumy Regional Military Administration (Source: Facebook)

Picture 7 (Bottom): Segment from a news article (Source: Reuters)

As of 18:00 Kyiv time, 2 civilians were killed and 19 sustained injuries in a Russian drone attack on the city of Sumy.

**Source:** [Sumy Oblast Military Administration](#)

**Quote:** "Two people were killed and 19 injured as a result of a Shahed drone attack on the city of Sumy.

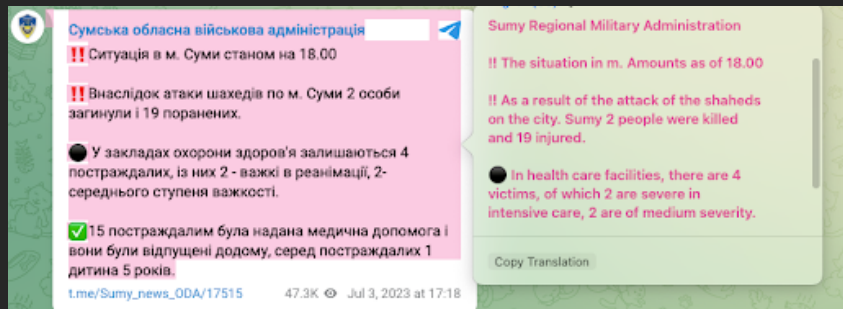
Four of the victims of the attack have been hospitalised: two are in an intensive care unit and two are in a moderate condition."

**Background:** It was earlier reported that 1 civilian was killed and 16 were injured after 4 Russian drone strikes on the city of Sumy on 3 July.

**Journalists fight on their own frontline. [Support](#) [Ukrainska Pravda](#) or become our patron!**

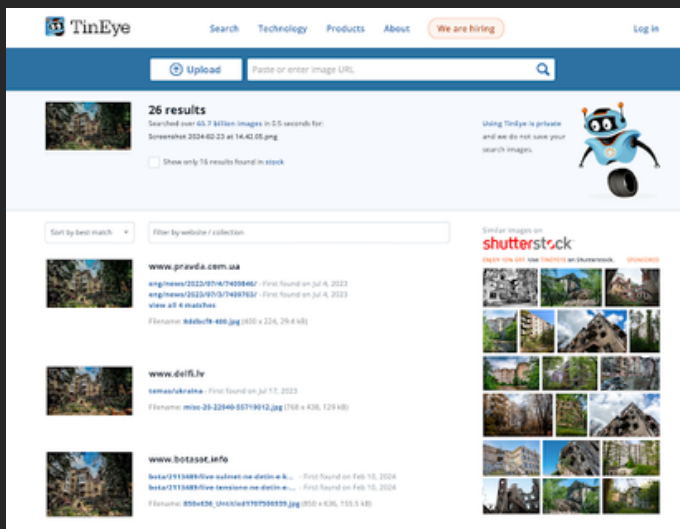
7

Once all news sources have been identified, a qualitative comparison can be conducted, and statements can be cross-referenced. We can notice that the number of injured and killed people deviates. This can be due to investigations revealing new information or, contrarily, provide misinformation. Creating timelines or assessing the time of the statement can be crucial to identifying the most accurate numbers.



Picture 8 (Top): Segment from a Ukrainian news article (Source: Ukrainska Pravda)

Picture 9 (Bottom): Statement from the Sumy Regional Military Administration (Source: Telegram)



8

Once we have established a consensus on information across multiple news sources, the next step involves analysing the use of pictures. Images can create an inviting effect on humans and a sense of trust in the news source. In some instances, pictures of an attack are used for events that either happened on another date or time or were created by artificial intelligence. A simple reverse image search using the tool 'TinEye' shows a multitude of sources that have used this picture.

The result has shown that this image was only used in relation to the alleged attack on Sumy on Monday, July 3 2023. This process is repeated with all pictures posted under similar titles.

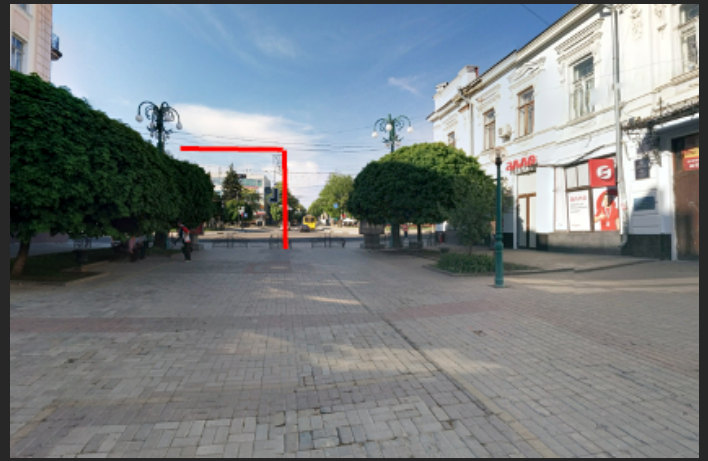
Picture 10: Screenshot from a reverse image search (Source: TinEye)

# 9

It is now established that most news sources report on the same event using the same information. The next step involves finding out whether the event truly happened where it is stated it did. Thanks to social media and a wide range of pictures and videos, a geolocation of the event is possible.



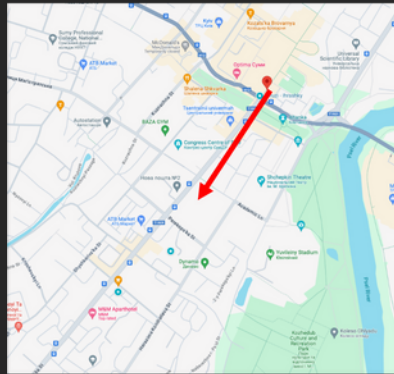
Picture 11 (left): Video published by @JimmySecUK showcasing the drone strike on Sumy; Red and Green marks added by Ben Bongardt (Source "X")



Picture 12 (right): Google Street view image from Sumy (Source: Google Street View)

Revisiting the video posted on X, using Google Maps, reducing the radius in which the drone strikes might have occurred is possible. The video in question shows a drone diving (green circle), and seconds later, a cloud of smoke is seen. The image on the left is a screenshot taken from the published video. On the right is a screenshot from Google Street View. The location matches.

Additionally, the shape of the flying object closely resembles the shape of an Iranian-supplied 'Shahed' drone, which is also stated in the news sources. By analysing the direction in which the video is filmed, the general location of the attack can be narrowed down.



Picture 13 (left): Map of Sumy annotated, showcasing the viewing angle of picture 11 (Source: Google maps)



Picture 14 (middle): Video published by @JimmySecUK showcasing the drone strike on Sumy (Source "X")

Picture 15 (right): Image of a "Shahed 136" UAV drone (Source: Army Technology)



# 10

Picture 16 (left): Video published by @JimmySecUK showcasing the drone strike on Sumy; Green and Red marks added by Ben Bongardt (Source "X")

Picture 17 (top right): Street view image of the building in question (Source: Google Street view)

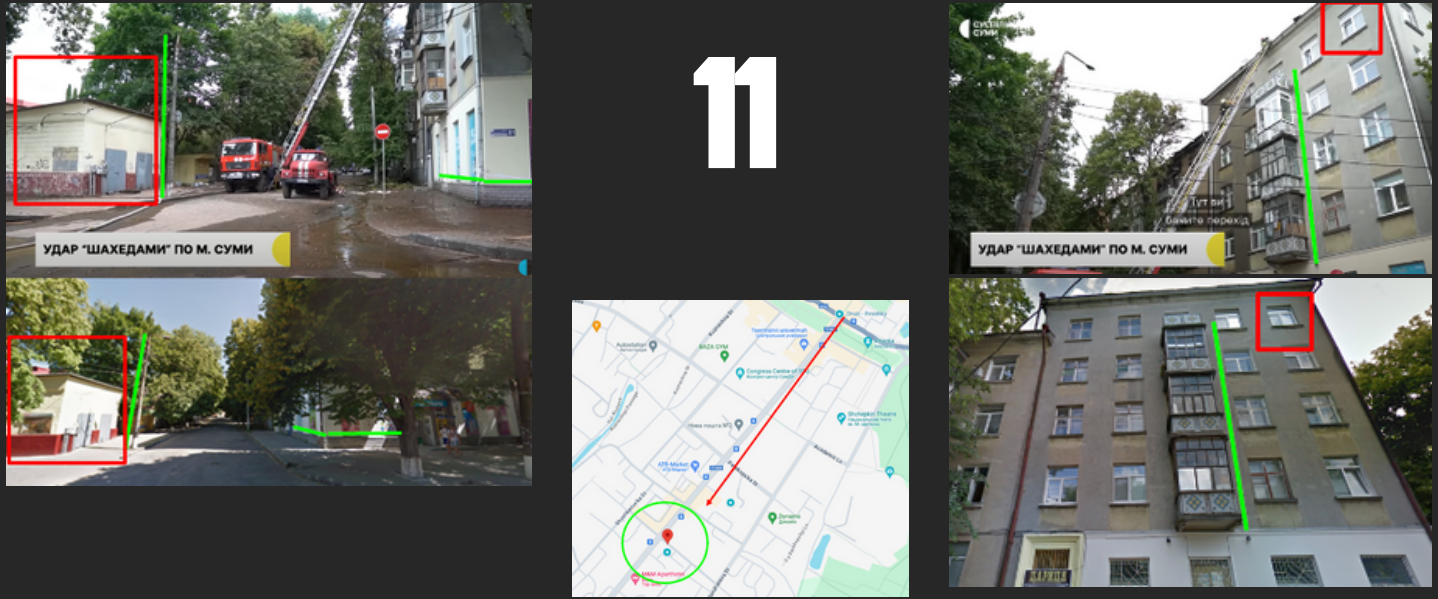
Picture 18 (bottom right): Satellite image of the building in question (Source: Google Earth)

The second video published on X shows the moment a drone hits an apartment building. By comparing the video with pictures posted on varying news sources, general details can be deduced, which may help identify the location. By using Google Street View, landmarks, such as lampposts, balconies, buildings, and storefronts, can be identified and eventually compared to the images.



Thanks to videos from the news source Suspilne Sumy, further angles of the building and its surroundings are shown. Again, through the use of Google Street View, the building shown in the video matches findings from Google Maps.

# 11



Picture 19&20 (top left): Comparison of a video showcasing the damage of the building in question & Street view imagery of the building in question; Green and red marks added by Ben Bongardt (Sources: Google Street View, Suspilne Sumy YouTube)  
 Picture 21&22 (top right): Comparison of a video showcasing the damage of the building in question & Street view imagery of the building in question; Green and red marks added by Ben Bongardt (Sources: Google Street View, Suspilne Sumy YouTube)  
 Picture 23 (bottom): Map view of Sumy confirming the video direction angle and location of the building in question (Source: Google Maps)

# 12

The last step in the process of verifying the drone strike is to verify if the building was used for military purposes or strict civilian usage. While personal interviews of residents can be viewed on YouTube, the open-source tool 'OpenStreetMap' can provide further information. As a result of the search, we can also confirm that the building was used only for civilian purposes, and does not act as a legitimate target.

Picture 24: Usage of the building in question (Source: OpenStreetMap)

Through this extensive process, one of the buildings struck has been identified and can be labelled as confirmed. Reviewing the process, we have compared and analysed news sources, reverse-searched images, and finally geo-located the images and videos shared on social media and news sources.

# 13

Conclusively, it can be deduced that this drone strike in particular happened in Sumy on July 3 2023. Although it cannot be independently verified unless present in Sumy, most news sources reported the same number of casualties and injuries.

**As it was reported, a total of 4 Shahed drones were used in the attack. The same process can then be used to verify the further drone strikes.**

# CONCLUSION

In today's digital age where news is shared via social media and viewers from all over the world can access images of warfare, we can utilise these mediums to rapidly absorb information. Practically anyone with a screen and a connection to the Internet can tap into this wealth of data. However, in a world where propaganda, disinformation, and false statements are released daily, it becomes crucial to discern not only where to seek information but also how to sift through it effectively. In this extensive demonstration, various steps are detailed to minimise absorbing misinformation and to verify events. These steps and tools comprise what is commonly referred to as open-source intelligence, or OSINT.

While this information is available to anyone, not everyone possesses the skills to derive meaningful intelligence from it. A common analogy is that although all the information needed to construct a nuclear weapon exists on the Internet, the lack of a comprehensive user manual prevents most individuals from assembling one. Similarly, a single video does not provide factual evidence that a drone strike truly happened in Sumy. It is only through a multitude of sources and tools that this piece of information can be turned into valuable and usable intelligence.

Open-source intelligence (OSINT) enables us to harness publicly available information and create actionable intelligence from it. Beginning with a single video, which could have been uploaded under any name, date, location, or title, we embarked on a journey of verification. By comparing multiple sources, geolocating images and videos, and most importantly, using logic, we were able to verify that on the 3rd of July 2023, a drone struck a building in Sumy.

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# THANK YOU!

MEMORY, TRUTH AND JUSTICE

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