



المركز السوري للإعلام وحرية التعبير  
Navenda Sûriyayî ya Ragihandinê û Azadiya Derbirinê  
Syrian Center for Media and Freedom of Expression

# Open-Source Intelligence:

## Initiating Efficient Investigations Perspectives from Syrian Journalists.





# Open-Source Intelligence:

## Initiating Efficient Investigations

### Perspectives from Syrian Journalists.

**The Syrian Center for Media and Freedom of Expression (SCM)** is an independent, non-governmental, non-profit civil society organization founded in 2004 by jurist Mazen Darwish. It works to achieve justice, defend human rights, promote media freedom, support civil society, and encourage active citizenship. The center has gained expertise in combating impunity and promoting the rule of law. The center has held special consultative status with the United Nations Economic and Social Council since 2011. Its work focuses on documenting human rights violations and presenting legal cases to hold perpetrators accountable, strengthening the role of victims and their families, and supporting journalists, human rights defenders, and independent media to build democracy and support civil peace. The center has established a developed database to serve as a reference for transitional justice processes.

This research was authored by Miral Sabry Al-Ashry,  
Note: This research was completed before the regime's fall.

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2025



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# Acknowledgment

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Also, **the Syrian Center for Media and Freedom of Expression**, along with the “Media and Freedoms Project” team, extends its deepest thanks and appreciation to everyone who contributed to the completion of this research, which focuses on the use of open sources in investigative journalism within the Syrian context.

We express our profound gratitude to the Syrian journalists who, despite the challenges and complex circumstances, continue to pursue their work with courage and professionalism in the quest for truth. Their unwavering commitment to the values of justice and accountability, and their determination to shed light on issues that matter to people, are what keep journalism alive and impactful in Syria.

In particular, we extend our heartfelt thanks to the journalists who participated in producing the investigative reports under this project for their tremendous efforts, bravery, and dedication to professionalism and accuracy, despite the difficult conditions and complexities of the context. Their active engagement brought significant value to this work and played a vital role in bridging theory with practice, and challenges with possible solutions.

We also wish to express our appreciation to our partners at the National Endowment for Democracy (NED) for their generous support and their trust in the importance of this research path, despite the difficulties and challenges. Their support made this work possible. Our thanks also go to everyone who devoted their time, effort, and insight—thank you from the heart.

We hope this work will contribute to opening new horizons that strengthen the role of journalism as a tool for knowledge and accountability in Syria and beyond.





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## Abstract

This study explores the role of Open-Source Intelligence (OSINT) in investigative reporting within the context of the ongoing Syrian conflict, focusing on how Syrian journalists utilize OSINT tools to expose corruption and human rights violations. The research addresses the growing impact of open-source data on investigative journalism through a qualitative methodology, including an analysis of existing OSINT-based investigations and surveys from 29 Syrian journalists in 2024. The findings reveal that OSINT significantly enhances the ability of journalists to verify information, uncover hidden truths, and overcome governmental restrictions on press freedom. However, challenges such as security risks, resource limitations, and the potential for information overload persist. The study also highlights the importance of cross-border collaboration and the need for rigorous standards in OSINT-based reporting. While OSINT has expanded the scope of investigative journalism, it also presents new obstacles related to maintaining accuracy and meeting time-sensitive reporting deadlines. The research emphasizes the vital role of OSINT in modern investigative journalism and suggests opportunities for further collaboration between journalists and the OSINT community to strengthen the quality and impact of investigative reporting.

**Keywords:** Open-Source Intelligence (OSINT), investigative reporting, Syria, media freedom, verification tools, security challenges, cross-border collaboration.

# Introduction

Investigative reporters utilize vast amounts of easily accessible data and new technical possibilities provided by open-source data to develop innovative tools, methods, and platforms for conducting advanced investigations. These investigations focus on exposing corruption cases, and irregularities, and holding powerful elites accountable (AlAshry, 2024a). Practically, researchers can collaborate across borders, with international teams, and over great distances (Müller & Wiik, 2021). However, obstacles to investigative reporting exist, such as restrictions on freedom of expression and information access, which may require extraordinary measures under international and national laws (Bebawi, 2019).

Syria has declined in the world press freedom ranking and in many basic human rights standards. Since 2011, the violations committed by the Syrian regime against journalists and media professionals have escalated and diversified. The regime prevents the work of independent Syrian, Arab, and international media outlets, controlling the media and restricting the freedom of opinion and expression of journalists based on laws that contradict freedom of the press, opinion, and expression. According to the World Press Freedom Index 2024 issued by Reporters Without Borders on Friday, May 3, 2024, Syria ranked 179 out of 180 countries, dropping from 175 in 2023 and 171 in 2022 (**Reporters Without Borders**, 2024). Syria has not seen freedom in journalistic and media work since the Arab Baath Party took power. When the Socialist Party took control in 1963, all independent newspapers were banned, leaving only one newspaper. The situation worsened in 1971 when newspapers supporting the president took control, and then Bashar al-Assad seized power in 2000, using the media as a tool for control and to suppress freedom of expression (Al-Ashry, 2024c)

After the popular movement towards democracy in Syria in March 2011, the regime increased its repression of journalists and media professionals, killing and arresting hundreds of journalists, and banning all Arab and international media outlets in Syria. The regime exploited its dominance over the legislative authority to enact media laws, such as Law No. 108 of 2011, Legislative Decree No. 17 of 2012, and Law No. 20 of 2022, which reorganized legal penal rules for cybercrimes. The regime's latest law, No. 19 of 2024, tightened censorship, violating international human rights law. Law No. 19 of 2024, issued by the Syrian regime to control the media, contains legislative violations of the constitution, local laws, international human rights law, and customary international law (Al-Ashry, 2024b).

Security researcher Mark M. Lowenthal argues that OSINT is "any information that can be obtained from the overt collection: all media types, government reports, files, scientific research, business information providers, and the internet." (Tiwari et al, 2020).

Open-source intelligence (OSINT) is a crucial tool in today's information landscape, enabling organizations and governments to collect valuable intelligence from readily available data sources. However, proper analysis, context, and verification are essential to guarantee the accuracy and reliability of the gathered intelligence. In the realm of investigative journalism, OSINT has proven to be indispensable for revealing hidden truths, exposing corruption, and holding those in power accountable. It plays a significant role in investigative reporting, cybersecurity, intelligence gathering, and even crisis management (Hernandez Mediná et al, 2018).

Given this context, this study aims to investigate how Syrian journalists used open-source software and collaborated with international organizations to expose corruption, publish investigative reports, and utilize open sources for information gathering. Journalists begin by examining various records and files available on governmental and web portals. The study aims to answer the following research questions:

**Here is a more organized and structured list of questions based on the themes you provided:**

## **I. Experience of Syrian Journalists in Investigative Reporting**

1. How would you describe your overall experience in conducting investigative reporting in Syria?
2. What challenges have you encountered while conducting investigative reporting in Syria?
3. In your experience, how has investigative journalism in Syria evolved in recent years?

## **II. Experience of Syrian Journalists in Using Open-Source Tools**

1. What open-source tools do you currently use for investigative reporting?
2. Can you describe any challenges you've faced while using open-source tools in your work?
3. How do open-source tools enhance the quality and depth of your investigative reporting?
4. What specific open-source tools have been most helpful in your reporting?



### **III. Experience of Syrian Journalists in Using Open-Source Training**

1. Have you received any formal training in using open-source tools for investigative reporting?
2. How effective was the training you received in helping you utilize open-source tools for your investigations?
3. What aspects of open-source intelligence (OSINT) training do you feel are most critical for journalists in your context?
4. Do you believe there are enough training opportunities available for journalists in Syria to effectively use OSINT?

### **IIII. Syrian Journalists' Views on Open-Source Intelligence (OSINT) Tools**

1. Which of the following open-source tools have you received training on?
2. Which of these tools have you used in your investigations?

### **IIIII. Open-Source Intelligence (OSINT) Community's Role in Investigative Reporting**

1. How did the open-source intelligence (OSINT) community address the proliferation of investigative reporting in Syria?
2. What dynamics do you see in the use of OSINT tools for investigative reporting in Syria?
3. How does the integration of OSINT enhance the credibility and impact of investigative reporting?

This study will examine the integration of open-source techniques in investigative reporting. We will explore the methods and tools used by the participants, as well as the potential benefits and drawbacks of implementing open-source intelligence (OSINT) in reporting.

## Defining the Watchdog Role of Journalism and Investigative Reporting

Journalists serve as watchdogs and investigators, both performing similar but not identical tasks aimed at detecting and describing corruption and abuse of power by governments. The watchdog ideal can even be traced back to a libel trial against a journalist in Massachusetts in 1822 (Dicken-Garcia, 1989).

A distinction exists between the watchdog role of journalism and investigative reporting. The concept deepened at the beginning of the twentieth century as the examination of facts in investigative reporting evolved. Investigative reporting is defined as “independent scrutiny by the press of the activities of government, business, and other public institutions to provide the public and officials with timely information on issues of public concern” (Bennett & Serrin, 2005: 169).

Olsen (2018, 240) defines investigative journalism not only by what it is but as the “prototype of quality reporting.” Conan et al. (2004) observed that reporting without any research by the journalist is often seen as the antithesis of “good” journalism. Marder (1998: para. 8) focuses on the mindset of the reporter, exemplified by a veteran Washington Post reporter who accepts responsibility as a surrogate for the public and asks penetrating questions at all levels of society.

Historical examples of investigative reporting include William Thomas Stead exposing child prostitution in London in the 1880s, muckrakers in the US at the turn of the century, and Ester Blenda Nordström working undercover in Sweden in 1914 (de Burgh, 2003: 806).

In the 1960s, investigative journalism involved gathering and evaluating facts, covering various topics, employing different information-gathering techniques, and conducting in-depth research to uncover wrongdoing affecting the citizenry (Waisbord, 2002: 277). Governments often try to keep certain topics in obscurity, but journalists bring them to light and expose them (Tong, 2011; Wang, 2016). Mcquail (2013, 104) ranks journalists’ main tasks on a continuum of initiative and activity, from transmitting information to actively investigating, exposing, and advocating.

Robert William Greene, a reporter at Newsday and one of the founders of the American organization Investigative Reporters and Editors (IRE) in 1975, focuses on investigative reporting as uncovering secret information that some journalists and media organizations need to keep confidential (Greene, 1983). This definition was later adopted by pioneering associations of investigative journalism (AlAshry, 2024).

Ettema and Glasser (1988: 15) describe investigative reporting as having a moralizing impact, emphasizing the value of justice by exposing news stories. UNESCO defines investigative journalism as the unveiling of concealed matters by someone in a position of power, requiring journalists to delve deep into a single story to uncover corruption, review government policies, shed light on corporate practices, or highlight social, economic, political, or cultural trends.

## Historical background of Investigative Journalism

A Short History of Investigative Journalism is closely associated with a particular event in public perception, such as investigative journalism in 1721 when the New England Courant published an article that challenged official opinions. Janisch distinguishes two eras of investigative journalism (Leigh, 2019). The first era was around 1900 in the United States, where articles dealt with social injustice and labor conditions. President Theodore Roosevelt coined the term “muckraker” during this time. Secondly, the Vietnam War triggered investigative journalism, with the biggest investigation being the Watergate affair. This gained unprecedented public attention, and the political scandal eventually led to President Nixon’s resignation in 1974 (Saldaña & Waisbord, 2021). After a bungled break-in at the opposition Democrat campaign headquarters took place there (Carson , 2019).

After that, Bob Woodward and Carl Bernstein worked at the Washington Post. They used various investigative techniques to gather information on the motives behind the burglary at the headquarters of the Democratic National Committee. The report grew into a scandal involving an insider source known as “Deep Throat,” who provided Woodward with sensitive information while keeping their identity secret (Freeman, 2009). Following that, an investigation about a property transaction by the wife of the then Labour prime minister, Cherie Blair, led British tabloid newspapers to refer to “Cheriegate” . Wikileaks, led by Julian Assange, released a hoard of classified US embassy cables, calling it “Cablegate” (Mair & Keeble, 2011). Later, “Traingate” occurred when Jeremy Corbyn, the UK Labour Party leader, was filmed sitting on the floor of a train carriage to campaign against overcrowding, only to later discover the carriage may not have been full (The guardian, 2016).

In 2002, the Flemish-Dutch Association for Investigative Journalism declared that “investigative journalism is critical and in-depth.” They preferred a broader approach adaptable to different cultures and countries, including the examination of institutions and changes in societal trends (Arno.kersten, 2009). The Global

Investigative Journalism Network agrees, stating in GIJN (2020: para. 2) that investigative journalism involves systematic, in-depth, and original research and reporting, aimed at holding those in power accountable and exposing the excesses of influential private interests (Schudson, 2013).

Gamergate, or GamerGate (GG), was an online harassment campaign loosely organized and misogynistic against feminism, diversity, and progressivism in video game culture. They used the hashtag “Gamergate” primarily in 2014 and 2015, targeting women in the video game industry, most notably feminist media critic Anita Sarkeesian, and video game developers Zoë Quinn and Brianna Wu. It began in August 2014 with a blog entry called “The Zoe Post” by Quinn’s ex-boyfriend, which falsely insinuated that Quinn had received a favorable review because of her sexual relationship with a games journalist. The blog spread to 4chan, where many users had previously disparaged Quinn’s work. This led to a campaign of harassment against Quinn, coordinated through anonymous message boards such as 4chan, 8chan, and Reddit. The harassment campaign expanded to target Sarkeesian, Wu, and others who defended Quinn, and included doxing, rape threats, and death threats. Gamergate has been described as a culture war over cultural diversification, while supporters stated that it was a social movement with no clearly defined goals (Leigh, 2019).

Investigative journalism played a crucial role in the case of Edward Snowden, a 29-year-old former technical assistant for the CIA and current employee of the defense contractor Booz Allen Hamilton. He was responsible for one of the most significant leaks in US political history, having worked at the National Security Agency for the last four years as an employee of various outside contractors, including Booz Allen and Dell. Snowden, alongside Daniel Ellsberg and Bradley Manning, exposed the vast bulk collection of electronic communications by the Five Eyes countries - the USA, UK, Australia, New Zealand, and Canada (Ruby et al, 2016).

Ultimately, investigative journalists play a vital role in exposing government deception, as the responsibility of a free press is to prevent any part of the government from deceiving the people(Andrew , 2004).

## Open-source definition

Open-source journalism began in 1999, a term coined in the title of an article by Andrew Leonard of Salon (Leonard, 1999), which is closely related to citizen journalism or participatory journalism. While the term was not used in the body of the article, it encapsulated a collaboration between users of the internet technology weblog Slashdot and a writer for Jane's Intelligence Review (le Nobel & Miller, 2004). Initially, open-source journalism referred to standard journalistic techniques of news gathering and fact-checking, reflecting a term used in military intelligence circles since 1992, open-source intelligence (Dokman & Ivanjko, 2020). The open-source intelligence community now includes non-governmental entities such as investigative journalists, fact-checkers, and citizen open-source intelligence analysts (Ashdown, 2022). During wars or conflicts, open-source intelligence is crucial for gathering information about movements, equipment, tracking developments on the battlefield, and identifying propaganda (Zamith, 2023).

AlAshry (2024) argues that citizen fact-checkers and analysts view their work as a way to support journalism and contribute to a more transparent and equitable society. Journalists use a variety of information sources, including public intelligence releases from Eastern and Western governments (e.g., Defense Intelligence Reports). They also utilize open sources like social media and commercial satellite imagery, enhancing the capability of public open-source analysts to monitor equipment losses and document the progression of fighting.

Ashdown (2022) discussed differences in definitions, focusing on the lack of accountability around public open-source analysis. Journalists can analyze imagery from Google Earth alone and publish geolocations on Twitter, while a team of academics, journalists, and former military satellite imagery analysts work with commercial satellite imagery providers and government-funded think tanks to publish reports that receive international media coverage. He argued for greater rigor in using the term "intelligence" based on the definition in the Berkeley Protocol on Digital Open-Source Investigations (Berkeley Protocol) and the Office of the Director of National Intelligence's definition of intelligence collection, analysis, and dissemination.

Finally, OSINT is a specific methodology and process that involves gathering, analyzing, and disseminating information from open sources to produce intelligence for decision-making (Grut, 2023). Dillon (2012) observed that wars have been documented through social media, contributing significantly to the spread of war-related content and propaganda, allowing individuals, groups, and governments to share information, images, and videos quickly and easily to influence public opinion and the outcome of conflicts.



## Utilizing open source in investigations

There is a long history of journalists using digital technology to enhance investigative stories, a combination of computing power, and news reporting known as computational journalism (Flew et al., 2012). This concept originated in the U.S. in 1952 when CBS utilized the Remington Rand UNIVAC to predict the outcome of the U.S. presidential race between Eisenhower and Stevenson, merging algorithms, data, and social science for journalistic purposes (Allen, 2008). Philip Meyer, in 1967, employed an IBM 360 mainframe to analyze survey data about the Detroit Riots (Coleman, 2004). In 1973, Meyer advocated for greater integration of computers, data, and social science methods in journalism by promoting open-source ethics in journalism. The New York Times then unveiled an interactive system with information about New York City police statistics. Subsequently, in 1996, Houston identified three key aspects of technological innovation in journalism production: database reporting, spreadsheets, and online reporting, leading to the rise of the CAR journalist (Gamson, 1998).

Open source tools in the Arab world are increasingly being used to uncover the truth, serving as a foundation for strong journalism that can drive social change (Bebawi, 2019). This approach can be seen as a newsgathering technique, fact-checking, and news dissemination by a variety of individuals, free from the strict regulations of traditional journalism (Dillon, 2021). Since the Arab revolution of 2011, journalists and media organizations have been incorporating new tools into their work. Tools like Google Earth Pro, Google Advanced Search, TinEye, Xplico, Invid, and WhopostedWhat help investigative journalists pursue their objectives when faced with challenges in obtaining information from the government (Bebawi, 2019).

In Arab countries, the Arab Journalist Syndicate and governments have violated newsgathering norms by imposing sanctions on journalists, hindering their work, and denying them licenses. This strict control over journalists has limited their independence (Ristovska, 2022). Consequently, Arab journalists have sought out new methods to uncover compelling stories during crises. They strive to uphold professional standards and broaden their knowledge beyond the confines of the newsroom (Lewis, 2013). They also acknowledge the potential consequences of losing independent news media, which could mislead the public and create a society unaware of its cultural foundations (Mustafa, 2022). However, the varied roles taken on by journalists using open sources highlight that the free exchange of information will continue to thrive, even if at times influenced by specific agendas. Arab journalists advocate for collaboration with international organizations like Arab Reporters for Investigative Journalism (ARIJ) (Dillon, 2021; McPherson et al., 2020).

Despite numerous efforts to introduce freedom of information laws in the Arab region, obtaining information requests and accessing data remains difficult in a region characterized by high political activity and corruption. As a result, Arab investigative reporters have embraced the open-source culture, which provides opportunities to expose corruption and bring about change in communities. Open source offers the necessary information for investigative journalism, particularly in the face of legal restrictions. It also grants access to information and the chance to explore the possibilities presented by technological tools and digital storytelling (Bebawi, 2016).

Open-source investigative reporting on conflicts has gained prominence in recent times, especially with the proliferation of social media platforms. Political and economic information regarding conflicts is now readily accessible to the public (Hauter, 2021). Similarly, the field of open-source investigations has undergone significant transformations and advancements since the wars in the Middle East, utilizing new tools and techniques to turn open-source analysis into a professional field with job opportunities. Open sources have been instrumental in countering misinformation and monitoring advancements on the battlefield, as seen in Libya (Schwartz, 2022).

In Syria, investigators and journalists have utilized geo-tagged images shared on social media to pinpoint targets and evaluate the effects of attacks. Social media videos have been used as evidence to track troop movements and target civilians, confirming killing sites. Furthermore, journalists have gained expertise in documenting war crimes through open-source information, closely monitoring the conflict in Syria. Researchers gather and verify evidence on a wide scale, including identifying attacking forces, the number of victims, infrastructure damage, and details on military equipment and weapons used in attacks (Deutch & Habal, 2018).

Since the onset of the war in Syria, investigators have relied on open-source materials, such as videos on social media showing missile attacks and destroyed tanks, as well as the names of military personnel and soldiers killed. In the early 2010s, as the conflict in Syria was being documented and shared on social media, the first commercial companies also began launching satellites capable of capturing ground images at a resolution of less than one meter (about 3.3 feet). In the early stages of the Syrian conflict, it became evident that open-source information could not only be utilized for reporting news stories but also for investigating violations of international humanitarian law and war crimes. This was exemplified by videos being presented in the courtroom of the International Criminal Tribunal for Yugoslavia ) Dubberley & Çalı , April 19, 2023).

The investigative team is divided between those working inside Syria and those in other countries (Schaer, 2022). While Ristovska (2022) suggests that open-source investigations are becoming a prevalent form of conflict reporting, exploring the

role and impact of eyewitness images and the ability to cover a broader range of issues that may be challenging to access through traditional reporting methods, as well as the social value of victims' voices.

Moreover, during the examination of conflicts in Syria, it became evident that many believe videos and photographs from the conflicts will always be accessible on social media platforms like Twitter and YouTube. This led to the establishment of the Syrian Archive in 2014. The founder and creative director of Bellingcat emphasized the importance of geolocating and verifying digital information shared on platforms like Telegram, Twitter, Facebook, VK, and TikTok to preserve evidence for civilian harm journalism, reporting, and fact-checking for real accountability (Deutch & Habal, 2018).

Syrian Archive is a Syrian led project that aims to preserve, enhance and memorialise documentation of human rights violations and other crimes committed by all parties to conflict in Syria for use in advocacy, justice and accountability during times of war. However, conflicting parties and their supporters have exploited the internet to disseminate their messages and propaganda (Hauter, 2021). Over the next decade, this investigative practice was formalized through emerging standards and training practices, such as the Berkeley Protocol on Digital Open-Source Investigations (last updated in 2022) by the United Nations Office of the High Commissioner for Human Rights (OHCHR), available in English and Russian. Today, newsrooms, human rights organizations, international fact-finding missions, and international legal mechanisms investigating violations of international humanitarian law and international crimes routinely use open-source information as a standard part of their work (Dubberley & Çalı , April 19, 2023).

## Open-source and Applications in Investigative Journalism

The new tools of the internet and digital technology have brought about a significant cultural shift through the emergence of open-source investigations in journalism. These investigations utilize sources that are publicly available and can be legally and ethically obtained from public sources, whether in print or electronic form. Despite the lack of transparency from governments regarding "classified information" and the protection of state secrets through acts like the Official Secrets Act in the UK and the Patriot Act in the US, platforms like Wikileaks have made classified intelligence more accessible, directly impacting the success of OSINT investigations (Ganguly, 2022).

The challenge with OSINT lies in locating the right data from public sources. In our current age, the challenge extends to sifting through the millions of publicly available sources to find relevant evidence. In the military context, Open-Source Intelligence (OSINT) operates alongside Human Intelligence (HUMINT), Geospatial Intelligence (GEOINT), and Signals Intelligence (SIGINT) (Richelson 2015). This framework has influenced the current version of OSINT practiced in journalism, which can be broadly categorized into SOCMINT (Social media intelligence), GEOINT (Geospatial intelligence), and SIGINT (Signals intelligence), as explained in the table below.

TYPE OF OSINT	SHORT FOR	INCLUDES
SOCMINT	Social media intelligence	Information mined from social media profiles on Facebook, Instagram, Tumblr, Twitter, LinkedIn, SoundCloud, etc., such as personal information, activity data, social network mapping of bots and such, location information, personal connections, and more.
GEOINT	Geospatial intelligence	The rise of commercial satellites and the availability of satellite data from companies like Maxar and Planet Labs has made this easily accessible to journalists and the civil community. This provides a unimaginable scope for visual investigations, from location tracking and geolocation, to remote surveillance of conflict zones.
SIGINT	Signals intelligence	This exists primarily within the domain of state security as it refers to what is commonly known as ‘wire-tapping’ or the interception of signals, mostly illegally. The state agencies commonly associated with this activity are the NSA in the US and GCHQ in the UK—both of whom were exposed to mass surveillance by Snowden. However, there is a secondary type of signals interception that journalists and civil society can engage in—the monitoring of signals off transportation networks. This information exists within the public domain and includes flight data, data of tankers and marine vessels, as well as network traffic data, which can be manually found by forensically analyzing a particular website.

Data sources for open-source intelligence in Steele’s manuscript were divided into six categories of information flow by the intelligence communities. This classification is still used for open-source investigations. The six categories are presented in the table below.

SOURCE	INCLUDES
Media	All forms of content, such as newspapers, radio, TV, and digital media.
Internet	Online publications such as blogs, discussion forums like Reddit, and social media websites.
Public government data	Budgets, hearings, press conferences, public government reports, and speeches.
Academic publications	Journals, dissertations, academic papers, theses, and symposia.
Commercial data	Databases, financial and industrial information, and commercial imagery.
Grey literature	Working papers, patents, preprints, business documents, and newsletters

BREAKDOWN OF SOURCES OF OSINT AVAILABLE



# Applications for Open-Source Software

**Some of the best open Source Applications are as follows:**

- \* Linux is widely used for servers and devices.
- \* Mozilla Firefox and Chromium are open-source web browser choices.
- \* LibreOffice and Apache OpenOffice are free alternatives to Microsoft Office.
- \* WordPress and Joomla aid in website creation.
- \* GIMP is for image editing, and Blender is for 3D content creation.
- \* Postgre SQL and MySQL manage data in databases.
- \* Apache and Nginx host websites and distribute traffic.
- \* Eclipse and Git are development tools.
- \* QGIS assists with maps and geographic data (Academy, 2023).

## Freedom of expression and access to information laws

Freedom of expression and access to information laws are crucial in the MENA region. However, most of the information in the MENA region is false, making it difficult to identify trustworthy sources of information and restrict reliable information. To address this problem, some prioritize the dissemination of misinformation, while others argue that international law protects freedom of expression and freedom of information, and prosecution over speech raises journalists' concerns (Pomeranz and Schwid, 2021).

The UN Human Rights Council emphasizes that the same rights people have offline must also be protected online and in media houses. Freedom of expression is a fundamental human right and a key to the protection of human rights. The Universal Declaration of Human Rights includes the freedom of expression through Article 19 of the International Covenant on Civil and Political Rights (ICCPR), which states that everyone has the right to seek, receive, and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing, or print, in the form of art, or through any other media of their choice. Other international instruments also affirm the right to freedom of expression (Pomeranz and Schwid, 2021; Sen, 1999; Shirazi, 2008).

Some scholars argue that constitutional democracy in the Middle East is essential as it provides the basis for freedoms by protecting civil liberties and political rights (Lundström, 2005; Bavetta et al., 2014; Shirazi, 2008). The right to access information is crucial during times of war and conflict, as it provides citizens with the right to know about their government. Governments should disclose information in the public interest and recognize that an independent, uncensored press is essential to freely exercise these rights (Karanicolas, 2020). Adherence to freedom articles is necessary for the MENA region to address war without restricting journalists' access to information (Pomeranz and Schwid, 2021).

Governments in the region have used various strategies to combat war, including tightening restrictions on freedom of expression and declaring states of emergency (Liquori O'Neil, 2020). They have also enacted cybercrime laws to punish those who spread false news and rumors. Governments that limit freedom of expression and access to information are violating international laws protecting freedom of expression and national security, and disregarding restrictions on public health (Radoini, 2020; Nadikattu, 2020).

## Digital Surveillance and Press Freedom

Arab scholars are concerned about restrictions on press freedom and legal surveillance, paying less attention to the Arab countries' experience of digital surveillance (see, for example, AlAshry, 2022a, 2021b). Freedom from surveillance is a crucial aspect of press freedom in Arab countries and can be classified as "surveillance societies." While many journalists conduct investigative work and hold rulers and powerful institutional actors accountable, they must be free from government surveillance (Mills, 2019; Andrejevic, 2006). Pen America's (2014) study classified freedom from surveillance as a "surveillance society." The study found that 75% of citizens living in democratic countries were concerned about surveillance, compared to 80% in non-democracies, and that self-censorship is on the rise in authoritarian countries. Arab Governments now constitute a "surveillance society" where state and journalistic surveillance merge, collecting information about journalists from media houses under the guise of national security. As a result, journalists are concerned about the government's ability to monitor their work, including their activities on social media, and fear a chilling effect on their right to freedom of expression and an increased challenge to their watchdog role (Lashmar, 2018).

McQuail (2010) argues that there are various forms of surveillance created to monitor journalists. The first form involves journalists understanding their watchdog role, which entails monitoring incidents and individuals reporting on news stories using clandestine means such as audio and video recordings of politicians. The second form is carried out by state authorities who monitor political activities both online and offline.

Tsui and Lee (2019) noted that digital security can be challenging to implement properly to understand the factors influencing users' digital security behavior. Arab Governments use fear-driven impacts on democracy to restrict civil liberties, stifle debate, and control dissent, creating a "double-edged" oppressive environment that imposes internalized self-restraints (Eley et al., 2016, p. 305; Friedman, 2011).

Jamil (2021) noted that surveillance is not only conducted by media houses when journalists produce work but can also be carried out by authorities through the enactment of new digital laws and the establishment of various watchdog agencies. Under these laws, journalists face threats and pressure from politicians and government agencies seeking to justify advanced surveillance measures in the name of national security (Eley et al., 2016). Stoycheff (2016) argues that there are significant differences in how journalists respond to threats, fear, and violence, varying from country to country. Press freedom committees in Arab countries are concerned about threats to the press posed by harsh digital laws that shut down press websites while journalists face torture and physical violence. Freedom of the press is often described as eroding and under attack (Marx, 2002).

## Syria Using Digital Surveillance

After the Arab Spring revolutions in 2011, the media in Arab countries faced increased surveillance due to complex politics and authoritarian regimes' efforts to suppress counter-revolutions (Shires, 2022). This led to a shrinking space for freedom of expression and opinion, but the public and political activists used electronic platforms to mobilize and resist societal changes. Many countries responded to this by increasing control over websites, especially during the second transitional stage (AlAshry, 2021a, 2021b, and 2021c). With conflicts, wars, tyranny, and deteriorating conditions due to political crises, Arab Governments monopolize technology and use social media platforms to advance their policies. Threats to press freedoms and restrictions on access to information are becoming more problematic than ever (AlAshry, 2019). Arab countries implement digital surveillance methods through modern laws to block online websites and social media platforms.

The issuance of Law No. 19 of 2024 aims to restrict freedom of the press, opinion, and expression through absolute control over government media, a complete ban on independent media, and tightening penalties related to journalistic and media work. The most recent law, Law No. 20 of 2022 on cybercrimes, further restricts freedom of the press, opinion, and expression. This law was issued by the President of the Syrian regime, Bashar al-Assad, on April 18, 2022. It stipulates the reorganization of the legal and penal rules for cybercrimes in Legislative Decree No. 17 of 2012. The law includes articles that violate the right to freedom of the press, opinion, and expression, and threaten digital rights and privacy on the Internet. It consists of 50 articles that include tightening penalties for publishing content on the Internet that the authorities deem oppositional. Additionally, the law imposes imprisonment and fines for anyone who publishes digital content with the intent of "overthrowing or changing the regime in the state," or "undermining the prestige of the state and harming national unity." (Frary, 2022; ALAshry, 2023).

Since March 2011, the Syrian Network for Human Rights has recorded the arrest of 176 people by the Syrian regime, including 21 women, based on the Cybercrime Law. This includes a number of journalists, citizen journalists, and media workers. These arrests have occurred between the law's issuance on April 18, 2022, and May 2024. In addition to these arrests, the four security agencies each have a special branch that monitors the activity of local and international audio, print, and visual media, as well as social media.

# The Development of Investigative Journalism in Syria

The concept of investigative journalism is a modern idea in the Arab world, and it was slow to emerge due to the lack of a democratic environment that should support this particular art form. At the International Association of Investigative Journalism conference in Geneva in 2009, bold investigations from various countries were highlighted, contrasting with the limited output in Arab and southern countries, attributed to the restricted freedom in those regions (Bebawi , 2019).

Initially, investigative experiments were conducted individually and sporadically by journalists attempting to introduce a new style to Arab journalism. This was the case in Syria until organized efforts emerged from outside the country, with the establishment of the Arab Reporters for Investigative Journalism (ARIJ) organization in 2005, covering Jordan, Lebanon, and Syria. ARIJ aimed to promote investigative journalism culture in the Arab world, providing funding for investigations in nine Arab countries by 2009. In 2010, a program was launched in collaboration with the International Center for Journalists to institutionalize investigative journalism through the establishment of specialized units in Jordan, Palestine, and Egypt (AlAshry, 2024; Amanda, 2021).

Journalists in Syria were able to receive training in investigative journalism, as long as they avoided politically sensitive investigations that exposed corruption. Despite these challenges, Syrian journalists achieved success in investigative journalism (ARIJ, 2017). Prior to the Syrian crisis, a few investigations were conducted by Syrian journalists who had received training from ARIJ in investigative journalism. One notable investigation focused on neglected local hospitals, leading to government intervention and the formation of a local committee to address the issue (Peralta García & Ouariachi , 2021).

The investigative reporting index published by ARIJ revealed that between 2010 and 2013, the majority of investigations supported by the organization came from Jordan, Egypt, Palestine, and Yemen, with 56 investigations, while the remaining 17 were spread across other Arab countries, including Syria. Syrian investigative reports ranked third in terms of quantity from 2010 to 2012, with 7 investigations, accounting for 17.5% of the total investigations related to Arab Spring countries.

This does not diminish the significance of Syrian investigative journalism during that period but serves as a reflection of the broader context in the Arab world. Between 2015 and 2017, Syrian investigative reports comprised 10% of the total investigations published by ARIJ, trailing behind Egypt (20%), Tunisia (15%), and



Palestine (15%), and equal to Jordan, Lebanon, and Yemen in percentage. This indicates a gradual recovery for Syrian investigative journalism after years of setbacks.

In 2016, the Syrian investigative unit Siraj was established by three journalists living abroad, following the example of Iraqi investigative units NRJ in 2011, the Moroccan Association for Investigative Journalism, and the Libyan Foundation for Investigative Journalism Laving in 2015. Syrian investigative journalism has progressed alongside Arab investigative journalism developments. By 2018, Siraj had trained 30 local journalists and citizen journalists and received the mentoring program award from the International Journalists Network, enabling sustainable production of investigative reports. The foundation now receives support from five international institutions to bolster Syrian investigative reporting, publishing 10 to 12 stories annually from various Syrian regions (Harris & Williams, 2018).

Syrian investigative journalism has evolved to participate in international projects, collaborating with the International Consortium of Investigative Journalists (ICIJ) and the Organized Crime and Corruption Reporting Project. Their latest collaboration was the Dubai Keys project, an investigation published in May 2024 in partnership between Siraj and Daraj.

## Challenges of investigative journalism in Syria

The daily media coverage of news and topics related to the Syrian war and its consequences has shifted focus. Journalistic materials are now judged not by the integration of their elements or the quality of their media product, but by the accuracy of the content published and its ability to influence and generate feedback among recipients. The professionalism of journalistic coverage and the integration of product elements in revealing facts by uncovering hidden truths and delving behind the news are now paramount.

The chaos and breakdown of law and order in Syria, along with the power struggles among various parties to assert control and dominance, especially among warring factions, have led to an increase in news and reports across different media platforms. This has created a need for investigative journalism in Syria - to search, investigate, and verify information, test ideas, hypotheses, and journalistic stories, and ultimately uncover the truth with documented evidence and hold officials, politicians, actors, and other involved parties accountable (Al Ibrahim, 2018).

In response to these challenges, Syrian journalists and investigative reporters came together under the banner of the Syrian Investigative Reporting Unit - Siraj. The lack of impactful journalism in Syria was the primary motivation behind

establishing this network as the first Syrian investigative reporting unit in early 2016. The ongoing flow of news and information, coupled with the dangers faced by journalists on the ground, necessitated a dedicated team to monitor and verify information. Siraj faced numerous challenges, including security risks, as Syria ranks poorly in terms of press freedom. The organization's work involves fact-checking, verifying information and images, and confirming witness accounts amidst the complex and conflicting information environment in Syria. The ongoing threats faced by journalists, with many detained or killed, highlight the dangers of reporting in the region.

Challenges of investigative journalism include the time and effort required, as well as financial costs. "Siraj" produces or co-produces approximately 20 investigations annually, which are published in international and regional media outlets like "The Guardian", "OCCRP", and "Light House Report", along with a partnership with the "Daraj Media" website in Arabic.

One of the most significant challenges is security and political restrictions. There are clear limitations on free journalism, especially investigative journalism, as political regimes attempt to control the media, making it challenging for independent journalists to work freely. Security planning is crucial before starting any investigative report, as potential security risks must be assessed using a specially designed form to determine the level of risk. Risks vary from one story to another, and sometimes investigations may need to be abandoned to ensure the safety of journalists. However, in other cases, risks are effectively managed, even if the results provoke widespread controversy and threats against the team (Nesser, 2024).

## Open sources for war and conflict coverage

Open source investigations are especially important during times of conflict and play a significant role in coverage.

Advancements in communication technology have revolutionized journalism, opening up new possibilities for investigation when traditional methods are not feasible. This demonstrates that in conflict situations, where there is a high likelihood of deception, one does not have to depend solely on the biased claims of those involved or the misleading information provided by uninformed individuals. Instead, audio-visual data from victims, witnesses, or perpetrators can be used for independent verification. The widespread use of smartphones and the prevalence of social media mean that most human activities can be captured and scrutinized, serving as a digital witness. (Ahmad, 2024)

The economic aspect of utilizing open sources: While human sources have been valuable in traditional reporting, recent developments have led to journalism relying more on user-generated content. Due to financial constraints, many news organizations have had to reduce their budgets, with foreign coverage and investigative reporting being the most affected.

Security Dimension: There has been a decline in safe access to places of interest, while state and non-state actors have started using social media and digital video to control their narratives instead of courting foreign correspondents for positive coverage. Journalists, once seen as a nuisance or threat, are now considered indispensable. In Syria, the Assad regime, the Islamic State, and al-Qaeda affiliates have threatened or used violence against reporters. The Assad regime restricts coverage by controlling site access and targeting unauthorized reporters. The killing of Sunday Times correspondent Marie Colvin and New York Times correspondent Anthony Shadid in Syria led to criticism and a lawsuit against the papers, making news organizations hesitant to send journalists without regime approval. While approval provides access and some protection, it also limits journalists' independence and movement. (Smith, 2018)

The Syrian war has highlighted the reliance on eyewitness images in conflict reporting, leading to efforts to professionalize open-source investigative journalism. Global newsrooms like the New York Times, BBC Africa Eye, BBC Middle East, Channel 4, Al Jazeera, ProPublica, and NBC have integrated open-source reporting into their work. This approach allows them to cover a wider range of issues not accessible through traditional methods and encourages innovative and collaborative investigative techniques. (Ristovska, 2022).

Crisis of trust: Even without restrictions, journalism faces a credibility crisis. The lack of trust in the profession is not new; journalists remain among the five least trusted professions in the UK according to the Ipsos MORI Veracity Index. It doesn't help that serious reporters share the title of "journalist" with tabloid hacks and social media personalities who lack commitment to fairness or accuracy. Open-source journalism can address many of these crises by restoring the importance of facts and emphasizing verifiability. The catalyst for many of these innovations was the war in Syria. Thanks to smartphones and social media, this conflict has become one of the best-documented in history (Ahmad, 2024).

However, the war has also led to an unprecedented disinformation campaign. The Assad regime tried to control the narrative by denying visas to journalists it saw as unsympathetic and threatening unauthorized journalists, making independent reporting dangerous. This has led more news organizations to rely on user-generated content, which, while useful, carries the risk of manipulation. Open source research has developed tools to verify audiovisual material and eliminate misinformation (Koettl et al, 2019). These innovations have helped the international community overcome barriers to justice created by perpetrators. In 2017, the International Criminal Court issued its first indictment based on open source evidence against Libyan warlord Mahmoud al-Werfalli for extrajudicial killings. This has also had a positive impact on journalism, encouraging greater rigor and resourcefulness even among traditional journalists. It has shown the limitations of traditional human sources, which can be biased and sometimes spread disinformation (Ahmad, 2024).

Limits of open source journalism: Open source investigation, constrained by journalistic imperatives, may not meet the communication needs of eyewitness image makers. While it can help diverse voices gain visibility, it may not fully recognize or effectively address their needs (Ristovska, 2022).

## Ethical Guidance in Open-Source Journalism in Media Houses

There is limited academic literature on the structures of ethical open-source journalism in newsrooms. Most research in investigative reporting points out that journalistic organizations conducting investigations emphasize communication, transparency, and accuracy.

In recent years, after the revolutions of 2011, digital open-source investigations have expanded under different investigative organizations. These organizations depend on information that anyone can access from the Internet, such as sourcing videos, photographs, and other data from social media. They determine locations of events by comparing photos and videos to satellite images, mine the deep web for government records, and have been increasingly deployed by legal investigators, human rights researchers, and journalists (AlAshry, 2024a). Explicit guidelines about what techniques or tools should be used in different scenarios are lacking. While Al-Jazeera and Bellingcat have published documents outlining their approach and methods, specific guidance about the ethics of the investigative process, especially in cases like investigating Russia and Ukraine (2022), is needed (Pournis, 2022).

The literature on the role of newsrooms in dealing with journalistic privacy issues shows that codes of ethics serve as crucial accountability tools. They address challenges faced in investigative reporting such as inaccuracies due to unchecked bias, inadequate verification, or insufficient research expertise, physical, digital, or psychological harm, and insults to human dignity. Ethical guidelines are designed to advance moral decision-making in ways that minimize harm to individuals, communities, organizations, and society at large (Bebawi, 2019).

Safety should be a priority for investigators, including the safety of all stakeholders such as their team, perpetrators, bystanders, victims, and family members, whether the investigation is journalistic, legal, or advocacy oriented. Safety considerations should include the physical, digital, and psychosocial well-being of all potentially impacted individuals. Anonymization and pseudonymization may be used to protect the identities and well-being of victims, witnesses, and other sources (Ashdown, 2022). Accurate investigation is crucial for achieving justice and enhancing the credibility of digital open-source investigations. For example, it is important to consider diversity within the team in terms of gender, ethnicity, language, and other areas of expertise (Bebawi, 2016).



Additional quality safeguards include testing multiple working hypotheses or proving the “null hypothesis.” Journalists may focus on “reporting against their story,” while lawyers may test multiple theories of a case. Therefore, investigative work should be peer-reviewed to ensure accuracy (AlAshry, 2023).

Verification of digital information is especially critical, as photos, videos, and other online content can be mis contextualized, digitally altered, or created by artificial intelligence. The third common value among open-source investigators is dignity, a concept central to the international human rights framework. Dignity requires respecting the rights and worth of all individuals involved in an investigation (Carson, 2019). Dignity may be relevant in open-source investigations in various ways, such as recognizing the “invisible” labor involved, ensuring that victim-survivors play a role in setting investigative priorities and benefit from the investigation, carefully selecting participants, seeking consent to use sensitive data from social media, and incorporating a range of perspectives to minimize bias and maximize representativeness (Zamith, 2023).

## Methodology

This study utilizes a qualitative research methodology, which is suitable for examining the complex, subjective nature of how Open-Source Intelligence (OSINT) is used in investigative reporting, particularly in the context of wartime. The methodology consists of two primary components:

### 1. Analysis of Published Investigations

A comprehensive analysis of existing investigations that have utilized OSINT as a primary tool will be conducted. This analysis will help identify patterns, best practices, and challenges associated with its use in investigative reporting during conflict situations.

### 2. Surveys from 29 Syrian Journalists

Surveys will be administered to a group of 29 Syrian journalists to gain firsthand perspectives on the use of OSINT in investigative reporting during wartime. This sample will include journalists actively engaged in reporting on the ongoing Syrian conflict, providing valuable insights into their experiences, challenges, and strategies for utilizing OSINT in their work.

## Research Aim

The aim of this study is to explore how OSINT is utilized by journalists and analysts in investigative reporting during wartime, with a particular focus on the ongoing Syrian conflict.

- **Examine the Role of OSINT in Investigative Reporting:** Investigate how OSINT tools and techniques contribute to uncovering and verifying information.
- **Understand the Methodology:** Explore the methods employed by journalists in integrating OSINT into their investigative work.
- **Identify the Tools:** Identify and assess the tools commonly used by journalists.
- **Analyze Challenges Faced by Journalists and Analysts:** Understand the obstacles faced by practitioners in Syria, such as restrictions from governments and laws.

## Finding

### Firstly: An analysis of published investigations

#### Analysis of Published Investigations

In 2023, the Syrian Center for Media and Freedom of Expression initiated a training program on investigative journalism in various areas of influence in Syria. As part of this program, Syrian journalists, both male and female, produced six journalistic pieces.

Citizens Bear the Brunt of the Pricing War on Medicines Between the Syrian Ministry of Health and Local Manufacturers

## The focus of the Inves

#	Report Title
1	<a href="#"><u>Suffering in silence:</u></a> Cancer patients in northern Syria at the mercy of the crossings
2	<a href="#"><u>Incomplete awareness</u></a> Syria's primary school curricula lack information on future water crisis
3	<a href="#"><u>Pharmaceutical market</u></a> Citizens Bear the Brunt of the Pricing War on Medicines Between the Syrian Ministry of Health and Local Manufacturers
4	Water Pollution Threatens <a href="#"><u>Part 1:</u></a> Displaced People in Idlib Camps and Fears of Cholera in Qamishli <a href="#"><u>Part 2:</u></a> Qamishli and Fears of Cholera
5	<a href="#"><u>People of unknown parentage, deprived of education</u></a> Children of the Long "War" Also Grow Up... Unregistered Births Exacerbate School Dropouts and Child Labor
6	<a href="#"><u>Education in northern Syria:</u></a> The Trend Towards Privatization of Education and Its Lack of Governance: Widening the Gap Between Students and Schools in Aleppo and Idlib

Using content analysis methodology, we aim to determine the extent to which the journalists who created the six investigations relied on open sources versus official sources to complete the published materials. This addresses the first research question of the study: To what extent do Syrian investigative journalists utilize open sources in their work? The key tool for content analysis is the category system that organizes each aspect of the study. This method is subjective, not rigid, and can be objectively verified in each study, ensuring reliability and accuracy. In our study, we focus on two main categories: human sources and open sources (Kohlbacher, 2006).

Within open sources, there are subcategories. Blinkat identifies 15 categories under open sources and tools, some of which are used for verifying images and videos, as well as online educational guides and archiving tools. Al Jazeera's guide highlights five main categories, including tracking ships and aircraft, weapons databases, company owners' databases, and satellite images. Social networks and image and video verification tools are also included. Following this, interviews were conducted to delve deeper into the challenges faced by journalists when using open sources in their investigative reporting. This addresses the second research question: What obstacles exist in utilizing open sources in investigative journalism in Syria?

By examining the journalists' reliance on open sources and exploring the challenges they encounter, we can propose practical recommendations to foster a culture of using open sources in journalistic production, especially in investigative work. The methodology for collecting content analysis data involves reading the journalistic materials, identifying each source referenced in the text, and categorizing it as either a human source or an open source. Sources not explicitly cited are excluded. Interviews are analyzed using the Copeland method, which summarizes interview content by rephrasing, generalizing, and condensing key points ( Copeland, 2014).

By synthesizing the information gathered through content analysis and interviews, we can conclude and offer insights to enhance the use of open sources in investigative journalism in Syria.

## First investigation

Title of Investigation: Silently Groaning: Cancer Patients in Northern Syria at the Mercy of the Crossings

### Focus of the Investigation:

The investigation explores the dire circumstances faced by cancer patients in northern Syria, particularly in areas controlled by the Syrian opposition and the Autonomous Administration. These patients suffer from a severe shortage of medicines, a lack of specialized healthcare facilities, and disrupted access to treatment in neighboring countries due to the intermittent closure of border crossings. The investigation underscores how these issues contribute to the deterioration of patient care in a region already plagued by a failing health system.

### Content Analysis:

The investigation draws upon a total of 29 sources, which include both information and images, clearly indicating the source for each. A significant finding from the analysis is the limited reliance on open sources, which comprise only 9 out of the 29 sources (31%). These open sources were mainly used to gather archival information from social media pages (3 sources), online newspaper archives, and institutional websites such as the Euphrates Center for Studies. Additionally, official sources like the United Nations website and the official site of the Kurdish National Council were utilized to substantiate the investigation.

The investigation effectively balances human sources with open-source data, integrating real-life accounts from affected patients, health officials, and local authorities to illustrate the critical challenges faced by cancer patients in the region. The investigation highlights the compounding effects of political conflict and border restrictions on the deteriorating health infrastructure, leaving vulnerable populations, like cancer patients, increasingly isolated and in need of critical care.

## The second investigation:

Title of Investigation: Incomplete Awareness: Primary School Curricula in Syria Lack Information that Addresses the Upcoming Water Crisis

### Focus of the Investigation:

This investigation explores whether primary school curricula in Syria sufficiently address the pressing issue of the water crisis, especially in the context of climate change and ongoing conflict. With water increasingly weaponized during the war, the investigation questions whether Syrian children have adequate awareness of the dangers posed by water scarcity. It also examines if their educational content provides comprehensive information regarding the impact of water issues on health, agriculture, and economics.

### Content Analysis:

The investigation utilizes a diverse range of 20 sources and includes insights gathered from a questionnaire involving 60 human sources. Among the 20 sources, 13 are classified as open sources, spanning research and study platforms, official websites of both local and international organizations, such as the World Health Organization and the World Bank, and the official Facebook pages of governmental bodies (e.g., the Syrian Ministry of Health). Additionally, the investigation draws from non-governmental organizations and platforms, including the Early Warning site, Fanack Water, and the World Resources Institute.

What makes this investigation unique is its focus on curriculum analysis, made possible by accessing relevant educational materials through open sources. The investigation highlights a significant gap in current educational content, revealing that primary school curricula in Syria lack critical information on the upcoming water crisis. This deficiency leaves students unprepared for the challenges they will face, particularly regarding water's role in public health, agricultural sustainability, and economic stability in the region.

The investigation underscores the need for curriculum reform to address the complexities of the water crisis and ensure that future generations are equipped with the knowledge needed to navigate these challenges.

## The Third Investigation

Title of Investigation: Citizens Bear the Brunt of the Pricing War on Medicines Between the Syrian Ministry of Health and Local Manufacturers

### **The focus of the Investigation:**

This investigation delves into the instability within Syria's pharmaceutical sector, where a pricing dispute between the Ministry of Health and local pharmaceutical manufacturers has resulted in a scarcity of medicines. Despite an increase in the number of pharmaceutical factories compared to pre-2011 levels, these conflicts have caused factories to stop supplying, ultimately leaving citizens to suffer the consequences.

### **Content Analysis:**

The investigation draws from approximately 28 sources, including insights from a questionnaire involving 10 doctors and pharmacists from the governorates of Sweida and Tartous. The majority of references are open sources, with 20 sources used in the investigation. However, half of these open sources rely on secondary information gathered from archived websites and electronic newspapers. The primary websites referenced include Syria News, Al-Araby Al-Jadeed, Al-Thawra, Syria TV, Al-Mashhad Online, Al-Baath, Enab Baladi, Syria Along, Al-Watan, and Al-Hal. In addition to news sites, the investigation references two research platforms like The Jakusz SpaceTech research laboratory, as well as government organizations and official international sources such as the Syrian government's official website and the World Health Organization website.

The investigation highlights the significant gap in the availability of affordable medicines due to pricing conflicts, and it underscores the broader implications for public health. By focusing on the power struggle between local manufacturers and government regulations, it provides a comprehensive view of how political and economic conflicts have resulted in critical shortages, forcing citizens to navigate an increasingly strained healthcare system.



## The Fourth Investigation

Title of Investigation: Water Pollution Threatens Displaced People in Idlib Camps and Fears of Cholera in Qamishli (Part 1)

### Focus of the Investigation:

This investigation sheds light on the health risks caused by water pollution in camps for displaced people in Idlib, Syria, and the potential for a cholera outbreak in Qamishli. The report focuses on the story of Haritha Al-Hamoud, a 34-year-old displaced woman who contracted cholera while pregnant due to contaminated water. Her experience represents the broader crisis affecting millions of internally displaced people living in unsanitary conditions with limited access to clean water.

The investigation reveals that the “Syrian Response Coordinators” organization reported severe deficiencies in water and sanitation services in these camps. In northwestern Syria, 67% of water and sanitation needs remain unmet, with nearly half of the camps lacking clean drinking water. The report highlights the dire conditions in the camps, where open sewage, inadequate waste management, and the absence of proper infrastructure contribute to the spread of diseases.

### Content Analysis:

The journalistic piece relied on 19 diverse sources, with a significant emphasis on both human and open sources. Open sources accounted for 47% of the total (9 sources) and included information from non-governmental organizations (NGOs) like Doctors Without Borders and the Syrian Response Coordinators Organization. Other open sources referenced institutional websites, such as the Early Warning Network, and government social media pages like the Idlib Health Directorate’s Facebook page. The investigation also drew from research websites like the NCBI and UN-affiliated organizations such as the World Health Organization (WHO) and the Food and Agriculture Organization (FAO).

This mix of sources allows the investigation to provide a comprehensive view of the health risks in these camps, emphasizing the failure of current infrastructure and aid systems in addressing the needs of displaced people.

## The Fourth Investigation part (two)

Title of Investigation: Qamishli and Fears of Cholera (Part Two)

### Focus of the Investigation:

This part of the investigation delves into the water crisis in northeastern Syria, specifically in Qamishli, where residents face severe issues with water contamination and supply due to aging infrastructure and prolonged power outages. In sweltering heat, residents like Mohammed Khair (Abu Yazan) endure long waits only to receive foul-smelling, contaminated water resulting from sewage leaks in the water lines. Despite numerous complaints, the local authorities have not taken effective steps to resolve these issues.

Due to the unreliability of water sources, residents are often forced to purchase water from unknown suppliers, raising health concerns. Even though Qamishli depends on several water stations, the problem of sewage contamination persists. This situation has led some residents to conduct their tests to determine the safety of their water. Furthermore, the once-reliable Jaqjaq River has become heavily polluted due to neglect, reduced water flow from Turkey, and contamination. Farmers in the region continue using this polluted water for irrigation, putting public health at greater risk. The investigation underscores the lack of responsibility and intervention from local authorities, exacerbating the health crisis.

### Content Analysis:

This investigation explicitly mentions 15 sources, with the majority being human sources, accounting for 80% (12 sources). The limited use of open sources includes websites of non-governmental organizations like Human Rights Watch, the Hermes Foundation for Reconstruction and Sustainable Development, and the research platform “World Politics Review.”

The heavy reliance on human sources highlights the firsthand experiences and perspectives of the affected residents, adding depth and authenticity to the report. Meanwhile, the few open sources are used to provide the necessary background and additional context on the broader implications of the water crisis.

## The Fifth Investigation

Title of Investigation: Syria: Children of the Long “War” Also Grow Up... Unregistered Births Exacerbate School Dropouts and Child Labor

### The focus of the Investigation:

This investigation delves into the significant social and legal hurdles faced by unregistered children in Syria, particularly those associated with families having ties to ISIS. The story of Ahmed, a 10-year-old boy, serves as an example of the challenges these children encounter, such as stigma, dropping out of school, and engaging in child labor. Ahmed’s lack of official documentation leads to bullying and embarrassment at school, compelling him to abandon his education and start working to provide for his family. The absence of civil registration is a prevalent issue affecting children from families connected to ISIS, resulting in heightened isolation, poverty, and social marginalization.

The predicament is especially tough for girls, who experience even more societal stigma. Mothers like Umm Sultan refrain from sending their daughters to school due to concerns about discrimination. Despite the efforts of aid organizations, the absence of identification remains a significant obstacle. The investigation also sheds light on the mental health repercussions and the occurrence of child abandonment in camps, where unregistered children are frequently deprived of basic rights.

### Content Analysis:

The investigation drew upon 13 sources, with human sources comprising the majority. These sources include firsthand testimonies from affected families and aid workers. One source is a human rights report, although specifics regarding the method of access (e.g., online archive, library, or unpublished) were not provided. The report heavily relies on direct accounts, highlighting the voices of those directly affected while also incorporating NGO reports and legal analysis to offer context.

## The six Investigation

Title of Investigation: The Trend Towards Privatization of Education and Its Lack of Governance: Widening the Gap Between Students and Schools in Aleppo and Idlib

### The focus of the Investigation:

In Idlib City, Syria, Grandmother Umm Hani faces immense challenges in educating her four grandchildren, ranging from 14 years old to infant Hani, after their father was killed in a 2013 airstrike and their mother abandoned them. Despite her desire for them to remain in school, Umm Hani struggles with the financial burdens of clothing, transportation, and school supplies, pushing her to seek support from an orphanage rather than see them drop out.

The education sector in northwestern Syria, particularly in Idlib and parts of Aleppo, is severely affected by high dropout rates, especially among displaced persons. A recent report indicates that 69% of children aged 6-18 in Idlib are out of school, with the figure standing at 63% in Aleppo. The growing trend towards the privatization of education has deepened these challenges, as local authorities increasingly favor private institutions over public education. While private schools are gaining popularity due to the deteriorating quality of public education and lack of support, the fees, which range from \$10 to \$50 monthly, further strain families' finances.

Many residents attribute the rise of private schools to the lack of investment in public education, overcrowded classrooms, and poorly compensated teachers. The Ministry of Education in the Salvation Government argues that the ongoing conflict and insufficient international funding have driven this shift towards privatization, emphasizing that private education has become a critical alternative amid the failing public system.

### Content Analysis:

This investigation cited 14 sources, with 13 being human sources who provided direct insights to the authors. The only open source referenced was a report by the Support Coordination Unit. However, it was unclear whether this report was accessed through a public open source or obtained via a human source, as the method of acquisition was not specified.

## Analysis Results from the six investigations

Human sources were the primary source of information for the six journalistic materials. In the second investigation, open sources outnumbered human sources, with 13 out of 21 sources (out of a total of 60 human sources in the questionnaire). In the third investigation, 20 out of 29 sources were open sources, accounting for more than half. The first part of the fourth investigation relied on open sources for 47% of the information, while the first investigation used open sources for 31%, and the second part of the fourth investigation used open sources for less than 20%. The fifth and sixth investigations had the least use of open sources, with only one source mentioned without specifying if it was from an open source.

It is important to note that the open sources utilized were limited to newspaper archives, official and institutional websites, research websites, and non-governmental organizations. Social media was only used to gather information from official institutions' Facebook pages.

One of the challenges faced was the lack of utilization of open tools and sources, such as satellite imagery, ship or aircraft tracking databases, or analysis of relevant databases for the topics covered in the journalistic materials.

### What sources were relied upon?

1. **Mostafa Mostafa** conducted the investigation titled "Suffering in Silence:

Cancer Patients in Northern Syria at the Mercy of Border Crossings." The investigation utilized a variety of sources, including open sources like official government websites, journalistic materials, and related studies, as well as closed sources like primary sources from victims, officials, experts, and specialists. Human sources were emphasized due to their direct relevance and higher credibility. Of the six sources used, five primarily relied on human sources, while one relied on open sources. Three sources chose human sources because of their relevance to the investigation hypothesis, two favored human sources for uncovering victims and connecting to the hypothesis, and one preferred open sources for their suitability to the hypothesis. One participant noted the ease of access to human sources and direct interaction as factors, while another emphasized the superior credibility of human sources.

2. **Simav Hassan** focused on the second investigation, “Incomplete Awareness:

Primary School Curricula in Syria Lack Information Addressing the Upcoming Water Crisis.” This investigation used both human sources, like experts and officials, and open sources such as curricula, research studies, data from international organizations, and published media content. Open sources were relied upon more, making up 50% of the sources, due to the investigation’s hypothesis based on global studies related to the water crisis. The reliance on both types of sources was necessary, with open sources accounting for more than half of the references due to their relevance to the investigation’s focus.

3. **Alaa Eldin Ismail** conducted the first investigation, which solely relied on human sources.

The choice was made because of the essential personal interaction with these sources for the investigation. This reliance on human sources was driven by the ease of access and the direct insights provided by those involved.

4. **Khalaf Moa** worked on the fourth investigation, “Water Pollution Threatens Displaced People in Idlib Camps, and Fears of Cholera in Qamishli (Part 1).” This investigation used both human sources, including stories, testimonies, and official statements, and open sources like Google Maps. The reliance was more on human sources, reflecting their importance in providing direct and personal accounts of the situation.

In Syria, there are numerous laws and regulations that restrict journalistic activities and the use of open sources, such as failing to update data on government websites. The four security services are responsible for digital censorship of social media platforms and journalists. They closely monitor the activities of local and international audio, print, and visual media, as well as social media. Individuals, including civilians, media professionals, government employees, and publishers of popular content on social media in areas controlled by the Syrian regime forces, are often summoned and interrogated for criticizing living conditions or the work of institutions. Many of them are subjected to torture and are frequently not released. Some are brought before the judiciary, forcibly disappeared, or released after being threatened or pressured to cease their activities on social media. Others are referred to exceptional courts, such as the Terrorism Cases Court, and charged with multiple offenses under laws like the Information Crimes Law, the Anti-Terrorism Law, or the General Penal Code.

Articles 285, 286, 287, 291, and others of the Penal Code impose temporary imprisonment for up to five years on individuals who, during times of war or expected war, advocate for “weakening national sentiment” or disseminate news in Syria to undermine the nation’s morale or attempt to change the state’s constitution through illegal means. The penalty for such actions is six months in

prison. Under the Military Penal Code, Articles 148, 149, and 150 penalize individuals with temporary imprisonment for publishing political articles or delivering political speeches for propaganda purposes. Additionally, Article 8 of Terrorism Law No. 19 of 2012 states that anyone distributing printed materials or stored information with the intent of promoting terrorism or terrorist acts will be punished with temporary hard labor.

5. **Omaima Mohammed** conducted the sixth investigation, “The Trend Towards Privatization of Education and Its Lack of Governance Widens the Gap Between Students and Schools in Aleppo and Idlib.” The investigation utilized both open sources, such as studies and the Ministry of Education website, and human sources. However, there was a greater emphasis on human sources, reflecting their critical role in understanding the issues related to privatization and its impact on education.

6. **Abbas Ali and Ali Dalati** worked on the fifth investigation, “Syria: Children of the Long ‘War’ Also Grow Up... Unregistered Births Exacerbate School Dropouts and Child Labor.” The investigation primarily relied on human sources, valuing direct narratives and live testimonies from affected individuals. Open sources were also used, but the focus was on human sources due to their crucial role in revealing the plight of unregistered children and their associated challenges.

## Challenges

1. **Mustafa Mustafa**, who worked on the investigation “Suffering in Silence: Cancer Patients in Northern Syria at the Mercy of Border Crossings,” faced challenges related to verifying the information from open sources and its reliability. This included researching the origins of the information and consulting with all relevant parties involved in the information or event. The spread of misleading and false news also impacted the verification and documentation process. The challenges involved the credibility of open sources amid misinformation. Four people were involved, with three expressing mistrust in open sources due to the prevalence of misleading information and the need to verify their reliability, given the numerous centers issuing statements. Additionally, two noted a lack of training and skills, language barriers (as most tools are available in non-Arabic languages), the lack of free tools, and the time and effort required to sort and analyze available data.

2. Simav Hassan, who worked on the investigation “Incomplete Awareness: Primary School Curricula in Syria Lack Information Addressing the Upcoming Water Crisis,” encountered a knowledge-related challenge in accessing appropriate websites with information necessary for data analysis. The primary challenge was the lack of published data related to the hypothesis or issue under investigation. To address this, surveys were used to gather relevant information.



**3. Alaa Eldin Ismail**, who worked on the first investigation, faced challenges related to verifying the accuracy of information available online, especially in the context of widespread fake news and misleading information.

**4. Khalaf Moa**, who worked on the fourth investigation, did not specify particular challenges in the provided text.

**5. Omaima Mohammed**, who worked on the sixth investigation “The Trend Towards Privatization of Education and Its Lack of Governance Widens the Gap Between Students and Schools in Aleppo and Idlib,” faced challenges related to the lack of specialized training in open sources. She attended training with Siraj but found it less beneficial due to the trainer primarily speaking in English, which hindered her ability to fully benefit from the training.

**6. Abbas Ali and Ali Dalati**, who worked on the fifth investigation “Syria: Children of the Long ‘War’ Also Grow Up... Unregistered Births Exacerbate School Dropouts and Child Labor,” encountered several challenges: verifying the accuracy of information available online amidst widespread fake news and misinformation; access restrictions to some databases requiring paid subscriptions; limited skills in using advanced research and data analysis tools; language barriers, with some crucial sources available only in languages they do not understand; and the time and effort required to analyze and sort through large amounts of data and information.

**7. Abdul Hamid Al-Haj**, who worked on the sixth investigation, faced challenges related to verifying the accuracy of data and information, particularly given the proliferation of institutions and research centers. The challenge was ensuring the reliability of information.

## Second: the survey analysis

Given the ongoing challenges that journalists in Syria continue to face, such as limited access to reliable information, understanding how to leverage open sources can be crucial in identifying best practices for investigative reporting. By providing journalists with powerful tools to enhance their reporting, we can improve the quality and impact of their work. This study, based on a questionnaire completed by 29 Syrian journalists, aims to explore the use of open sources in the creation of investigative reports.

Table (1) outlines the age distribution of Syrian journalists, detailing the number of journalists and their corresponding percentages within specific age groups. The largest segment is the 36-40 age bracket, with 10 journalists, accounting for 34.5% of the total. Following this, the 31-35 age group includes 8 journalists, representing 27.6%. The 26-30 age range has 7 journalists, making up 24.1%, while the youngest group, aged 18-25, consists of 4 journalists, which is 13.8% of the total. Overall, there is a greater representation of journalists aged 31 and older compared to younger journalists.

**Table 1: Age Distribution of Syrian Journalists**

Age	as	%
18-25 years old	4	13.8
26-30 years	7	24.1
31-35 years	8	27.6
36-40 years	10	34.5
Total	29	100.0

The table (2) displays the gender distribution among Syrian journalists, with 29 participants. It shows that 58.6% are male, totaling 17 individuals, while 41.4% are female, comprising 12 individuals. This breakdown highlights a higher representation of males in the group compared to females.

**Table 2: Gender Distribution of Syrian Journalists**

Gender	as	%
Male	17	58.6
Female	12	41.4
Total	29	100.0

Table (3) displaying the educational attainment of the 29 participants reveals that 55.2% hold a bachelor’s degree, which amounts to 16 individuals. Additionally, 24.1% are university students, totaling 7 individuals. Those with a master’s degree account for 13.8%, or 4 participants, while 6.9%, equating to 2 individuals, have only completed a high school diploma.

**Table (3) Syrian journalists of the highest level of education**

The highest level of education		%
High school diploma	2	6.9
University student	7	24.1
Bachelor	16	55.2
Master	4	13.8
Total	29	100.0

## Journalistic Experience

In terms of journalistic experience, table (4) explains, 93.1%, or 27 journalists, report having experience in investigative production. In contrast, only 6.9%, representing 2 journalists, indicate that they do not have such experience.

**Table 4: Journalistic Experience of Syrian Journalists**

Do you have experience in investigative production in general?	as	%
No	2	6.9
Yes	27	93.1
<b>Total</b>	29	100.0

Regarding experience in producing specific investigative reports, 69.0% of the 29 participants, or 20 journalists, affirm that they do have such experience. Conversely, 31.0%, totaling 9 journalists, indicate they do not have experience in producing specific investigative reports. This indicates a substantial proportion of journalists engaged in focused investigative work, highlighting their involvement in this area of journalism.

**Table 5: Experience of Syrian Journalists in Investigative Reports**

Do you have experience in producing specific investigative reports?		%
No	9	31.0
Yes	20	69.0
<b>Total</b>	29	100.0

In response to the question of whether they have received training in using open-source tools, 62.1% of the 29 participants, or 18 journalists, confirm that they have received such training. On the other hand, 37.9%, totaling 11 journalists, indicate that they have not received any training in this area. This suggests that most of the journalists have some familiarity with open-source methodologies, which could enhance their investigative capabilities.

**Table 6: Experience of Syrian Journalists in Using Open-Source Tools**

Have you received training in using open source before?		%
No	11	37.9
Yes	18	62.1
<b>Total</b>	29	100.0

Regarding the description of open-source training among the 18 journalists who received training, 77.8% (14 journalists) found it sufficient and helpful. Meanwhile, 16.7% (3 journalists) described the training as helpful but not enough, and only 5.6% (1 journalist) considered it not enough and helpful. This indicates that the majority of those trained felt positive about the training received.

**Table 7: Experience of Syrian Journalists in Using Open Source Training**

How can this training be described?		%
Not enough and helpful	1	5.6
It was sufficient and helpful	14	77.8
It was helpful but not enough	3	16.7
<b>Total</b>	18	100.0

In the context of open-source training received by the 18 participants, various tools and techniques were covered. The most addressed topic was advanced search engines, with 83.3% (15) reporting training in this area. Geolocation tools followed closely, with 55.6% (10) trained. Social media content search tools and techniques were covered for 66.7% (12). Other areas included databases (50.0% ), timekeeping tools (27.8% ), ship tracking tools (38.9% or 7 journalists), and aircraft tracking tools (33.3% ). This diverse range of training topics reflects a comprehensive approach to enhancing investigative skills among the participants.

**Table 8: Experience of Syrian Journalists in Using Open-Source Training Tools**

Open-Source Training		%
Geolocation tools	10	55.6%
Timekeeping tools	5	27.8%
Advanced Search Engines	15	83.3%
Databases	9	50.0%
Ship Tracking Tools	7	38.9%
Aircraft Tracking Tools	6	33.3%
Social Media Content Search Tools and Techniques	12	66.7%
A sentence of those who were asked	18	

When assessing their proficiency with open-source tools, 51.7% of the 29 participants consider themselves fairly good at using them, totaling 15 journalists. Additionally, 41.4% (12) feel that they are good at some tools but not others. Only 3.4% (1) report being not good at all, and another 3.4% (1) claim to have perfectly perfected their skills.

**Table 9: Proficiency of Syrian Journalists with Open-Source Tools**

How good are you with open source?		%
I'm not good at it at all.	1	3.4
I'm good at some and I'm not good at some	12	41.4
I'm fairly good at it.	15	51.7
Perfectly perfected	1	3.4
<b>Total</b>	29	100.0

In terms of the use of open-source tools in investigations, a significant majority of the 29 journalists (72.4%) reported that they do use open-source resources. Conversely, (27.6%) did not utilize open-source tools in their investigative work. This strong inclination towards using open-source tools reflects the participants' recognition of its value in investigative journalism.

**Table 10: Experience of Syrian Journalists use open source in investigations**

Do you use open source in investigations?	as	%
No	8	27.6
Yes	21	72.4
<b>Total</b>	29	100.0



Among the 21 journalists who do not use open source in their investigations, 61.9% (13 journalists) believe that the topics they work on are not usually suitable for open-source use. Additionally, 33.3% (7 journalists) cite a lack of knowledge about open-source tools as a barrier. Distrust of open-source resources concerns 28.6% (6 journalists), while 19.0% (4 journalists) mention that their organization is not interested in utilizing open-source methods. These responses highlight several challenges that prevent the adoption of open-source practices in their investigative work.

**Table 11: Training Description by Syrian Journalists**

Training Description by Syrian Journalists		%
The topics I work on are not usually suitable for open-source use	13	61.9%
Lack of knowledge of open source	7	33.3%
Distrust of open source	6	28.6%
The organization I work for is not interested in using open source	4	19.0%
A sentence of those who were asked	21	

Regarding the use of open source tools among the 29 participants, 72.4% (21) utilize advanced search engines, making it the most commonly used tool. Databases are also widely used, with 58.6% (17) reporting their use. Geolocation tools are employed by 48.3% (14), while social media content search tools and techniques are used by 51.7% (15). Timekeeping tools see less usage, with only 10.3% (3) using them. Ship tracking tools and aircraft tracking tools are utilized by 6.9% (2) and 13.8% (4), respectively. Finally, only 3.4% (1) reported using questionnaires.

**Table 12: Syrian Journalists describe which of the following tools Have You Received Training?**

On Which of the Following Tools Have You Received Training?		%
Geolocation tools	14	48.3%
Timekeeping tools	3	10.3%
Advanced Search Engines	21	72.4%
Databases	17	58.6%
Ship Tracking Tools	2	6.9%
Aircraft Tracking Tools	4	13.8%
Social Media Content Search Tools and Techniques	15	51.7%
Questionnaires	1	3.4%
A sentence of those who were asked	29	

The challenges faced by the 29 journalists regarding the use of open-source tools are varied. The most frequently cited issue is the lack of training in using these tools, reported by 58.6% (17). High costs associated with paid tools are also a significant concern for 51.7% (15). Additionally, 44.8% (13) express frustration with the poor potential of free sources. Lack of technical knowledge in using these tools affects 37.9% (11), while 27.6% (8) cite a lack of technical capabilities. Furthermore, 31.0% (9) mention a lack of methodology or evidence to support their journalistic work, and 17.2% (5) are unaware of the importance of open source in journalism. Finally, 6.9% (2) indicated other challenges. <sup>[MS22]</sup>

**Table 13: Syrian Journalists use Open source experience**

Open source experience		%
High cost of paid tools	15	51.7%
Poor potential for free sources	13	44.8%
Lack of technical capabilities	8	27.6%
Lack of training in the use of these tools	17	58.6%
Lack of methodology or evidence to use as a journalist	9	31.0%
Lack of knowledge of its importance in journalistic work	5	17.2%
Lack of technical knowledge of its use	11	37.9%
Other mentions	2	6.9%
A sentence of those who were asked	29	

In addition to the previously identified challenges, the “other mentions” category highlights specific issues raised by journalists. One journalist (3.4%) noted that some satellite image tools are very expensive, emphasizing that time is also a critical factor and that there is a lack of experts in open source. Another journalist (3.4%) pointed out the lack of up-to-date information on Syria and the inability to pay for applications that require a subscription.

**Table 14: Syrian Journalists use Open source experience**

Other mentions		%
Some satellite image tools are very expensive, time is also an important factor, and we also lack experts in open source.	1	3.4
Lack of up-to-date information on Syria as well as inability to pay for applications that need to pay	1	3.4
<b>Total</b>	29	100.0

In this section, journalists shared their thoughts on open-source training and its practical applications. One journalist (3.4%) emphasized the importance of training in using open-source tools. Another journalist (3.4%) suggested that introducing a wider range of open source tools could help journalists conduct investigations more efficiently and cost-effectively. Additionally, one journalist (3.4%) raised concerns about internet vulnerabilities that may limit the use of these tools.

The majority, 79.3% (23 journalists), had no further comments. However, one journalist (3.4%) mentioned attending a significant training session at the Syrian Center but expressed a desire for more training opportunities. Another comment (3.4%) highlighted the importance of focusing on mindset, structure, and work strategies rather than just tools, stressing the need for a comprehensive understanding in the face of misinformation. Finally, one journalist (3.4%) requested inclusion in future journalism workshops.

**Table 15: Syrian Journalists' Comments About Open Source**

<b>Do you have any other comments you would like to mention? Please mention it kindly</b>		<b>%</b>
I think it's good to provide training on the use of open source and its importance.	1	3.4
Introducing more to the types of open sources and their importance provides the journalist with opportunities to produce journalistic investigations at a lower cost and effort	1	3.4
The weakness of the Internet is a main reason for the limited use of it	1	3.4
There isn't any	23	79.3
I attended a very important training for the Syrian Center on open source but I need more training	1	3.4
It is important to focus on the mentality, structure and strategies of work and not on the tools there is misinformation spread and indicates the need to learn open source tools but in fact from the	1	3.4
Please always involve us in journalism workshops	1	3.4
<b>Total</b>	29	100.0

## Discussion about the survey

### Experience in Investigative Reporting

In a survey of 29 journalists, the majority reported having experience in investigative reporting. Specifically, 27 journalists (93.1%) affirmed their experience, with 16 males (94.1%) and 11 females (91.7%) indicating they had engaged in investigative reports. Conversely, only 2 journalists (6.9%) lacked such experience, consisting of 1 male (5.9%) and 1 female (8.3%).

### Experience and Training in Open Source

Regarding training in open-source tools, out of the same 29 journalists, 27 (93.1%) reported having experience in investigative reporting. Of these, 10 participants (90.9%) who had no training still managed to engage in investigative work, while 17 journalists (94.4%) with training confirmed their experience. Only 2 journalists (6.9%) indicated they had neither experience nor training in open-source tools, comprising 1 from each gender.

### Specific Investigative Reports Experience

When asked about their experience in producing specific investigative reports, 20 out of 29 journalists (69.0%) affirmed they had such experience. This included 12 males (70.6%) and 8 females (66.7%). In contrast, 9 journalists (31.0%) reported having no experience, with 5 males (29.4%) and 4 females (33.3%).

### Training and Specific Reports Experience

Of those who reported experience in producing specific investigative reports, 20 journalists (69.0%) had received training in open-source tools. Among those with no experience in producing reports, 9 journalists (31.0%) reported their training status, with 2 (18.2%) having no training and 7 (38.9%) having received training. In contrast, 9 journalists with experience did not receive training, while 11 had undergone training.

### Proficiency with Open Source Tools

In terms of proficiency with open-source tools, journalists expressed varying levels of confidence. Out of 29 respondents, 1 individual (3.4%) felt they were not good at it at all, while 12 (41.4%) rated their skills as good at some aspects but not others. The majority, 15 journalists (51.7%), considered themselves fairly good, and only 1 (3.4%) claimed to have perfected their skills. Notably, 58.8% of males considered themselves fairly good, while 41.7% of females rated their proficiency similarly.

## Use of Open Source in Investigations

The use of open-source tools in investigations was confirmed by 21 journalists (72.4%). This included 13 males (76.5%) and 8 females (66.7%). In contrast, 8 respondents (27.6%) indicated they did not use such tools, with an equal number of 4 males (23.5%) and females (33.3%) among them.

## Challenges in Using Open-Source Tools

Participants identified several challenges in utilizing open-source tools. High costs associated with paid tools were cited by 15 journalist respondents (51.7%), including 11 males (64.7%) and 4 females (33.3%). Additionally, 13 journalists (44.8%) expressed concerns about the poor potential of free sources, and 17 individuals (58.6%) noted a lack of training as a significant barrier. Other challenges included a lack of technical capabilities (27.6%) and a lack of knowledge regarding the importance of these tools in journalistic work (17.2%).

## Conclusion

Although the significance of data from open sources has long been acknowledged, it has garnered great attention globally in the last few decades as the nature and volume of publicly available information has fundamentally changed.

Based on analyses from investigative reports and surveys with journalists who can identify intelligence agencies, this study highlights the role of Syrian journalists and open-source organizations in generating information that supports their investigative reports. The primary objective of the study was to gain insight into how open source techniques were utilized by professionals, a common occurrence in war. We also explored the potential advantages and difficulties that may arise from collaboration between journalists and fact-checkers. The findings suggest that the war in Syria resulted in more work in investigative reporting and time spent verifying information for the participants. Interestingly, journalists in legacy media argued that employing open source techniques helped showcase the benefits of their work to their traditional workplaces.

Additionally, the war in Syria expanded the scope of OSINT, resulting in more actors working in the field of open-source intelligence with similar objectives, seen as both an advantage and a disadvantage. Journalists argued from their survey that a significant challenge was maintaining security and suggested that a more consistent and rigorous discipline from media organizations in Syria be established among new actors entering the field of OSINT to maintain standards and quality of work. Journalists also argued that if they work bound by the standards and values



set by the organizations they work for, journalists and fact-checkers might find it harder to meet time constraints in investigative reporting, sometimes getting “too into details” and missing the bigger picture.

During the Syrian conflict, journalists heavily relied on geolocation, reverse image and video searches, and social media investigations to build their investigative reports. While they acknowledged the usefulness of technology in determining the time and location of events, they concurred that tools alone are not sufficient for addressing war-related investigations.

It was also observed that journalists and media organizations are working more closely with media centers offering training about open sources, which allows for the sharing and critical examination of open-source information, developed and refined during the war.

## Future research and recommendation

The media organization newsrooms shows insights into how open and closed sources are collected and analyzed during crisis situations, specifically focusing on their workflow in investigative reporting.

The necessity for journalistic institutions to establish specialized departments for data journalism and open sources is crucial for developing the quality of press coverage and producing data-driven news stories in various fields. Increasing professional training programs for journalists to familiarize them with how to deal with open data sources, data verification tools, and data analysis is essential.

Establish a professional guide on how to use open data sources within newsrooms by identifying the most important controls and standards related to the quality of open data sources, the steps for verifying open databases, and the professional rules governing the use of open data sources in preparing journalistic content. Ensure that the data is complete and fully available to the public without any omissions. The data should be primary, meaning it is published from its original source, providing access to and downloading data without requiring approval from any party. Provide training to journalists on using technological programs and tools through various computer programs.

From governments, journalists need to ensure that all data is available to users without the need for registration on the site, making it easily accessible to the public at all times. The data should be archived and always accessible, with all data being free for all users to encourage them to benefit from it. Verify open databases by comparing the data obtained from other databases, returning to news site archives to verify the accuracy of the data and figures, and reviewing reports and data produced by international organizations to understand the source and methodology of data collection.

Professional rules governing the use of open data sources in preparing journalistic content should be appropriate to the topic being worked on, verifying the truth, accuracy, and credibility of the data provided by open databases. Utilize the methodology of data collection before relying on open databases. Open sources should be commonly used by journalists, who should have the skills to extract data from open sources, analyze it, and visually represent it.

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## Appendix

Kindly, you can find via this link a guide that includes the most important open sources that can be used to conduct journalistic investigations and in-depth reports:

<https://scm.bz/wp-content/uploads/2025/04/Open-Source-Intelligence-Initiating-Efficient-Investigations-Appendices-EN-10.pdf>





