ANNUAL REPORT

2022

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ABOUT MNEMONIC

Mnemonic guG supports human rights defenders in effectively using digital documentation of human rights violations and international crimes for advocacy, justice and accountability. We began our activities as Syrian Archive in 2014 and were formally incorporated as an organisation in Germany in 2018.

WE AIM TO:

- Archive digital information to ensure that potential evidence is not lost and remains accessible and usable for accountability mechanisms, human rights, and advocacy organisations.

- Share digital information with accountability mechanisms to advance investigations into international crimes, human rights violations, and other grave injustices.

- Publish open source investigations into documented harms, advocating for further investigation of these leads.

- Train human rights defenders to maximise the impact of digital information and empower those working with it.

- Reduce the impact of harmful content moderation policies by social media companies and governments by providing comprehensive, reliable data surrounding the takedowns of human rights documentation on social media platforms.

- Build and support the development of open source tools and methods to increase human rights defenders' capacity to use digital information to advance social justice

- Work with impacted and survivor communities to contribute to the memorialisatio of conflicts and atrocities.
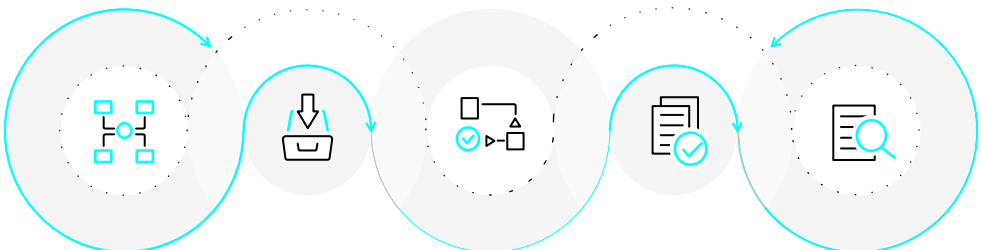
OUR 2022 HIGHLIGHTS

- Established Ukrainian Archive. Initially developed in February 2022 as an emergency rapid response to the Russian full-scale invasion of Ukraine, Ukrainian Archive now functions as a standalone programme, preserving and verifying digital content of human rights and international humanitarian law violations in Ukraine.

- Provided technical infrastructure and training to support the creation of a digital archive for the International Accountability Platform for Belarus consisting of over 500,000 records.

- Developed the Mnemonic Research Handbook, which - together with each programme's Protocols - will form the standard operating procedures (SOPs) for research teams.

- Our Syrian Archive, Yemeni Archive, Ukrainian Archive, Sudanese Archive, and Rapid Response programmes have collectively preserved and archived 3,913,629 records, identified more than 4000 new sources, and published 23 investigations.

- On behalf of Syrian and Ukrainian Archive, submitted 14 dossiers of open source information and evidence to various accountability mechanisms, official investigators, and public authorities.

- Made a public comment to the Meta Oversight Board concerning its "Sudan graphic video" case. The Board decided in June 2022 that Meta should restore the video along with a warning screen about its graphic nature, arguing that the post raised awareness of human rights abuses and "carried public interest value" - in line with Mnemonic's arguments.

- Advocated for valuable changes in the Digital Services Act (DSA) through the DSA Human Rights Alliance and the European Digital Rights (EDRi) Group to protect social media platform users' freedoms, rights, and safety. The DSA entered into force on 1 November 2022 and regulates the obligations of tech platforms and other services providers in the European Union.

- Our work was cited by numerous prominent media outlets, with over 150 articles featuring our achievements. (See Mnemonic Press, Syrian Archive Press, Ukrainian Archive Press, Yemeni Archive Press, and Sudanese Archive Press for further information.
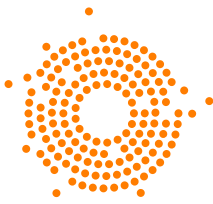
SYRIAN ARCHIVE

ARCHIVING

Archived **411,837 records.**

SOURCES

Added to its list of sources, which now includes **14,621 sources.**

OUTREACH AND PRESS

Featured in over **100** media articles and pieces.

Participated in various advocacy/ awareness raising advocacy and events (see page 13 for further information).

Published quarterly newsletters.

PARTNERSHIPS

Fostered existing partnerships and established new ones including with Syrian Civil Defense, Sowt, The Syria Trials, The Carter Center, Armament Research Services (ARES), Huquqiyat and WomenNow.

PODCASTS

Published **2 podcasts** on media memory, and content moderation.

Participated in the SyrianTrials podcasts on innovative developments in the justice and accountability space over the past 10 years.

OPEN SOURCE INVESTIGATIONS

Published **10 open source investigations** (see pages 10 -12 for the full list).

A standout investigation "Alleged Russian Attacks on Hafsarja and Sahl al-Rouj in Idlib" examined types of aircraft, leftover munitions, and Russian aerial footage, drawing a connection to the Russian air force in events that had significant impact on civilians and displaced persons.

Unique outcomes from our investigations were achieved with the support of key partnerships. A prime example is our collaboration with the Syrian White Helmets, and ARES in the investigation, "The use of Krasnopol Weapon Systems in Syria". This collaboration granted our team access to images of munitions remnants not otherwise available online.

LEGAL ACCOUNTABILITY

Submitted open source information and analysis to investigating officials in European countries. This included new submissions to Germany, France, and Sweden, pertaining to their open investigations into the sarin attacks that impacted Adra and Douma on 5 August 2013, Al-Ghouta on 21 August 2013, and as well as the Khan Shaykhun on 4 April 2017.

Collaborated with Security Force Monitor to expand our open source documentation of Syrian government-linked security forces that have been operating in the country since 2011.

REQUESTS FOR INFORMATION

Received a total of **24 requests for information**; 6 media requests, 15 legal requests, one request related to an investigation and 2 others. Responded to **16 of these requests** during the calendar year. The information provided supported accountability initiatives, including the International, Impartial and Independent Mechanism for Syria (IIIM) and national level prosecutors.

PUBLIC OPEN SOURCE INVESTIGATIONS

AIRSTRIKES ON THE AL ARSHANI WATER PUMP STATION IN IDLIB

February 15, 2022

An investigation into airstrikes on the Al Arshani Water Pump Station in Idlib

ENGLISH   **ARABIC**

SHELLING OF A FUEL STATION AND A HOME IN THE VILLAGE OF TERMANIN

March 3, 2022

An investigation into shelling of a fuel station and a home in the village of Termanin in Idlib governorate

ENGLISH   **ARABIC**

ATTACK ON CIVILIAN AREAS IN THE TOWN OF ARIHA, SOUTH OF IDLIB

May 31, 2022

An investigation into shelling along the main road in central Ariha
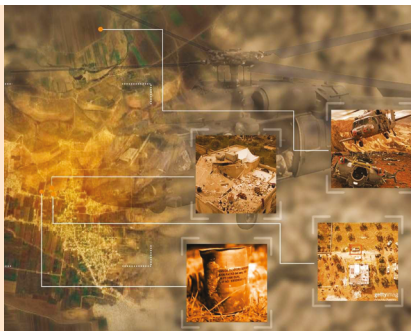
ENGLISH   **ARABIC**

THE US RAID IN ATMEH

July 27, 2022

An investigation into the US Raid in northern Syria against Islamic State Leader Al Qurashi

ENGLISH   **ARABIC**

ALLEGED RUSSIAN AIRSTRIKES ON CEASEFIRE AREAS IN SYRIA

November 10, 2022

On the morning of 22 July 2022, areal attacks struck two different locations in Idlib

ENGLISH   **ARABIC**
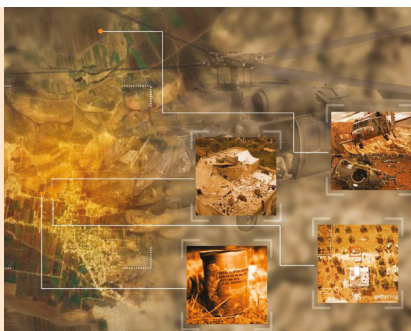
ALLEGED RUSSIAN ATTACKS ON HAFSARJA AND SAHL AL-ROUJ IN IDLIB

October 26, 2022

An investigation into two attacks imacting civillians in Idlib,

ENGLISH   **ARABIC**

ATTACK IMPACTS CHURCH, SCHOOL, AND CIVILIAN HOMES IN TAL TAWIL IN THE HASAKAH COUNTRYSIDE

November 22, 2022

Open source investigation about hitting a church and a school in Tal Tawil

ENGLISH   **ARABIC**

THE ATTACK IMPACTING THE SYRIAN CIVIL DEFENCE CENTRE IN THE VILLAGE OF QASTOUN

December 13, 2022

An attack using the 'Krasnopol' artillery system targeted a Civil Defence centre in northern Hama
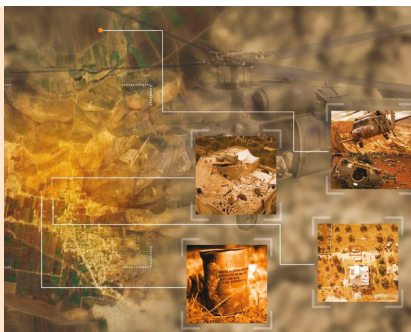
ENGLISH   ARABIC

THE USE OF KRASNOPOL WEAPON SYSTEMS IN SYRIA

December 14, 2022

Two investigations show the use of KRasnopol weapon systems to target civilian infrastructure in Syria

ENGLISH   ARABIC

CLUSTER MISSILE ATTACKS IN THE KAFR JALLIS CAMPS, IN THE WESTERN COUNTRYSIDE OF IDLIB

January 31, 2022

An investigation into attacks hitting multiple IDP camps.

ENGLISH   ARABIC

COMMUNICATIONS AND ADVOCACY

Syrian Archive team members participated in various international and European-based advocacy conferences and events. Some of the most prominent events include:

- Mnemonic's Legal Advisor and a Syrian Archive researcher co-facilitated a community lab session with WITNESS at RightsCon 2022 on improving solidarity across the digital evidence labour pipeline by breaking up siloed methods of working between documenters, investigators, and lawyers.

- Syrian Archive's Project Manager and Mnemonic's Legal Advisor also presented a virtual course for Swisspeace on Documentation and Archiving from a Restorative Justice/Dealing with the Past Perspective.

- Syrian Archive's Project Manager and Mnemonic's Legal Advisor participated in a session on Lessons Learned from the Syrian Conflict as part of a broader workshop on accountability for Yemeni human rights organisations organised by Crisis Action.

- Syrian Archive and Ukrainian Archive jointly organised a side event at the United Nations Human Rights Council (UN HRC) 51st session in Geneva on titled "Russian Impunity: Seven Years in Syria and Seven Months in Ukraine" where the teams presented their findings from the investigations into reports on Russian attacks impacting civilians and civilian infrastructure in both countries (see page 21 for further information).
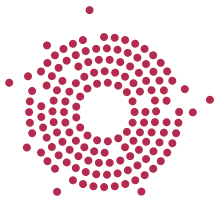
YEMENI ARCHIVE

ARCHIVING

Archived **531,217 records**.

SOURCES

Added to its list of sources, which now includes **8,074 sources**.

OUTREACH AND PRESS

Featured in 26 media articles and pieces.

Published 4 advocacy videos on its social media accounts: Bombing oil and gas facilities in al-Hodeidah Governorate, and update to the "Attack on Access" database video, Bombing Taiz Governorate Police Administration, and Bombing the courtyard of the General Authority for Social Security and Pensions.

Developed and published more than 7 infographics: The attacks on medical facilities 2014-2022, Delivery methods of medical facilities targeted, Statistics highlighting "Endangering Media in Yemen" database, Attacks on bridges, a series for Ten facts about media work in Yemen on the World Press Freedom Day, and a series of testimonies summarising the risks and challenges facing health facilities in Yemen on World Health Day.

Published quarterly newsletters.

CAPACITY BUILDING

Trained **60 individuals** (29 women and 31 men) in open source investigations, video evidence, documentation ethics, and digital security.

OPEN SOURCE INVESTIGATIONS

Published **10 open source investigations** into incidents in Saada, Sanaa, al-Hodeidah, Taiz, and Al-Dhalea (see pages 15-17 for the full list).

DATABASES

The Medical Facilities Under Fire Database: Updated the database to include incidents that occurred between August 2019 and May 2022. This included the addition of **54 new incidents** based on **744 observations**. In total, the database now includes **187 unique incidents** based on **2,499 observations**.

Attacks on Access Database: Updated the database with **11 new incidents** based on **92 observations**. In total, the database now includes **142 incidents** based on **3,523 observations**.

PUBLIC OPEN SOURCE INVESTIGATIONS

BOMBING A DETENTION CENTRE IN SAADA

March 2, 2022

A detonation centre (previously: the Central Security Camp) in Sahar district, on the administrative border with Saada city,

ENGLISH   **ARABIC**

BOMBING THE COURTYARD OF THE GENERAL AUTHORITY FOR SOCIAL SECURITY AND PENSIONS

May 7, 2022

ENGLISH   **ARABIC**

BOMBING OIL AND GAS FACILITIES IN AL-HODEIDAH GOVERNORATE

April 20, 2022

Bombing oil and gas facilities in al-Hodeidah Governorate

ENGLISH   **ARABIC**

BOMBING TAIZ GOVERNORATE POLICE ADMINISTRATION

May 19, 2022

Bombing Tiaz Governorate police administration

ENGLISH   **ARABIC**
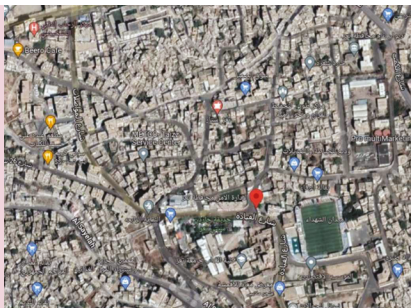
A PROJECTILE DAMAGED AL SABEEN TUNNEL IN THE CAPITAL SANAA

June 27, 2022

A projectile damaged Al Sabeen tunnel in the capital Sanaa

ENGLISH   **ARABIC**

SEVERAL BRIDGES ON THE MAIN ROADS IN AL-DHALEA DESTROYED

August 10, 2022

Several bridges on the main roads in Al-Dhalea destroyed

ENGLISH   **ARABIC**

CHILDREN KILLED AND INJURED IN SHELLING IN TAIZ

October 17, 2022

Children killed and injured in shelling in Taiz

ENGLISH   **ARABIC**

SHELLING AL WAHDA MATERNITY AND CHILDREN HOSPITAL IN TAIZ

December 5, 2022

Shelling Al Wahda Maternity and Children Hospital in Taiz

ENGLISH   **ARABIC**
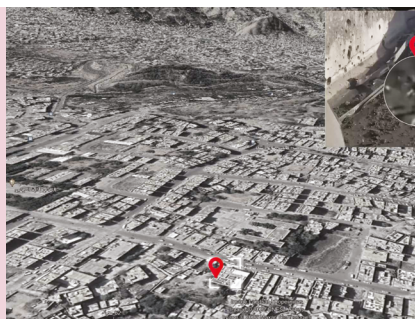
MSF HOSPITAL PARTIALLY DESTROYED

December 23, 2022

ENGLISH   ARABIC

A CIVILIAN HOUSE SHELLED IN AL-SENAAH NEIGHBORHOOD IN TAIZ

December 27, 2022

ENGLISH   ARABIC

COMMUNICATION AND ADVOCACY

The Yemeni Archive team continued participating in public advocacy meetings, providing opportunities to highlight the significance of using verifiable information to expose Yemen's ongoing violations of human rights. Some of these events include:
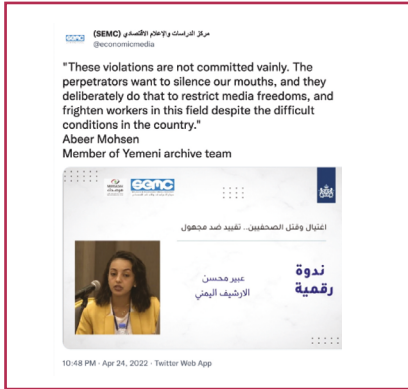
Yemeni Archive participated, in April 2022, in a webinar on peace journalism practices. The webinar was organised by the Studies and Media Economic Center (SMEC).
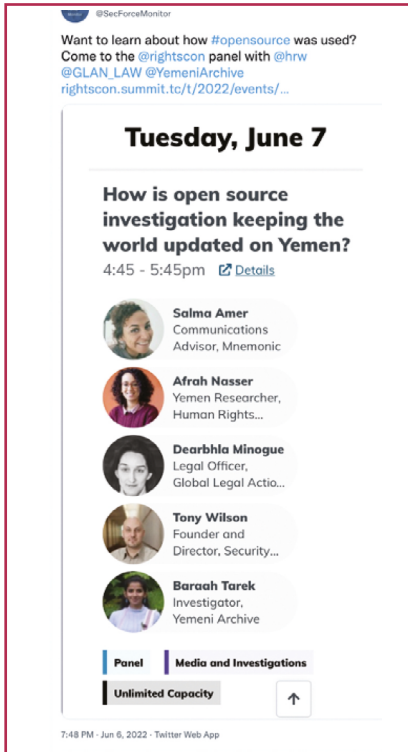
Yemeni Archive organised a RightsCon side panel in June 2022. The session was moderated by Mnemonic and included Yemeni Archive's project manager as a speaker.

Yemeni Archive's project manager participated, in October 2022, in a webinar titled "Open Source Evidence and Laws of War." One of the discussions was held by GLAN and Belligcat in which the Yemeni Archive delivered the analysis of the Aden International Airport attack, showing how we're using open source data as evidence to aid in war crime investigations.

Yemeni Archive's associate spoke in October 2022, about content moderation efforts in Yemen as part of a panel discussion on "Content Moderation Challenges in MENA" at Bread&Net.
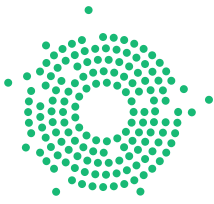
UKRANIAN ARCHIVE

ARCHIVING

Archived **2,440,800 records**, with the support and collaboration of member organisations of the Ukraine 5 AM Coalition

CAPACITY BUILDING

Provided training and capacity building to members of the Ukraine 5 AM Coalition, offering workshops on monitoring, preserving and archiving open source information.

SOURCES

Added to its list of sources, which now includes **6,700 sources.**

OPEN SOURCE INVESTIGATIONS

Published its first publicly available investigation covering attacks on public infrastructure in Zhytomyr.

OUTREACH AND PRESS

Featured in various media articles and pieces including: Lessons from Syria, now helping Ukraine, Smartphones Are Changing the War in Ukraine, Accountability and justice': Gathering digital evidence of war crimes in Ukraine, and AI: War Crimes Evidence Erased by Social Media Platforms.

LEGAL ACCOUNTABILITY

Supported national, regional and international accountability mechanisms, as well as coordinated with key stakeholders in relation to the international armed conflict in Ukraine.

PARTNERSHIPS

Expanded its network of partners, including coordinating and collaborating with the Ukraine 5 AM Coalition, Bellingcat & Global Legal Action Network (GLAN), the Conflict Environment Observatory, the Center for Special Technologies, European Center for Constitutional and Human Rights (ECCHR), the European Prison Litigation Network, and other valued partners.

PUBLIC OPEN SOURCE INVESTIGATIONS

INVESTIGATION INTO ATTACKS ON PUBLIC INFRASTRUCTURE IN ZHYTOMYR

November 3, 2022

On the evenings of 01 March 2022 and 09 March 2022 civilian infrastructure, including hospitals, were damaged in two armed attacks on Zhytomyr. Multiple civilians were killed and over a dozen were wounded in the attacks.

ENGLISH

COMMUNICATION AND ADVOCACY

September 2022 marked both the seventh anniversary of Russia's military intervention in Syria and the seventh month since Russia's full-scale invasion of Ukraine.

Mnemonic along with International Service for Human Rights, Human Rights Watch, Bellingcat, and the Human Rights Center at UC Berkeley School of Law organised a virtual side event at the United Nations Human Rights Council (UN HRC) 51st session on 30 September 2022. Mnemonic's Syrian Archive and Ukrainian Archive presented their findings from digital open source investigations into alleged Russian attacks that have resulted in documented harms to civilians and civilian infrastructure in both contexts.

"The international community has failed for seven years to hold Russia accountable to its activities in Syria, many of which should amount to international crimes. Such silence has allowed Russia to launch its full scale invasion of Ukraine - with recognizable patterns - in Ukraine. Impunity for Russia's violations must end."

SUDANESE ARCHIVE

ARCHIVING

Archived **over 96,925 records.**

SOURCES

Added to its list of sources, which now includes **3,309 sources.**

OPEN SOURCE INVESTIGATIONS

Published a report and an investigation covering violence against peacefull protestors.

PARTNERSHIPS

Connected with several partners that work in documenting human rights violations and fact checking information in the country.

LEGAL ACCOUNTABILITY

Submitted, in collaboration with REDRESS, a letter to the UN Working Group on Enforced or Involuntary Disappearances urging intervention in relation to the enforced disappearances that took place during the 25 October 2021 protests (see Sudanese Archive and Redress websites for further information).

OUTREACH AND PRESS

Provided archived and verified data to Human Rights Watch that fed into their report about the violence against protesters by Sudanese security forces.

PUBLIC OPEN SOURCE INVESTIGATIONS

VIOLENCE IN KHARTOUM ON JANUARY 17, 2022 ANTI-COUP PROTEST

March 30, 2022

Documentation of coordinated riot police and Central Reserve Forces, dozens injured, seven killed

ENGLISH   **ARABIC**

PATTERNS OF VIOLENCE AGAINST PROTESTERS IN THE YEAR SINCE SUDAN'S COUP

October 10, 2022

Thousands of injures, many killed n efforts to quell anti-coup protests

ENGLISH   **ARABIC**

IMPUNITY IN SUDAN OVER ENFORCED DISAPPEARANCES DURING THE "KHARTOUM MAASSACRE" BROUGHT BEFORE THE UN

October 10, 2022

Thousands of injures, many killed n efforts to quell anti-coup protests

SUDANESE ARCHIVE   **REDRESS**

RAPID RESPONSE

ARCHIVING

Supported partners to collect **432,850 records** that Mnemonic then archived from high-risk and conflict zones.

Archived **1,193,385 records** relevant to the conflict in Ukraine, now part of the stand-alone Ukrainian Archive. (see page 20 for further information)

Provided technical infrastructure and support to create a digital archive for the International Accountability Platform for Belarus, consisting of over **600,000 records** from more than **200 open sources**.

SOURCES

Added to its list of sources, which now includes **3,408 sources**.

OUTREACH AND PRESS

Featured in various media articles and pieces.

PARTNERSHIPS

Fostered existing partnerships and established new ones including Ukrainian Legal Advisory Group, Conflict and Environment Observatory (UK), Bellingcat (UK) Megaphone (Lebanon) International Partnership for Human Rights (Ukraine), International Accountability Platform for Belarus (IAPB), and a group working on Kashmir (Germany)

CAPACITY BUILDING

Provided **15 training and capacity building sessions** on digital archival operations, risk assessment, and safety management to activists and organisations working on human rights protection in Kashmir, Sudan, Belarus, Ukraine among others.

CONTENT MODERATION

HIGHLIGHTS

- Became a member of the European Digital Rights (EDRi) network.

- Joined the Digital Services Act (DSA) Human Rights Alliance and the EDRi Group to push for valuable changes in the DSA along with other civil society organisations to protect users' freedoms, rights, and safety ahead of its entry into force on 1 November 2022.

- Participated in high-level multi-stakeholder forums like the Christchurch Call Advisory Network (CCAN), the Global Internet Forum to Counter Terrorism (GIFCT), and the United Nations General Assembly.

- Contributed to legislative advocacy through letters, published reviews, academic articles, social media campaigns, and direct engagement with policymakers:

    - Digital Memory, Evidence, and Social Media.

    - White paper by the Global Internet Forum to Counter Terrorism's Legal Frameworks Working Group.

    - Open letter to tech companies about their response in conflict zones.

    - Statement to the European Parliament calling to pass a DSA that protects fundamental rights and lays the foundations for global human rights-centric lawmaking.

- Raised awareness about content removals from social media platforms:

    - Oversight Board Case on Graphic Human Rights Documentation from Sudan Has Big Implications.

    - Mnemonic Joins Open Letter Calling on Social Media Platforms to Improve Practices Globally.

    - Mnemonic's Engagement with the Oversight Board in efforts to ensure potential evidence of human rights violations are protected.

- **Civil society to Meta: release Palestine and India third-party reviews.**

- Issued a public comment to the Meta Oversight Board about its "Sudan graphic video" case concerning a Facebook post depicting violence against a civilian in Sudan. In particular, Mnemonic stressed the importance of ensuring Meta's policies do not inadvertently lead to the loss of documentation that might rise to the threshold of evidence in a legal setting. The Board decided in June 2022 that Meta should restore the video along with a warning screen concerning its graphic nature. In its decision, the Board argued that the post under discussion in fact raised awareness of human rights abuses and "carried public interest value," in line with Mnemonic's arguments.

- Collaborated with civil society organisations and tech companies to address human rights issues.

- Featured in over 60 media articles and pieces.

Digital Memory, Evidence, and Social Media: Lessons Learned from Syria

Dia Kayyali[*]

Mnemonic (Germany)

COMMUNICATION AND OUTREACH

As part of our advocacy activities, Mnemonic's Associate Direction of Advocacy participated in various significant talks and events:

- Joined a Re-publica talk on "Digital rights and colonialism: Perspectives on tech policy from the Arabic Speaking World" in June 2022.

- Participated in a number of events on content moderation during the 11th edition of RightsCon in June 2022.

- Presented at a conference on "Archiving in times of crisis: practitioners' perspectives" organised by Groningen University and Siegen University in June 2022. Mnemonic's Associate Director of Advocacy presented on "Social Media as Makeshift Archives of Human Rights Documentation: Content Moderation Issues and Beyond."

- Represented the Christchurch Call Advisory Network (CCAN) at the Leader's dialogue in conjunction with the United Nations General Assembly in September 2022.

- Spoke at a panel discussion at the Eradicate Hate Global Summit titled "Creation of a Global Evidence Locker" in September 2022.

- Joined the Tech Against Terrorism's podcast "Can Tech Platforms Rely on Algorithms to Remove Terrorist Content?"
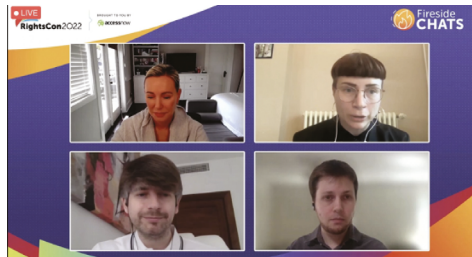
Other Advocacy and Awareness Raising Initiatives:

- Mnemonic's Managing Director gave a presentation at the Organization for Co-operation in Europe (OSCE)'s 1st Supplementary Human Dimension Meeting on digital technologies that support human rights defenders.

- Mnemonic's Managing Director spoke at a conference on the future of international criminal law: "Is the Future of International Criminal Law Domestic?".

- Mnemonic's Legal Advisor spoke at a symposium by the European Human Rights Advocacy Center on "The Use of Open Source Investigations in Human Rights Litigation".

- Mnemonic's Legal Advisor spoke on a panel about "Technology for accountability: The tools at the centre of open source information" as part of a closed-door convening of experts organised by The Geneva Academy of International Humanitarian Law and Human Rights on Open Source Information: Strengthening Accountability at the Intersection of Law, Technology, and the Humanitarian Space.

- Mnemonic's Managing Director presented in a session on "Challenges and best practices of documentation" at the EU-NGO Forum Conference in Brussels.

- Mnemonic's Director of Operations and Research spoke as part of "Documenting and Archiving from a Dealing with the Past perspective," organised by Swisspeace.

- Mnemonic's Director of Operations and Research gave an interview with the European Artificial Intelligence Fund on the digital documentation of human rights violations.

- Mnemonic's Director of Operations and Research spoke about video in open source investigation and legal advocacy in an event organised by the American Bar Association.

- Mnemonic's Director of Operations and Research spoke about the challenges and opportunities of archiving social media data in the context of crisis events at an event organised by the University of Bern in cooperation with the Center for Urban History and the University of Zurich.

- Mnemonic's Director of Operations and Research spoke at an event organised by the College of Media, Communication and Information at Colorado University at Boulder on the politics of data and human rights.

CROSS-CUTTING WORK

CAPACITY STRENGTHENING

Mnemonic's team received internal training and training from partners on improving archiving workflows to prevent the loss of important documentation used in investigations, on arms identification and geolocation using satellite imagery platforms, and on using Mnemonic's new content management system for writing, editing, and publishing investigations. Legal mentorship sessions were provided covering topics such as litigation, criminal complaints, and legal standards.

TECHNOLOGY

Elfehrest

Archived information is available for viewing and analysis on Elfehrest, the web-based platform that Mnemonic developed to interact with archived data that has been collected from online open sources.

In 2022, Elfehrest was used not only internally by Mnemonic's teams but also externally by partner organisations - mainly by civil society organisations in Ukraine.

Due to the increased number of Elfehrest users 2022 as well as the growing interest from various civil society partners and other institutions for access to the platform, our technical team added increased platform security and features for tailoring external users' restricted, "guest access".

Diwan

Mnemonic preserves online information using Diwan, a software that fetches and archives public data from web and social media sources. Diwan was designed to support journalists, non-profits, academic researchers and human rights activists capturing information from publicly available sources (e.g. tweets, YouTube videos, websites, Telegram channels, Facebook posts).

In 2022, significant improvements were made to Diwan, including essential

maintenance to respond to new code and bugs as well as the introduction of new tools including one for data authentication.

VFRAME

Mnemonic partnered with VFRAME, a computer vision project that develops open source technology for human rights research, investigative journalists, and conflict zone monitoring. After several years of research and development into synthetic data fabrication techniques using 3D-rendering and 3D-printed data, VRAME developed the first publication of an object detection algorithm that uses all combined methods, with enough benchmark data to confirm the results of 9N210/9N235 submunition detections.

During 2022, Mnemonic shared a portion of the Ukrainian Archive materials (500,000 videos) with VFRAME for processing to detect appearances of 9N210/9N235 submunitions in the records, automatically. The first detection results were integrated to Elfehrest, enabling Mnemonic researchers to verify them and share feedback to improve the algorithm.