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Combating disinformation in modern conflict reporting:

How international media are using Open-Source Intelligence (OSINT) in their coverage of the Russia-Ukraine war

Daniel Kudakwashe Mpala

(Candidate no: 83)

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Supervisor: Prof. Kenneth Andresen

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Combating disinformation in modern conflict reporting: How international media are using Open-Source Intelligence (OSINT) in their coverage of the Russia-Ukraine war

Abstract

This thesis examines how international media are using Open-Source Intelligence (OSINT) in their coverage of the Russia-Ukraine war. A mixed-methods approach employed conceptual content analysis, and textual analysis to a sample of AP News, BBC News, and Reuters coverage published between 24 February 2022 and 31 December 2022. The results showed that only 38.2% of coverage contained some form of OSINT analysis. In instances where OSINT content was used, the common types of OSINT material analysed included maps, satellite imagery, and visual footage. The most common methods of presenting the analysis included maps, text and images. While the media collaborated with external partners on 47.8% of the analysis, about a quarter was handled in-house, with 26.5% of the analysis sourced externally. The Institute for the Study of War, Maxar Technologies and Planet Labs emerged as the top sources of OSINT analysis, respectively.

Chapter 1: Introduction

Truth is said to be the first casualty of war. Going as far back as World War 1, belligerents have sought to control the narrative during conflicts through censorship, propaganda, and disinformation (Welch, 2014; Demm, 1993). In the process some have managed to cover up atrocities and war crimes. On the other hand, some brave journalists have fought to report the truth, with many losing their lives in the line of duty given how it is notoriously difficult to objectively report from within war zones. As of 25 August 2022 — six months since the commencement of the Russia-Ukraine war — at least 12 journalists had been killed covering the conflict (Committee to Protect Journalists, 2022). The situation is further compounded by strict restrictions the media is facing in accessing combat zones in the conflict, with reports Russia has imposed severe restrictions, while Ukraine has been more lenient about access – but has limits and controls on how fast material can be published and what information on military installations, locations, or regiment details can be published (Dana, 2022; Somerville, 2022).

Besides issues around the safety of journalists, control of information, and access to conflict zones, there is also the danger of disinformation. Disinformation refers to the intentional provision of misleading information (Fallis, 2015). This was a major characteristic of the precursor of the Russian-Ukraine war – the Donbas War which began in 2014 – which was heavily mediated on social media and the internet, and featured divergent political messaging with both sides offering opposing narratives that sought to discredit the narrative of the other party, which ultimately saw volumes of disinformation online which made it difficult to establish the truth (Hauter, 2021; Makhortykh and Sydorova, 2017).

Online media, in the context of military conflict, is a double edged sword. While the internet and social media can provide access to information from conflict zones like never has been possible before, these technologies can also be used for disinformation (Hauter, 2021, p.1). Consequently, warring parties and their respective supporters wind up effectively turning the internet, and by extension social media into a battleground (Hauter, 2021, p.1). Like what happened in the Donbas war, the Russia-Ukraine war is no different in this regard, the conflict has been labelled an “information war” (Butler, 2022). An information war occurs when belligerents either deny, seek to exploit, or corrupt their opponent’s information with

the intent to both protect as well as establish a "favourable environment" for their own information (Butler, 2022).

Caught up in the crossfire of bullets, missiles, and this "information warfare", how are the media supposed to objectively cover conflicts in the age of the internet, social media, fake news, and disinformation? The answer might lie in the discipline of Open-Source Intelligence (OSINT). This is a discipline that overlaps three distinct but somewhat similar fields – academic research, journalism, and the intelligence services (Westcott 2019, p.390). Generally, at its core OSINT is essentially about "gathering, analysing, and disseminating information" (Westcott, 2019, p.383). This is done by drawing on information from publicly accessible material or sources that include the internet – including social media ; traditional media; geospatial information; think tank studies; journals; and photos (Central Intelligence Agency, 2010). In practice, a typical OSINT investigation involves finding publicly accessible data on an incident of interest, verification of the authenticity of this data —often using the temporal and spatial aspects of the incident — and then the cross-referencing of this data with other available digital records (Ahmad, 2019). Similarly, in journalistic terms, open-source reporting entails employing publicly available material as well as other internet-based tools in journalistic storytelling (Bauder, 2022).

OSINT as a discipline thus presents the media with a set of tools and methods that are ideally suited for use in reporting on conflicts where it is either too dangerous to send journalists into war zones, or in instances where journalists face restricted access to the battlefront, as well as in instances where there is "information warfare" or disinformation, and a significant risk of misinformation.

The research objective of this thesis is thus to examine how international media, particularly Western media, are using OSINT in their coverage of the Russia-Ukraine war. The thesis will set about doing this by conducting a study that will seek to answer three research questions (RQs), namely:

RQ1: How prevalent was the use of OSINT amongst the leading international media organisations in their coverage of the Russia-Ukraine war?

RQ2: What were the main types of OSINT material analysed, and what techniques or methods were used to present the analysis?

RQ3: Was the OSINT analytical work conducted in-house by journalists, done externally or conducted in collaboration with external partners?

Starting off with the hypothesis that international media are using OSINT to cover the Russia-Ukraine war, the study will first seek to ascertain the extent to which three international media outlets, namely AP News, BBC News and Reuters, used OSINT in their coverage of conflict. Thereafter the study will examine which type of OSINT materials were analysed by the media outlets, as well as how this analysis was presented in the articles they published on the war. Lastly, the study will also explore who conducted the analysis, in an effort to establish if the respective media outlets conducted this research internally using their own teams or journalists, or if they out-sourced or collaborated on the analysis with external partners. The study will entail the collection of a sample of online articles that were published between 24 February and 31 December which covered key moments and events that occurred during the war between 24 February and 30 September. The study will apply a mixed-methods approach that will use content analysis and textual analysis. The data will be collected using a coding scheme on a spreadsheet hosted on Google Sheets. Data analysis will be conducted both manually, and using the machine learning-powered Explore in Sheets function in Google Sheets. The data analysis is expected to produce key insights that will inform journalists, media outlets, other journalism and media researchers on the key issues, and best practices in the application of OSINT in war journalism.

The thesis' Literature review chapter will first explore the latest scholarship on the application of OSINT in journalism. This will then be followed by a chapter on the paper's theoretical framework. Because of the complexity of the topic, this chapter will comprise three sections. The first will look at two key theories; *Arrested War paradigm* and *mediatization*, and the *Boundary Work model*, along with some key concepts which will be crucial to explaining the media's use of OSINT – *sourcing* and *information subsidy*. The second part of the theoretical framework will feature a historical survey of war and conflict journalism, and a discussion on key trends in war and conflict journalism. The third section of the theoretical framework will introduce and define OSINT, look at its history, survey key methods and techniques, and examine some issues pertinent to OSINT's application in journalism. The methodology chapter will then outline the research objective, research questions, and discuss the paper's methodological approach. This will then lead into the findings chapter, and subsequent to that the discussion and conclusory chapters

1.1 Structure of the thesis

The Literature review chapter will discuss the latest research on the application of OSINT in journalism. It will explore the emergence of OSINT in war journalism, and highlight how this was driven by necessity borne out of restrictions placed on war correspondents and media organisations; financial cutbacks by media outlets; and the need to make war journalism more transparent and rigorous. The chapter will also look at how OSINT is changing journalistic norms; the collaborative nature of OSINT as a discipline; how OSINT is complementing conventional journalism; how OSINT methods and techniques are similar to those used in fighting disinformation, and explore the relationship between technology and journalism. Additionally, the review will cover ethical and legal issues associated with OSINT; best practices; and the risks of using OSINT in journalism. Lastly, the chapter will highlight gaps in literature around the application of OSINT in journalism.

The Theoretical framework will mainly discuss the theoretical framework and conceptual tools that the thesis will use in its study of the use of OSINT in war journalism. The researcher opted to separate this from the Literature review chapters. This is because, given how nascent the use of OSINT in journalism is, there are not yet any specific theories that specifically address this practice. As such there was need for a separate in depth discussion on:

- a) A theoretical framework to explain the adoption of OSINT in war journalism from the basis of how the media appropriate digital technologies to retain its gatekeeping roles in a way that makes it the authority in the *mediatization* of war and conflict
- b) A theoretical framework to explain how the adoption and application of OSINT in war journalism can be viewed as an expansion of the field of journalism
- c) Conceptual tools to explain how the media gathers information, and the way the media selects its sources, or is provided information, and the implications thereof
- d) The evolution of war journalism over the years in order to identify some key trends in war and conflict journalism
- e) An in depth exploration of OSINT.

The chapter will kick-off with a discussion on the *Arrested War paradigm and mediatization*, and then the *Boundary Work model*, and subsequently look at the key concepts of *sourcing* and *information subsidy*. A historical survey of war and conflict journalism will then follow,

with the intention of identifying some key trends in war and conflict journalism. This will be done to see just how OSINT is changing how wars are normally covered by the media. The chapter will then define and discuss in-depth what OSINT is, including common methods and techniques of the discipline; key issues within the field, as well as look at some history of its use in news media.

The Methodology chapter will discuss the details of the research methodology and how the research was conducted. The chapter will first outline the thesis' research objective and research questions. This will be followed by a discussion of the selection of research methods applied in the study, particularly focussing on why the study employed a mixed-methods approach, as well as how *content analysis* and *textual analysis* were selected to answer the thesis' RQs. Additionally the chapter will also cover the objectivity, validity and reliability of the study. After this, the chapter will discuss details on how data was collected for the study, covering aspects like the research population; sample; sampling eligibility criteria; the coding scheme; codes and coding rules; and limitations of the study.

The Findings chapter will – with the aid of charts visualising the data – offer a condensed presentation of the key findings and data as they relate to the thesis' RQs and research objective. This will be done in the order and structure of the RQs, that is starting with RQ1, RQ2, and lastly with RQ3.

The Discussion chapter will set out to explain and interpret the results, as well as discuss the implications of the findings using the concepts and frameworks that are laid out in the Theoretical framework chapter. It will also discuss the unexpected outcomes of the study.

Lastly, in the Conclusion chapter the researcher will aim to wrap up the thesis by briefly discussing how the study was conducted, and by reflecting on the findings as they relate to the RQs. The thesis' conclusion will also discuss suggestions for further research, as well as how OSINT can be implemented by media organisations around the world covering wars and conflicts. The thesis' conclusion will highlight the finding's unique contributions to journalism studies.

Chapter 2: Literature review

The field of OSINT in journalism, while still nascent, has attracted significant attention by scholars and researchers around how it is changing the practice of journalism; its best practices methods and techniques; as well as issues around ethics; journalistic culture; and the impact collaboration with non-journalistic actors in news media production has on journalistic convention and norms.

OSINT's use in journalism has the potential to reinforce traditional journalism because of how the approach's open methodology earns readers' trust through its 'rigour and transparency' (Ahmad, 2019). 'Journalism badly needs this infusion of vitality and credibility,' opines Ahmad (2019). While traditional journalism is renowned for competition for scoops and breaking news first, this is in stark contrast to the OSINT ethos which is based on co-operation and collaboration between diverse professions and disciplines in order to come up with the best outcomes (Ahmad, 2019).

Ahmad (2019) views the Syrian civil war as one of the leading factors behind the emergence of the use of OSINT in conflict reporting. He points out that the disinformation campaigns waged by the Assad regime, together with the denial of visas to foreign journalists triggered the use of OSINT in the coverage of the war as it became not only difficult but also dangerous for foreign journalists to independently cover the conflict, leaving international media to rely on open-sourced content from Syrian citizens. In addition, the financial constraints facing news organisations which are said to have led to the media downsizing on foreign bureaus – which in turn has led to gaps in foreign news coverage and a decline in investigative reporting – could have also influenced the adoption of OSINT analysis and investigations in conflict reporting (Ahmad, 2019).

However, the reliance by the media on open-sourced content comes with the risk of the content being manipulated or fake which would ultimately impact trust the public would have on that content (Ahmad, 2019). This then necessitates the need to verify and confirm the authenticity and provenance of the open-source content before any doubts can be cast upon it (Ahmad, 2019). This explains why news organisations like Reuters now have a dedicated

user-generated content team that reviews, verifies and sources content captured or recorded by eyewitnesses (Baker, 2022). Furthermore, the transparent way in which OSINT approaches conflict journalism supports Ahmad's argument that OSINT will make journalism more credible.

This is the closest that journalism has come to a scientific method; the transparency allows the process to be replicated, the underlying data to be examined, and the conclusions to be tested by others. This is worlds apart from the journalism of assertion that demands trust in expert authority (Ahmad, 2019).

Building on Ahmad's assertion, it seems the application of OSINT in conflict reporting could in some instances reduce or do away entirely with the practice of basing war reporting on anonymous sources — like the unnamed senior intelligence official or senior government member whose credibility is difficult to establish — or the citing of secret documents that cannot be shown to the public.

Ristovska (2022) asserts that conflict reporting often highlights the ways in which professional journalistic norms and practices are changing. She draws attention to how the Syrian war defined the now normal reliance on eyewitness content in conflict reporting, and led to the trend towards professionalisation of open-source investigative journalists. She cites a trend noted by Yazbeck (2020) that since the conflict in Syria, Western media organisations — as a consequence of lack of access to conflict zones in Syria and Yemen, as well as deaths of reporters while covering these conflicts — appear to be dependent on stringers and OSINT analysis to cover these wars. Ristovska further notes how international news organisations like Al Jazeera, BBC, and The New York Times are applying OSINT investigations and analysis in their reporting, with OSINT enabling these organisations to take on stories that would normally be beyond their reach.

While news agencies like Reuters are using OSINT to supplement conventional reporting (Baker, 2022), Ristovska (2022, p.640) views the use of OSINT in conflict reporting as a 'defence mechanism' that journalism has adopted in the face of increasing distrust of the media and is optimistic that the openness of the methodology of OSINT investigations and analysis could increase trust in the media. Additionally she touches on the collaborative nature behind the use of OSINT in conflict reporting, highlighting how OSINT investigations

bring together news organisations with entities like investigative journalism group Bellingcat, and other independent analysts.

This collaborative aspect is also discussed by Freear (2022) who notes how OSINT as a discipline complements the functions of legacy news organisations, given how OSINT analysts and investigators provide the media with viewpoints and detailed information that reporters normally do not have. The collaborative nature of the OSINT practitioner community and news media is further highlighted by claims that since the start of the Russia-Ukraine war, some OSINT organisations claim to have daily contact with European and American journalists who are keen to not only build on their sources, but also verify information for their news reports (Freear, 2022). Freear's further observation that some news media organisations are instead setting up their own OSINT investigation and analysis teams could point to a paradigm shift in the use of OSINT in conflict reporting.

In their paper, Cooper and Mutsvairo (2021) — who perceive open-source reporting as a type of citizen journalism — ultimately come to the conclusion that citizen journalism can not only challenge but also complement the work of established professional journalists. Their argument lies on a finding they cite to Hauser (2018) that non-traditional or non-professional journalists are in a way coming up with new practices which most seasoned journalists are struggling to 'integrate and align' with professional norms of the industry. Cooper and Mutsvairo (2021) also state that technology has always played a key role in the evolution of the reporting habits of journalists. They note the different technology-inspired evolutions in conflict reporting marking transitions and changes brought about by the emergence of the telegraph – which improved the speed at which which war correspondents could file and get their stories published and lessened reliance on military and diplomatic dispatches; introduction of the typewriter and telephone which made reporters more faster in their work, independent and accountable to editors; and finally the development of portable cameras like the Leica in the First World War which introduced war-photography and brought about the importance of photojournalism in conflict reporting. More to the point, they argue that the use of social media and the emergence of citizen journalism has led to war reporters producing more emotional and subjective reports, while at the same time introducing new content formats. They, like Ahmad (2019), note that lack of access to conflict zones in Syria led to journalists being reliant on activists and others outside of traditional journalism to verify and analyse videos and photographs uploaded by Syrian citizens.

While the use of OSINT in conflict reporting suggests that governments have lost control of the flow of information from conflict zones – as they can now be easily exposed in cases where they are lying – it also raises some serious ethical questions. OSINT practitioners sometimes have to work with information that could significantly affect the dynamics of a conflict – either through benefiting one side by way of propaganda or even giving one side a tactical advantage on the battlefield – and in some instances that could endanger the very people who would have produced the open-source content (Miller and Aldhous, 2022). This has led to questions by some in the OSINT community on topics like whether OSINT investigators and analysts can be treated the same way journalists are, or whether they are now actors who can have an effect on conflicts (Miller and Aldhous, 2022).

There appears to be uncertainty around the legal issues around OSINT investigations in some areas, for example OSINT practitioners are advised to always comply with the European Union's General Data Protection Regulations (GDPR) as much as possible (Böhm and Lolagar, 2021), citing Lyle (2016) and Block (2021). Böhm and Lolagar (2021) further point out the need for practitioners to pay attention to terms of services of social networks if they make use of methods or techniques that use social networks as some OSINT tools could violate the terms of service agreements like the ones on Facebook and Instagram.

The collaborative nature of OSINT investigations also raises questions around influence, objectivity and independence. For example, there is a risk of OSINT content containing information planted by governments. In an effort to be more independent, and to guarantee transparency of their methodology, as well as to better guard against external influence and other ethical issues, some news outlets including the BBC, Associated Press and The New York Times have developed teams specialising in OSINT investigations (Loehrke.,et al 2021).

However there seems to be a general reliance on independent OSINT analysts as expert sources and in some instances entire partnerships or collaborations with organisations with OSINT capabilities (Loehrke.,et al 2021). Loehrke.,et al (2021) discuss methods that news organisations are taking to ensure accuracy in their reporting. These include close working relationships between the journalists and analysts to guarantee that analysis is not only accurate but also understood in context, while other organisations are putting their journalists

through technical training and workshops on data analysis and analytic processes. Cooper and Mutsvairo (2021) point out that conflict reporters have always relied on individuals who come from outside conventional journalism to facilitate their reporting. These — they say citing Hamilton and Jenner, 2004 and Palmer and Fontan, 2007 — include freelance reporters, local reporters, stringers and fixers who help conflict reporters find stories and arrange interviews. Citing Murrel's (2010), they note how these individuals play a crucial role in directing journalists where to go, whom to speak with, as well as discuss the extent to which they have an editorial impact. Cooper and Mutsvairo (2021) further note that these new actors are increasingly becoming more integral to international news media organisations in the wake of the media shuttering their foreign offices and reducing their international coverage. This perhaps implies that collaboration with those outside the traditional journalistic space is not that big an issue compared to the overall journalistic mission.

Other scholars have focused on best practices, with a significant amount of literature covering methods and techniques. Most of the methods and techniques used to verify OSINT material are similar to the ones used when fighting disinformation and misinformation (Toler, 2020). The main methods and techniques used to verify provenance of OSINT material include; reverse image searches on search engines; reverse image searches of video thumbnails, as well as the use of tools like InVid and YouTube DataViewer; metadata analysis like video upload time; and geolocation. Toler (2020,p. 198) points out geolocation as 'the most powerful verification method' as well as the fastest way to guarantee that OSINT material is from the time and place it is claimed to have been shot or come from. This fact is further supported by Bellingcat founder Elliot Higgins who asserts that geolocation has emerged as a 'key methodology' in the verification process.

Even when images contain geographical coordinates in their metadata it is expected that they would also be geolocated using these methods, and the geolocation of images is considered essential in the field of open-source investigation. (Higgins, 2016, pp.192 - 193).

Conversely, other scholars have looked at how OSINT content is impacted by manipulation of eyewitness media with the intent of disinformation. Gregory (2022) looked at the dynamic between misinformation, disinformation and the emerging technologies used in misinformation and disinformation campaigns — like deepfakes — with OSINT practitioners, civic journalists and organisations that use open-source material for analysis,

news gathering and investigation. The idea that user-generated content or content by eyewitnesses can be manipulated, as well as the knowledge of the fact that this is a possibility serves to compromise the public's trust in OSINT content as reliable, even in instances when the content is in fact authentic (Gregory, 2022, pp.714-715). This increased burden of proof has resulted in OSINT investigators resorting to using several sources in their investigations (Gregory, 2020). Consequently, this has also brought up the emergence of authenticity infrastructure — which comprises tools for tracking edits and indicating manipulations, as well as standards for information on media origins, and index markers for content shot on smartphones — which assist OSINT practitioners in further verifying and authenticating open-source material.

Lewis and Usher (2013) sought to examine the impact a technology-focused approach to journalism innovation might bring to journalistic tools, culture, and the normative framework of journalism itself. They discuss how the merger of journalism with computer science to form computational journalism has created a new classification of journalists — known as programmer or hacker journalists — whose open-source ideologies and capabilities are stimulating innovation in computationally and analytically augmented journalism that uses algorithms, coding, software or data visualisation techniques, as well as analytical approaches like OSINT. They discuss how these journalists follow an open-source culture which has a cultural ethos that is built around sharing information.

Many scholars believe that computational journalism is improving investigative journalism and also ushering in new ways of interacting with readers (Lewis and Usher, 2013). Lewis and Usher (2013, p.606) further examine the fundamental characteristics of open-source culture — which they state as being an element of hacker culture — and then discuss how these norms are influencing journalism. Elements they bring up include interest in the greater good as a key motivation; collaboration with a decentralised group of experts outside conventional organisations; reputation and desire to be part of something big, as well as a sense of belonging and the idea of an "open, collective intelligence". Furthermore, Lewis and Usher (2013) also note how computational journalism has reinforced transparency, which is a key journalistic norm. But more crucially how open-source transparency can change journalism by making it a participatory process that readers and viewers could also be a part of. The authors also discuss how open-source culture is influencing the normalisation of collaboration with actors outside of the field of journalism, and other new ways of working,

conventions and standards including the use of blogs, social media content and user generated content.

Zamith and Braun (2019) explore the relationship between technology and journalism and find that technology is playing a crucial role in the development of what they describe as 'new logics' and forms of journalism which consequently affect news production processes and in doing so are influencing journalistic practice. They add that these new logics and forms highlight the fact that crucial elements of news production are increasingly determined by, but also reliant on new technological actors. For example, in the case of OSINT use in conflict reporting, these actors would be the OSINT analysts and investigators. There are also further suggestions that technical actors who were normally not viewed as journalists, and seen more as technical support staff are now being treated as bona-fide journalistic actors, and in some instances even as "models of the journalist of the future" despite limitations imposed on them by prevailing journalistic norms and values that dictate what or who is a journalist. Consequently, because of this trend, these technical actors and the work they do is rising in prominence with the technical actors assuming a higher status within journalism (Zamith and Braun, 2019).

On the other hand, advances in technology are also providing readers and viewers with more ways to engage and collaborate with journalists, and ultimately to participate in news media production, engagement (Zamith and Braun, 2019). In the wake of international news organisations downsizing resources, Zamith and Braun (2019, p.5) also note a 'cultural shift' among journalists between 2009 and 2019 which has seen them open up to collaborating with non-journalists to produce and boost content during emergencies and incidents like the Arab Spring. Ultimately, Zamith and Braun (2019) posit that there has been a shift towards a more inclusive, participatory and audience-centred model which is seen in practice through participatory and reciprocal journalism which defy the professional logic of journalism. Despite that, it appears that the incorporation of audience participation only occurs when citizens and non-journalists conform to journalistic expectations, suggesting that some journalists still hold control over how readers or audiences collaborate with them with regards to journalistic routines, values, and roles (Zamith and Braun, 2019).

Interestingly, Müller and Wiik (2021, p.1) identify that the leading non-journalistic organisations in the OSINT investigative journalism space — Airwars, Bellingcat, Forensic

Architecture and Syrian Archive — 'share and rely heavily' on open-source ideology, and go on to suggest that these organisations are not only inventing new methods of investigation and analysis but also shifting ideology around the role of the media in investigative journalism from that of gatekeepers to a more open and inclusive stance all while upholding the core journalistic values of accountability, the public interest, and safeguarding democracy. For example, where before professional journalism would passively engage architects, lawyers, military, maritime and aviation experts as sources, Müller and Wiik (2021) demonstrate how these experts are now an actively part of the analytical and presentational aspects of the news media production process. Additionally, the methods these non-journalistic organisations are employing to detail how the story was investigated, how the information in the story was found, verified, and more importantly how the audience could replicate the process (Müller and Wiik, 2021). The two researchers then show how this innovative and transparency-focused approach to engaging audiences both serves to quell any doubt about the investigative outcomes, but also fulfils a media literacy function and in doing so combats fake news and disinformation. This brings up the recurring themes in this literature review of the impact the use of OSINT would have on making journalism more transparent, credible, participatory and serve to combat disinformation in a "post-truth world".

While Cochrane (2022) has studied the motivations of OSINT analysts covering the Russia-Ukraine war, it appears that at the time of writing no studies have examined how or to what extent international media are using OSINT to cover the Russia-Ukraine war, suggesting a gap in research or knowledge. This thesis thus aims to do so by studying the OSINT material or sources media are analysing, as well as the techniques or methods they are using to present the OSINT analysis; and the extent to which international news organisations are conducting their OSINT analysis work in-house, or through collaboration with external partners.

This chapter unpacked the latest research on the application of OSINT in war journalism. Literature published so far on this topic has focused on the drivers of OSINT's application in war journalism; how OSINT transparency can make journalism more trustworthy and credible; the collaborative ethos around OSINT; how OSINT appears to be changing journalistic norms, practice and culture; best practices around the application of OSINT; risks associated with use of OSINT in journalism; as well as the ethical and legal issues around

OSINT. Furthermore, the chapter touched on how OSINT is introducing new actors in the news production process; and how some OSINT methods and techniques are similar to those used in combating disinformation and misinformation. In relation to the Russia-Ukraine war, the literature review identified research that explored motivations of OSINT analysts covering the conflict. The chapter then established that there were gaps in knowledge this thesis will address around; the extent to which international media are applying OSINT in their coverage of the war; the OSINT material that is being analysed; the techniques and methods in which this analysis was being presented; or the extent to which international news outlets are conducting OSINT analysis inhouse, outsourcing it, or collaborating with external parties. The following chapter will now discuss the theoretical framework and key concepts that will guide the study. In addition the chapter will also look at the history of war and conflict journalism to identify key trends in the field. The chapter will also feature a discussion on the definition of OSINT in journalism, before looking at common techniques and methods in OSINT; key issues around OSINT; and a brief history of its use in journalism.

Chapter 3: Theoretical framework

The use of OSINT in war journalism is a relatively recent development that does not yet have many comprehensive theoretical discussions that particularly address it. While the discipline has its origins in the world of intelligence in the 1940s (Calkins, 2011; Ju, Y. *et al.,* 2020), mainstream news outlets like the BBC only started applying OSINT in their reporting in 2018 (Hall, 2018). The preceding chapter highlighted that despite its nascency the practice has attracted some significant interest from scholars and researchers, there still is a dearth in comprehensive theoretical discussions on the topic in academia. Furthermore the complexity of the topic makes it difficult to select one single theory which can explain its application in war journalism. This chapter thus aims to provide a theoretical framework and conceptual basis that can be used to research the use of OSINT in war and conflict reporting.

The first part of the chapter will from a theoretical and conceptual perspective, introduce and discuss:

- a) The A*rrested War paradigm*: This theoretical framework will explain the adoption of OSINT in war journalism from the basis of how the media appropriate digital technologies to retain its gatekeeping roles in a way that makes it the authority in the *mediatization* of war and conflict
- b) The *Boundary Work model:* This theoretical framework will explain how the adoption and application of OSINT in war journalism can be viewed as an expansion of the field of journalism
- c) *Sourcing* and *information subsidy*: Conceptual tools that will explain how the media gathers information, and the way the media selects its sources, or is provided information, and the implications thereof

The second part of the chapter will discuss the evolution of war journalism over the years in order to identify some key trends in war and conflict journalism. Thereafter, the chapter will embark on a deep dive on OSINT, which will include common methods and techniques of the discipline; key issues within the field, as well as look at some history of its use in news media.

This thesis aims to investigate how international media used OSINT in their coverage of the Russia-Ukraine war. More specifically, the thesis' research questions are as follows:

RQ1: How prevalent was the use of OSINT amongst the leading international media organisations in their coverage of the Russia-Ukraine war?
RQ2: What were the main types of OSINT material analysed, and what techniques or methods were used to present the analysis?
RQ3: Was the OSINT analytical work conducted in-house by journalists, done externally or conducted in collaboration with external partners?

Two separate theories have been selected to explain the adoption of the discipline in war and conflict journalism. These are the *Arrested War* paradigm and the *Boundary Work* model.

3.1 Arrested War paradigm

The Arrested War paradigm by Hoskins and O'Loughlin (2015) is ideal for explaining the application of OSINT in war journalism as it points out how news media — and to an extent states and their militaries — appropriate digital technologies like social media to meet their objectives. It is particularly important for showing how news media operate during war, particularly how they wield digital content in a way that still enables the media to retain its role as gatekeepers, and effectively as the authority when it comes to communicating about war, despite there being several other channels that are capable of doing so.

Mediatization refers to the way in which warfare is fixed in and probed by the media, to an extent that to plan, conduct, endorse, deescalate, memorialise, recall and to think about war requires being mindful of the media and its uses (Hoskins and O'Loughlin, 2015, p.1321). According to Hoskins and O'Loughlin (2015, pp.1320-1321) there are three phases of mediatization of war that have characterised modern warfare. The first, Broadcast War, was in the 1990s and was marked by satellite television, and government control on the media's access to war zones as well as on its coverage. The second, Diffused War, was in the 2000s and was marked by 'deeper mediatization' of war brought about by increased internet adoption and an explosion in digital content from war zones which also signalled an end in the media's monopoly on coverage of wars and conflict. Then the 2010s brought about the the Arrested War phase where the media and military have appropriated social media and are using different strategies to make it meet their needs, and the mainstream media has

ultimately reclaimed its authority to gatekeep, verify content and set agendas and recouped its role as the 'primary channel of the world's affairs' (Hoskins and O'Loughlin, 2015). Hoskins and O'Loughlin (2015, p.1321) point out that, 'Any content that is acclaimed as alternative, oppositional, or outside only acquires significant value when acknowledged and remediated by the mainstream.'

Hoskins and O'Loughlin (2015, p.1330) suggest that the media in the Arrested War phase of acts to keep war from being incomprehensible and inscrutable or enigmatic. They use the Donbas conflict in 2014 to note how every footage from the conflict was 'created to be seen, and known to be seen', discussing for example how the Russian government intended footage of the 'little green men' to be seen as part of its information warfare, and that this was a way for it to wield its influence and mediate its participation in the conflict, even though the identities of the little green men were deliberately made difficult to verify, they were none the less confirmed to be there (Hoskins and O'Loughlin, 2015, p.1330). Furthermore, the Arrested War model also explains how in this third phase of mediatization of war, news is produced from footage made by actors outside of the professional journalistic space, which could include citizens, drones, satellites, and soldiers (Hoskins and O'Loughlin, 2015, p.1333).

3.2 Boundary Work model

The Boundary Work model helps explain how the adoption and application of OSINT in war journalism can be viewed as an expansion of the field of journalism, this as OSINT practices and participants, tools and methods, as well as the discipline as a whole is starting to be accepted and incorporated within the field of journalism. Despite being conceptualised in the field of science, Thomas Gieryn's Boundary work model serves as a good analytical framework from which to approach questions around what qualifies for journalistic work, what it is to be a journalist, and what is acceptable as journalistic behaviour (Carlson, 2015). While the model lacks a good grounding in research work around journalism, (Carlson, 2015) points out that by looking at how boundaries are formed in social sciences and technology studies one can extrapolate this to how boundaries are formed around journalism. He argues that usually experts or people who practise a certain profession tend to surround their sector

with boundaries built on the epistemic authority they possess, or in other words their knowledge of how the job is done.

Carlson (2015, pp.7- 8) highlights three key observations, mainly how journalism appears to be a ‘porous profession’ which is open to just about anyone; how continuous technological shifts make it difficult to ascertain what actually passes as journalism — for example contention around whether new digital media like blogging can be described as journalism; and the idea that different non-journalistic actors can produce work they can claim to be journalism. Interestingly, Cooper and Mutsvairo (2021, p.113) — citing Myers, 2014 and Stearns, 2013 — discuss how individuals who might not perceive themselves as citizen journalists can 'act in a journalistic manner' by witnessing and recording an incident, sharing it and responding to questions in a manner that positions them as a 'conduit of information'. Additionally, Cooper and Mutsvairo (2021) note how Eliot Higgins uses the term 'act of journalism' to describe Bellingcat’s work which involves production of documentaries, publishing of blog articles, the archival of content from conflict zones, and podcasts. However, Carlson (2015, p.10) proposes the need for a broader model which accommodates several types of boundaries while relating them within a cohesive structure. Making use of a matrix which employs three of Gieryn’s general types of boundary work — namely expansion, expulsion, and protection of autonomy — with three columns representing sites where journalism boundary work occurs, namely participants, practices and professionalism. Carlson (2015; p.10) explains that within the field of journalism, expansion can be observed in for example how journalism spread from print, to radio, to television, and finally to blogs. Scholarly work on boundaries with a focus on participants, Carlson (2015) points out, covers types and limits of non-journalistic participation, with 'professional participatory tension' increasing as those outside conventional journalism take on even bigger roles in how news and information are created and circulated. Carlson (2015) then discusses how The New York Times treated Wikileaks as a source, instead of as a collaborator, and in so doing effectively relegated WikiLeats to being outside of the journalistic establishment, while cementing the publication’s own place inside journalism’s boundaries.

According to this model, both expansion and expulsion boundary work has to do with the extension or contraction of what passes as journalism (Carlson 2015, p.12). The matrix is also shown to be dynamic with participants, norms, and practices changing all the time, with some being expelled, while others are expanded. Carlson (2015, p.12) suggests that Gieryn’s matrix

is capable of showing just how journalism is both constructed and contested. By using this framework, it is possible to argue that the use of OSINT in journalism sits at the expansion of participants, practices and professionalism in journalism. This follows from how OSINT *practices* — namely its transparency-based approach, methods and techniques — are starting to become applied and accepted as journalistic work. By virtue of this, OSINT researchers and analysts are being hired or trained to join news organisations, effectively signalling that the media is incorporating them as *participants*. Lastly, open-source investigation techniques are being taught in universities (Bauder, 2022) while organisations like Bellingcat offer journalists around the world training in OSINT investigation and analysis, effectively *professionalising* the discipline (Higgins, 2021). Further proof of this expansion of *professionalism* is how in 2019 BBC News started training its own journalists in open-source media (Hall, 2018).

	Participants	**Practices**	**Professionalism**
Expansion	Incorporating non-traditional journalists *Example*: Citizen journalists	Taking over new media practices as acceptable *Example*: Tweeting as journalists form	Absorbing new media as acceptable journalism *Example*: Television and blogging gain entry into professional journalism
Expulsion	Expelling deviant actors *Example*: Jayson Blair fired from the *New York Times*	Expelling deviant practices *Example*: Dismissing paparazzi photographers	Expelling deviant forms and values *Example*: Defining partisan news or tabloid news as not journalism
Protection of Autonomy	Keeping out non-journalistic informational actors *Example*: Public relations agents, advertising departments, citizens	Defence of ability to define correct practices *Example*: The Leveson Inquiry, the legality of classified leaks	Defence from non-professional outsiders *Example*: Keeping management away from editorial control

Table 1. Forms of Boundary work in Journalism (Carlson, 2015, p.10)

3.3 Sourcing and information subsidy

In journalism, a source is anyone or anything that provides journalists with enough knowledge or information about a place, an event, or people to build or support a news story (The News Manual, 2019). With the exception of instances where anonymity has been granted, journalists are expected to attribute any statements, opinions or perspectives to identified sources (Cozma, 2015, p.438). *Sourcing* is thus a key part of the news construction process (Moon and Hadley, 2014, p.290; Manning, 2001). Sourcing is a crucial determinant of quality journalism (Cozma, 2015, p.437), there's also strong belief among some scholars that the way a news story is attributed to a source and also how these sources are described to readers and the audience is one of the most important processes in how a news story is produced (Hohenberg, 1995, p.328).

Sources not only help to direct journalist's attention and focus, more importantly sourced material buttresses news and gives journalists' work credibility, legitimacy and authority (Cozma, 2015, p.437; Hamilton and Lawrence, 2010). For example, foreign correspondents and news media have a general tendency to use military sources, which makes what they report more credible (Knigthtley, 2000). More than any type of news – given how foreign news and war journalism in this instance provides the audience with information they normally would not be able to access on their own – source diversity is likely to form and influence how media consumers perceive remote places and events (Cozma, 2015, p. 438). Furthermore, several studies have shown that source diversity has an impact on news frames, how credible the media is, and how the public thinks of issues being reported (Cozma, 2006; Christians et al. 2009).

The decisions journalists make in selecting sources are mainly influenced by journalistic norms, as well as economic reasoning (Moon and Hadley, 2014, p.290; Fishman, 1980). The concept of *information subsidy* helps explain — from an economic efficiency perspective — why journalists perform certain routines in the information gathering stage of news production (Moon and Hadley, 2014, p.290; Gandy, 1982). Sweetser and Brown (2008, p.360) define information subsidy as access to information and materials that involve minimal or no effort on the part of the media. Shin (2010) expands on this definition, further stating that it is the provision of information to the media – in a way that makes it more

economical for the media – with the purpose of influencing media consumers. In return those subsiding the information, Shin (2010) suggests, do so expecting to gain influence on media consumers, and an advantage over other providers of information. Information subsidies consist of media access to a place — an example being embedding — or a person or source, as well as information (Sweetser and Brown, 2008, p.360).

Moon and Hadley (2014, p.291) highlight Gandy's assertion that when gathering information in the news production process, the media make economic decisions based on 'input-output logic', and that media outlets can lower news production costs by relying on external information, while at the same time disseminating information that their providers would have supplied, and that in doing so they can also end up promoting their interests. This fact is echoed by Park, Bier, and Palenchar (2016, p.656) who also emphasise how information subsidies not only provide the media with information about a particular event, but that in the process the media help institutions providing the subsidies to include their views and communication objectives in the media's coverage.

Moreover, information subsidies tend to perform a key role in the production and framing of news media, which consequently can affect how readers perceive an organisation or the topic or issue at hand (Park, Bier and Palenchar, 2016, p.657). A frame in this case refers to how the media represents certain events and issues in their coverage to either emphasise or obstruct a particular perspective (Entman, 1993). Some scholars view information subsidies as 'framed products' (Park, Bier, and Palenchar, 2016, p.656; Lee and Basnyat, 2013). Cozma (2015, p.437) points out Entman's (1993) observation on how journalists adopt certain news frames through the selection of particular sources that they end up making more prominent relative to others, and that these sources can intentionally influence news production. In conflict news production, NGOs, political and military actors often provide the media with information in a bid to secure proper coverage of a story especially in instances where they want their activities or actions covered positively (Hoxha and Hanitzsch, 2018, p.54).

Individuals or organisations that are associated with a certain news beat tend to have a higher probability to gain access to the media because of their familiarity with journalists (Moon and

Hadley, 2014, p.295). Many of the stories conflict journalists report on emanate from influences and actors from outside their publications like NGOs, think tanks, political leaders, and other media outlets (Hoxha and Hanitsch, 2018, pp.54-55).

The media has developed a 'professional routine' to reduce costs by efficiently allocating costs (Moon and Hadley, 2014, p.291). Technology is a crucial factor here as the internet and other digital technologies affect traditional journalistic routines formed by information subsidy, consequently Moon and Hadley (2014, p.291) suggest that the more concerned media outlets are about economic efficiency, the higher their interest in technology will be. While sources are mostly chosen based on credibility and availability, technologies like the internet play a part in the provision of sources in cases where none are available as they save journalists time, money and the amount of work they put into a story (Moon and Hadley, 2014, p.293; Pavlik, 2000).

3.4 Historical survey of war and conflict journalism

3.4.1 Evolution of war journalism

To understand why and how OSINT is being used in contemporary war journalism, it is useful to first take a brief look at how war and conflict journalism has evolved over the years. Examining the evolution of war journalism over some of the major conflicts to date enables a better comprehension of the trends that this paper has outlined — like censorship of Western media; co-operation between the media and the state or military; control of the media; the importance of visual footage; the advent of new actors in the journalism space — as well as others like the growing focus on war's impact on civilians that will give a sense of how war journalism has been practised, and how technology has influenced journalistic practice along the way. More importantly, this historical survey will also highlight the shortcomings of war journalism that have necessitated the use of OSINT in this field.

Crimean War (1853 - 1856): After being denied access to the battlefield by the British military, London *Times reporter* William Howard Russell resorted to interviewing soldiers returning from the frontlines who he found gave contradictory statements on what had happened. After eventually obtaining access to the battlefield, Russel turned in a report which was not backed up by analysis, and was critical of British military leadership. In response The British military in return called into question the patriotism of the paper and its reporter and stated that it did not want certain information reported like — specific units or the positions of its artillery positions — as this was detrimental for its operational security. *The London Times* reacted by self-censoring and only reporting on military operations upon their completion (McLane, 2004, p.79).

World War 1 (1914 - 1918) and World War 2 (1939 - 1945): During World War 1 and during World War 2 the US would induct journalists into the army, and give them unlimited access to war zones, however their reporting would be censored. The British on the other hand did not allow journalists on the front lines (McLane, 2004, p.79). The US military during World War 2 published its own publications and produced radio content as a way to release information for media use (McLane, 2004, p.79).

Korean War (1950 - 1953): This conflict marked another change in war reporting, war correspondents were generally not provided transport to get close to the battlefield and had to make their own way, in addition they received little assistance with communication, were also not censored, and managed to operate with no security breaches were reported (McLane, 2004, p.79). However after China entered the war and reports of successive US defeats started coming out, the US military imposed strict censorship in response to the negative coverage (McLane, 2004, p.80).

Vietnam War (1955 - 1975): The Vietnam War coincided with the advent of television (TV) technology, making it the first conflict to be considered a 'TV war' McLane (2004, p.81), with some calling it 'The First Television War' (Braman, 2003, p.28). New TV technology, particularly portable film cameras, together with methods that enabled on-location recording enabled reporters to file TV reports from the war zone in as little as 48 hours (Braman 2003, p.28). The adversarial relationship between the media and the military continued as journalists compared US military battlefield assessments with their own observations on the ground (McLane, 2004, p.80). During the conflict, media experienced no significant censorship, had unrestricted access and sometimes assistance with transport, but had to operate along to guidelines (McLane 2004, p.80). Ultimately the media were seen as reporting 'the real truth' about the war (McLane 2004, p.80). The use of TV reporting exposed the American public to how gruesome warfare was to the extent that it shifted public support of the war and is credited to being one of the factors behind the US pulling out of that conflict (Braman, 2003, p.28). Braman emphasises, 'Television, it can be argued, merely provided the hard evidence for pre-existing anxieties about the war's ideological value and human consequences' (Braman, 2003, p.28).

The Falklands War (1982): During the Falklands War, the British military generally enforced a news blackout on Port Stanley (McLane, 2004, p.80). While the British military offered journalists access to its personnel, it controlled transmission of reports, with the only way to do so being through aircraft or military signals. This meant that material recorded by British journalists was only broadcast or published only after it could not affect military operations (Braman, 2003, p.29). There was however a tendency for material that boosted morale to be transmitted quickly (Braman, 2003, p.29).

Gulf War (1990 - 1991): During the Gulf War 1990-1991, satellite broadcasting technology enabled live broadcasts by international news outlets like CNN right from inside Iraq (Nohrstedt, 2009, p.97). The Gulf War was – in the West – also marked by co-operation between the military and the media, for example the US military provided journalists with transport from the US to the war zone (Seib, 2021, p.49). Journalists during the Gulf War worked in pools, essentially small groups that would be escorted by public affairs officers to designated places within the war zone (Seib, 2021, p.49).

Bosnia War (1992 - 1995): Another paradigm shift in war reporting came in the Bosnia War where a new form of embedding was practised. Initially, in this modern iteration of the practice, journalists were allowed to report everything except when specifically told not to do so, or if it was off the record. This was then later reviewed to include all conversations with soldiers as off the record unless otherwise stated (McLane, 2004, p.81)

Kosovo War (1998 - 1999): While most Western media – particularly American outlets – relied on briefings from NATO and the U.S State Department as the sole sources of information they used to cover the Kosovo War, British outlets appeared to have been less passive and more sceptical of the information that was released to the NATO press pool (Wilson Center, 1999; McLaughlin, 2002). Despite the information restrictions the media faced while covering the conflict, American journalists who were reporting on the ground in Kosovo were able to expose and force NATO into admitting it had accidentally attacked a convoy of Kosovo Albanian refugees — an attack NATO had initially claimed was on military targets, and later on blamed on Yugoslav aircraft — based on evidence they found at the attack site (Wilson Center, 1999). The Kosovo War also stands out for the extent to which the West and NATO employed propaganda with many scholars and observers pointing out the extent to which NATO sought to manage news during the conflict (Hammond, 2000). There is also evidence elements of British media co-operated with NATO — while working through a pool system with the British military — as has been shown by several outlets publishing similar and identical stories (Hammond, 2000, p.374). However, the British media generally did not state that it was making use of the pool system or what restrictions its journalists were reporting under (Hammond, 2000, p.374). A key characteristic of the coverage of conflicts in the Balkans is how international media made use of fixers — actors who are in a way technically not journalists — to assist in gathering information and translation (Hoxha and Andresen, 2019, p.1732).

Iraq War (2003 - 2011): The Iraq War also saw the American military embed journalists with its forces, Nohrstedt (2009, p.102) notes that this is not the first time Western governments have done so after World War 2, citing examples like the 1982 Falklands War and the Gulf War. However the Iraq War was unique in that it is the first conflict in which journalists had 'relatively unrestricted frontline access' that enabled them to present exclusive war zone coverage (McLane, 2004, p.77). Despite this, embedding journalists was criticised for producing 'narrow' reporting attributed to the embedded journalists being too close to the units they were meant to be covering (McLane, 2004, p.77).

The intention behind the embedding appears to have been to provide the media with 'potent material' that supported the American military's war propaganda (Nohrstedt, 2009, p.102). Seib (2021, p.9) suggests that the US military initiated the embedding process in the 2003 Iraq War for operational security reasons, and to influence coverage indirectly, based on the fact that journalists would feel like they owed the military for the close access to war zones.

Evidence from the Falklands War has shown that when war correspondents share soldiers' daily struggles and are dependent on them for their safety, they tend to share the military's perspective, and ultimately become part of the military's psychological warfare and propaganda (Nohrstedt, 2009, p.102). As part of the embedding system, the British military was in control of where journalists went, and would also restrict them from reporting on certain information which could reveal information on their methods (Franks, 2003, pp.18-19).

The 2003 invasion of Iraq is regarded as the first 'internet war' and was characterised by war bloggers and fact-checkers challenging the mainstream media's reportage (Ciuriak, 2022, p.2; Reynolds, 2004). The impact of technology on war reporting is also observable in the 2003 Iraq War, as journalists and their camera crews were more manoeuvrable owing to portable digital cameras and satellite links that enabled instant transmission which enabled a number of TV stations to provide round-the-clock coverage of the war (Braman, 2003, p.29). The Iraq War also stands out as the first conflict where continuous satellite broadcasting was used to cover a conflict (McLane, 2004, p.81). To cater for the amount of content this required, reporting by war correspondents was mixed with reports from un-embedded reporters as well as analysis from news anchors and retired military officers (McLane, 2004, p.82).

However, Braman (2003, p.29) argues that while television enabled the media to cover more of the action and developments on the field, the media found itself providing less insight, context or meaningful significance to the visuals they were broadcasting. Braman (2003, p.29) believes that while satellite TV technology allowed for a steady stream of coverage of the conflict, it became easier for news editors and producers to convey war as a spectacle which viewers should make sense of on their own, and that while the media made use of commentators and 'armchair generals', they commented and speculated on information regardless of its reliability. This, he believes, led to TV coverage of the war in Iraq being 'sexed up' instead of being 'thoughtful and incisive' (Braman, 2003, p.30).

Nohrstedt (2009, p.102) identifies a shift in journalistic priorities and working methods during coverage of the 2003 Iraq War which is marked by journalists focusing more on the consequences of war on civilians, and consequently this shift sees more reporters being on the ground and doing stories from civilian homes and hospitals. Additionally, there was an increase in freelance journalists, accompanied by a steady increase in journalist casualty figures. Journalists covering this conflict also collaborated with fixers who worked as interpreters, and helped reporters plan how to get stories on the field (Franks, 2003, p.18).

Coverage of the war by Swedish correspondents shows they focused more on the toll of the war on civilians, relative to the 1900 -1991 Gulf War and the Iraq War, and that this trend continued with the 2001 Afghanistan War and the Iraq War (Nohrstedt, 2009, p.102). The same trend is also visible in German coverage of the Iraq War with German TV media coverage consisting largely of stories on the suffering of Iraqi civilians than on coalition losses, while British and American media like ABC and BBC focused more on coalition sources (Nohrstedt, 2009, p.103).

A key characteristic of the war is also on how differently Western media approached reporting on casualty figures, with those of American soldiers being more specific while those of Iraqis were vague and rounded up estimates (Nohrstedt, 2009, p.106). Nohrstedt (2009, p.106) also pointed out how Swedish media and the BBC chose not to cover a 2005 tribunal held in Istanbul where testimonies were given on how American forces committed war crimes and targeted hospitals in Fallujah in November 2004.

3.5 Key trends in war and conflict journalism

By looking at the major conflicts between the Crimean War of 1853 up to the Iraq War of 2003 some important trends become apparent in war and conflict journalism. The first is *censorship* of Western media by states or the military either for operational security reasons or in instances where the military is looking to pre-empt negative coverage. The second is *co-operation* between the media and the military which seems to jeopardise journalistic integrity and seemingly turns the media into a propaganda tool. The third is state or military *control* of the media or *propaganda*, particularly around access to war zones through practices like *reporter pools* and *embedding*. The fourth is the importance of *visual footage* in the reportage of war and conflict. The fifth is the role that *new actors* outside of the journalistic space play in the production of war and conflict journalism. Lastly, one main dominant and crucial trend is the crucial role *technology* plays in changing war reporting as shown by the advent of radio, TV, satellite broadcasting and internet technologies. The chapter will now discuss these and other related trends in detail.

3.5.1 Co-operation, embedding, and government censorship

One of the main trends in war journalism witnessed in major wars to date has been co-operation between news media and the military. Kaempf (2013, p.594) explains how during times of war, the state controls the flow of news by owning the media in authoritarian states, and in liberal countries by; controlling how news is produced and disseminated through censorship; controlling access to war zones; and through embedded journalism. The media, he adds, acquiesce to this government control voluntarily out of patriotism, and that the other reason for the media's self-censorship is because of how financially profitable war journalism can be for big media companies, enough that the companies can choose to get access to war zones over both freedom of speech and political independence (Kaempf, 2013, p.594).

This 'extensive and close co-operation' has brought about practices like embedding journalists into military units, which some scholars perceive to be opening news media up to 'substantial influence' from governments and their militaries (Nohrstedt and Ottosen, 2014, p.27). It is not uncommon for trusted war journalists to receive top-secret briefings and engage in conversations with military officers (McLane, 2004, p.86). In some cases the media

also agree to censorship of war coverage if it is a military necessity like in instances like on-going military operations where it can give information to the other side or lead to loss of life, situations like these necessitate co-operation between the media and the military (Seib, 2021).

The practice of embedding reporters started during the Crimean War of 1853-1856 with the general relationship between the media and the military being described as both adversarial and symbiotic but largely learning towards co-operation (McLane, 2004, p.78). Prior to the Crimean War, the media covered wars through foreign correspondents or by paying junior military officers to share their experiences, (McLane, 2004, p.79). While some journalists appreciate how embedding gives them a better appreciation of how soldiers live and work, some have raised questions on the impact the bonds journalists make with soldiers by living with them have on their journalistic work (McLane, 2004, p.82).

Commenting on his experience of embedding during the Iraq War in 2003, former BBC foreign correspondent Tim Franks said the British military expected the media to deliver a 'particular message to particular audiences', and saw them as a 'a tool, a weapon, a battle-winning source' (Franks, 2003, p.16). He notes how the British military would invite news outlets or war correspondents who they considered to be 'weighty and well listened to' and not those from French and German media who they perceived as anti-war (Franks, 2003, p.16). While embedded reporters had 'privileged access to information' they remained sceptical of it, but it helped them get a partial understanding of what was going on, and the embedding programme even helped his team become among the first to interview Iraqi civilians (Franks, 2003, p.17). Critics however point out that the nature of reporting associated with embedding resulted in the media reporting from the perspective of the occupation force (Ciuriak, 2022, p.2).

Some American journalists believe the embedding programme during the Iraq War worked well and helped them produce a 'complete picture' of the conflict, however reporters who were embedded have expressed concerns about having their reportage exposed to influence by the military owing to their close proximity to the units they embedded with (McLane, 2004, p.83). Some critics however maintain that embedded war correspondents failed to convey the whole sense of the war, as the programme gave narrow perspectives of the action (McLane, 2004, p.83). In addition, some journalists opine that while the close relationship

with the military did not hinder them from critical and objective reporting, they did have concerns about jeopardising their impartiality (McLane, 2004, p.83).

Despite the co-operation between the media and the military, there is however some friction in the relationship between the two which stems from how the military tends to want to hide details about its intentions or objectives, location and strength, whereas journalists are interested in reporting about what they are seeing and hearing as quickly as they can (McLane, 2004, p.78). McLane (2004, p.83-84) notes how the media were still able to pose questions to US military leaders on things like the war plan and expectations that the Iraqis would welcome the US's presence, and that this line of questioning frustrated the military.

Furthermore, embedded reporters also produced negative stories on civilian casualties, theft and military failures, however critics believe the embedding policy did not withstand the 'test of bad news' as most negative stories that came from it did not catch public attention as they lacked enough sensationalism to match or surpass the military's success stories. McLane (2004, p.86) argues that if reporters do not have a good understanding of the background behind a story – especially the deeper issues involved in it, as well as the who and why – they are likely to rely on sensationalism to bring about some resonance with the audience or reader. He believes that with lack of an understanding of events and context of operational and strategic information, embedded journalists may end up turning to quick criticism, errant predictions and even 'gotcha journalism'. Hypothetically, war reporters are meant to encourage and uphold public discussion about a particular conflict, instead of just reporting on the actions authorities and the military take, but also observe, analyse and discuss them (Smith and Higgins, 2012, p.132).

3.5.2 Importance of visual footage

Visual storytelling is a dominant characteristic of war journalism (Nohrstedt, 2009, p.96). This is largely because war is exceptionally newsworthy owing to how it engages the huge audiences it attracts both on an emotional and intellectual level (Nohrstedt, 2009, p.96). 'Photographs can take the public somewhat closer to the uncomfortable reality of war' (Seib, 2021, p.98). Military forces are aware that visuals have a strong effect on emotions and memory in a way that is more potent than text alone, and as a result they tend to either deny the media access to conflict zones, or control where reporters are allowed to operate (Nohrstedt and Ottosen, 2014, p.31).

Visual footage from conflict zones, especially that of civilian casualties, is of great importance to both conflict reporting and for propaganda purposes, more-so now because of the internet and digital media (Nohrstedt and Ottosen, 2014, p.29). There is a school of thought that photographic and video-graphic footage has become 'one of the hottest battle zones in new wars' as a result of the advent of internet technologies, social media and the video and photographic capabilities of smartphones (Nohrstedt and Ottosen, 2014, p.30).

The influential aspect of visual media makes journalists crucial for propaganda and from a military perspective essentially turns them into an extension of the military (Nohrstedt 2009, p.96). In a bid to control the media's visual representation of its wars, the US military turned to embedded journalism and started the pool system in the 1980s (Kaempf, 2013).

Because of how visual content is of crucial importance in war journalism, this material is often contested and prone to being manipulated (Nohrstedt, 2009, p.105). Nohrstedt (2009, p.105) points out how one of the strategies used by the American government during the Gulf War was how it encouraged Saudi Arabia to prioritise the accreditation of tabloid and TV correspondents as they were perceived to be easier to manipulate and more open to receiving and using content supplied by the military relative to mainstream media.

3.5.3 Control, Propaganda and PSYOPS

Mobilising public support is so crucial for modern warfare that this effectively makes the media a battleground for public opinion (Nohrstedt 2009, p.95; McQuail, 2006, p.108;

Münkler, 2006a; Kaempf, 2013, p.597). This follows from the fact that people's attitudes about a war or conflict are shaped by the information they receive about it (Seib, 2021, p.16). The ultimate goal for belligerents during conflict is thus to control the narrative. Narratives in this instance can be thought of as political instruments that help governments or politicians to influence and mould public perceptions and actions of both domestic and international audiences (Miskimmon, O'Loughlin, and Roselle 2014). A crucial characteristic of narratives is that they can be challenged, and are often being re-negotiated (Miskimmon, O'Loughlin, and Roselle, 2014). There has been a realisation by the West of the importance of the media in modern warfare, with the idea that the side that is most successful in the use and manipulation of the media as part of its military strategy generally wins a conflict (Kaempf, 2013, p.595). As such when governments intend to start or get into a war, they tend to try to influence or control the media (Seib, 2021, p.34).

It is not unusual for warring parties to try to influence coverage — either by using physical force, filtering sources or through the use of persuasion — or intimidate the news media during conflicts, especially in instances when media coverage is likely to negatively affect the war effort (Nohrstedt and Ottosen, 2014, p.27). Tied to this, propaganda has become a feature of armed conflicts, with belligerents framing the enemy in bad light, while glorifying and treating their fighters as heroes (Nohrstedt and Ottosen, 2014, p.27). In the West, the UK and US governments have been known to frantically aim to control information on military affairs, as was seen in the Falklands and in Kuwait which were both characterised by restrictive information controls (Seib, 2021, p.16).

Russia is seen as 'an accomplished information warrior' adept at manipulating information to influence opinions, with an information warfare unit set up in 2017 to that end (Seib, 2021, p.116-124). Russia's propaganda campaigns consist of the use of labelling, misinformation, and half-truths across social media, blogs, digital communications, and electronic media (Herasymchuk and Yakovets, 2019, p.41). The early stages of the Russia-Ukraine war were characterised by media manipulation, disinformation and misinformation, including the use of digital fakes and historical footage (Warzel, 2022). The Russian government has been shown to devote resources to manage discussions on the internet as well as in the news media to control how the Ukrainian crisis was perceived both within Russia and internationally (Hoskins and O'Loughlin, 2015; Khaldarova and Pantti, 2016, p.891; Park et al., 2022). For example, the Russian government has been shown to use TV to propagate its strategic

narratives on the crisis with Ukraine to both its domestic and the international audience (Khaldarova and Pantti, 2016, p.891). The European Union's European External Action Service's East StratCom Task Force EUvsDisinfo project which has been tracking Russian disinformation campaigns since 2015 in 2019 found over 2,180 cases of Russian disinformation on Ukraine (Seib, 2021, p.138). Disinformation, it appears, is now a key tool of foreign policy (Higgins, 2021, p.39).

A Russian-backed left-wing media outlet which produced content that sought to undermine American backing of Ukraine and to deflect attention and criticism from the Russian government was shown to have had its content go viral across Tumblr, TikTOk Reddit, Facebook and Instagram, and subsequently labelled to be a Russian state-controlled media organisation by Facebook, Twitter and Instagram, while its page was banned by YouTube within Europe (Gilbert, 2022). Additionally, Russia has been blocking external information about the war while using propaganda to the extent that some of its citizens initially denied the conflict was real (Warzel, 2022).

On the other hand, The Ukrainian government has also been waging its own information war, with evidence that government accounts helped promote stories that later turned out to be untrue (Warzel, 2022). There is some concern that the focus on the information war could actually play into Russia's objective of its information campaign that 'all information is just manipulation', and that news is constructed and as such is open to contestation, which would ultimately create doubt in the media and its coverage of the war (Warzel, 2022; Hoskins and O'Loughlin, 2015, p.1322). The West, particularly the EU, has responded by imposing sanctions on Russian state owned media including Russia Today and Sputnik News, the sanctions included cutting off the organisations from social media posts, search engines, as well as their television channels, websites and online feeds (Schechner, 2022).

One of the main themes in Nohrstedt and Ottosen's (2014) book is a tendency of media organisations to toe the line of their respective governments in coverage of conflict. Mainstream Western media has been shown to be reliant on and compliant with official statements by the US government, making it prone to Western propaganda (Boyd-Barrett, 2017, p. 1017). Nohrstedt and Ottosen (2014) further show by citing Golan's (2011) argument that certain topics like national security are more prone to public relations (PR) campaigns because of (i) how difficult it is to get independent sources; (ii) the difficulty in verifying and

checking facts; and (iii) a lack of resources. Consequently, the mainstream media tends to share the government's narrative in war coverage.

Nohrstedt and Ottosen (2014, p.37) highlight how psychological operations (PSYOPS) — which are considered to be a crucial constituent of modern warfare — have been proven to influence how conflict reporting is framed. This, they point out, raises ethical issues around journalistic integrity and makes it difficult to separate journalism from military operations or government spin.

In the West, NATO has suggested an adoption of the US's policy approach to PSYOPS which advocates for the use of the media in PSYOPS operations (Nohrstedt and Ottosen, 2014, p.37). It is not always the case that propaganda is false, in some instances it is generally true but with an element of spin or hyperbole (Seib, 2021). NATO PSYOPS doctrine distinguishes between White propaganda (an acknowledged source), Grey propaganda (an unacknowledged source) and Black propaganda (falsely advertised source, with the information coming from a different organisation or individual than that which is stated), and views the media as simply a 'technical device' (Nohrstedt and Ottosen, 2014, pp.37-39). Furthermore, governments aim not to state the intentions of their PSYOPs messaging, as their objective is to make it hard and next to impossible to distinguish the messaging from normal news media from that of the PSYOPS media (Nohrstedt and Ottosen, 2014, p.39).

Nohrstedt (2009, p.97) believes the media's coverage of the 1990 - 1991 Gulf War shows that the media were 'consciously or unconsciously' deceived by the US-led Coalition that the conflict was a 'clinical war' that was waged without large numbers of Iraqi civilian casualties. Despite not providing statistics on Iraqi civilian casualties, the visual imagery conveyed by the media during the conflict portrayed the US-led coalition as 'civilised' through its use of 'surgically precise smart bombs' that the coalition claimed reduced the possibility of civilian casualties (Nohrstedt, 2009, p.97). However, Western media did not report on Iraqi casualties, with Nohrstedt (2009, p.97) stating that the media 'did not succeed in depicting the true face of the war', and that the image the Western media presented of a clinical war has been shown in numerous ways to have been false.

Nohrstedt (2009, p.98) argues that during the Kosovo Conflict in 1999, NATO — like the US-led coalition did in the Gulf War — initially tried to convey the image of a clinical war,

however the media also carried reports of air strikes on civilian facilities like hospitals, schools and even homes, with coverage framing Kosovo Albanian refugees as 'worthy victims' while the Milošević regime was portrayed as being responsible for starting the conflict. Nohrstedt (2009, p.99) explains that while the media's coverage of Milošević both during and after the conflict remained the same — that of him being evil, ruthless and power-hungry — the coverage towards the victims of the conflict eventually became more balanced, gradually including Serbian civilians as victims. Furthermore reports that NATO had killed around 70 Kosovo Albanian refugees after it attacked two convoys brought about a PR crisis for the organisation and led to Western media becoming more sceptical about the information NATO was supplying (Nohrstedt, 2009, p.99). Nohrstedt (2009, p.99) adds that after this incident, Western media also shifted its coverage and attention to focus more on the war's impact on civilians caught up in the conflict regardless of whether they were Serbian or Kosovo Albanian.

The media has also been shown to have a tendency to follow their respective country's foreign policy when covering conflicts, this as the degree to which a country is involved in a conflict has an effect on the influence of war propaganda on its media coverage of that conflict, as well as which victims are views as worthy victims (Nohrstedt, 2009, pp.106 - 108). While Kaempf (2013, p.596) contends that media in the West have not lost all of their political independence, he does suggest that during times of war the media publishes information and images that are usually controlled by the government (Hoskins and O'Loughlin, 2010; Louw, 2010).

Nohrstedt and Ottosen (2014, p.40) argue that war propaganda strategies, government control and the use of PSYOPS necessitate an urgent need for the development of a journalistic counter strategy, failure of which risks the media partaking in propaganda campaigns instead of its crucial critical watchdog role of informing and enlightening the public. It is failures like these, they believe, that have brought up new actors like WikiLeaks into the journalistic space. They cite an example of WikiLeak's release of the infamous 2003 The Collateral Murder video which showed a US military helicopter shooting at and killing civilians in Baghdad, including two Reuters photographers, as an example of an external actor assuming the watchdog role after the mainstream media failed to execute its role. War reporters, along with their editors, are aware of efforts by warring parties to exploit their coverage for

propaganda, and often have strategies in place to protect their professional integrity and independence (Nohrstedt and Ottosen, 2014, p.29).

3.5.4 New actors in the journalism space

One of the main ways modern warfare has changed from a communications perspective is the extent to which ordinary civilians, and other groups, can now create or challenge war narratives (Hoskins and O'Loughlin, 2015; Kaempf 2013; Khaldarova and Pantti, 2016, p.892). Several factors like advances in technology, the perceived failure of the media to report on conflict independently, and financial cutbacks by the news media could be behind the emergence of a new group of actors who are doing the work normally done by war and conflict journalists.

New actors — including citizen journalists in places like Syria are filling in the void left by traditional foreign media, whistleblowers like Wikileaks, and non-governmental organisations like Save Darfur who have visually mapped and raised public awareness of atrocities — are in a position to mediate a perspective that is both external to and different from that being mediated by traditional media (Kaempf, 2013, p.600). As Kaempf (2013, p.600) explains, these new actors are taking advantage of how digital media technology enables them to produce and distribute news in a way that circumvents 'traditional media filters'.

Kaempf (2013, p.587) argues that digital media technology has transformed the global media landscape from being multipolar to a *heteropolar* one in which non-state actors and individuals can challenge state narratives and that traditional media are now merging with digital media platforms. Kaempf defines *heteropolarity* as the 'multiplication and simultaneous diversification of structurally different media actors' (Kaempf , 2013, p.587). This structural change of the global media landscape, he argues, has also affected the relationship between the media and war by creating the setting for 'contemporary media wars' (Kaempf , 2013, p.587).

One of these new actors stepping in to fill the void left by declining numbers of foreign correspondents are non-governmental organisations (NGOs), some researchers view NGOs as having assumed the role of 'alternative provider of information', furthermore there's evidence

this role has been increasing since the 2000s likely because of an increase in resources on their part (Otto and Meyer, 2012, p.212). This increase in resources has expanded capabilities enabling them to produce extensive research, in-depth analysis and the provision of background information on a particular region or issue – activities that used to be the mainstay of news media (Otto and Meyer, 2012, p.212; Moore 2010; Sambrook, 2010). Examples of this include non-governmental organisations (NGOs) like Bellingcat, WikiLeaks, and human rights and advocacy NGOS like Amnesty and Human Rights Watch. Some NGOs, like the Institute for War and Peace Reporting, and the International Reporting Project (IRP) — operate within the non-profit journalism sector and are seen as alternative sources of in-depth foreign reporting, tend to train journalists, and assist freelancers. Some of these, like the IRP were founded to help media better cover international stories in the wake of news outlets cutting down on foreign correspondents (Otto and Meyer, 2012, p.214).

NGOs have become providers of information to news media in a symbiotic relationship in which they need the media's reach to spread their messages to both the public and decision makers in order to achieve their goals (Otto and Meyer, 2012, p.213). An example of this is Wikileaks, which is described as an 'alternative information' provider brought about by globalisation and ICT technologies (Nohrstedt and Ottosen, 2014, p.115), the organisation provides raw information that has been used by the media and respected journalists. Nohrstedt and Ottosen (2014, p.121) believe WikiLeaks straddles the line between 'a collection of sources and journalism', given how the organisation has written explainers along with its leaks that give the context behind a particular leak, and in doing so acted as journalists by doing what bona fide journalists could not do because of risk of reprisal, or lack of access.

However these external actors who are not part of the mainstream media are often criticised for lacking ethical standards, an example being WikiLeaks which exposed sources' names by publishing leaked diplomatic cables and classified military documents with sensitive information (Nohrstedt and Ottosen, 2014, p.31). WikiLeaks was also criticised for a lack of transparency on what it leaked, the motives behind the leaks, and for not disclosing what it did not leak, these practices make it difficult to ascertain whether misleading information may have been included, and ultimately raised ethical questions around the 'outsourcing of editorial decisions' (Nohrstedt and Ottosen, 2014, p.125). Others have pointed out that

WikiLeaks was used by the Russian government as part of a disinformation campaign to feed material to the press (Seib, 2021, p.97).

Another criticism levelled against NGOs is that they tend to have specific agendas or missions, and as such are thought to have a certain bias (Otto and Meyer, 2012, p.214). This is a crucial issue as the media is expected to be neutral and unbiased. Christensen and Khalil (2021, p.4) draw a distinction between sources and advocates in conflict discourse, citing Fröhlich (2014), they note Fröhlich's characterisation of a source as an individual or organisation whose frames are used by journalists inline with their news outlet's agenda, this while an advocate is an individual or organisation that has a specific agenda that they are actively communicating or are looking to provide the media with information they want to get published (Christensen and Khalil, 2021, p.4).

3.5.5 Technology changing war journalism

Discussions on contemporary war reporting should take into consideration the impact of technological developments (Smith and Higgins, 2012, p.134). Technology determines how conflicts are communicated (Ciuriak, 2022, p.2). As shown by looking at the evolution of war journalism over the major conflicts of the last couple of decades, technology has had a substantial impact on how war and conflict journalism is practised. For example, World War 2 is said to have elevated photography into a vital tool in news production and also to have normalised photographers as journalists (Ristovska, p.635, 2022; Zelizer, 1995). World War 2 also coincided with the advent of radio and film as platforms for reporting on conflict (Smith and Higgins, 2012, p.134). In recent years, mobile technologies and real-time information sharing have brought about a change in how war is covered (Busch, 2012, p. 60). Busch singles out Twitter in particular for having a crucial effect on how war is mediated more than any other technology (Busch, 2012, p. 60). More recently, the Syrian War is thought to have brought about and normalised the use of eyewitness images in conflict reporting (Ristovska, p.635, 2022; Wardle, Dubberley and Brown, 2014). Ristovska (p.635, 2022) believes it is this normalisation of the use of eyewitness images in the Syrian war that kickstarted the trend towards the media adopting and applying OSINT in conflict reporting.

While the historical norm in war reporting has been to have access to the conflict zone and dispatch reports from the battlefield, the high number of journalists killed while covering

contemporary conflicts has forced the media to depend on second-hand observers, like citizen journalists for example (Christensen and Khalil, 2021, p.3). The appropriation of user generated content by mainstream media has effectively expanded what is now accepted as mainstream, mainly because the media has mastered how to use digital technologies (Hoskins and O'Loughlin, 2015, p.1333)

Journalists are increasingly using online sourcing techniques although they retain some scepticism for unverified social media posts given that digital media enables anyone to upload content (Christensen and Khalil, 2021, p.4). Another complication with digital media is it makes it hard to figure out if content is actually from an eyewitness account or if it is staged (Christensen and Khalil, 2021, p.4).

According to Christensen and Khalil (2021, p.4) journalists covering contemporary wars now view their primary roles as curators putting together the entire story behind the conflict, including giving context, nuance, opposing the predominant narratives driven by the more powerful groups by using as many sources as they can, verifying information from social media, and as truth-seekers fighting propaganda.

The Russian-Ukraine war is unique in how it is the 'first social media war'; 'first cyber war', and the 'first hacker war' in which both sides are using state and non-state actors to target the other side's information structures (Suciu, 2022; Conger and Satariano, 2022). Ukraine is using social media to communicate to its citizens how the war is going; to inspire them to resist the occupation; raise morale among its citizens; raise support internationally; and to document the conflict itself for historical narrative (Ciuriak, 2022, p.2). Russia is using social media to counter, deny, create doubt, and deflect allegations of atrocities (Ciuriak, 2022, p.2). For example, pro-Russian propaganda and fake news on the Russia-Ukraine war are a substantially bigger share of Ukraine-related content posted on TikTok (Kuźmiński, 2022, p.168; Hern, 2022).

Mainstream media has also been evolving, adopting and incorporating the same technology, including new tools and resources, for example using footage obtained from the internet or on social media to support its coverage (Kaempf, 2013, p. 600). As a result of advances in technology, journalists now have to operate in a dynamic information environment that requires that they develop and apply traditional journalistic standards to new methods of

sourcing and gathering information, as well as of verifying it (Christensen and Khalil, 2021, pp.9-15). Besides relying on stringers who assist with taking photos and videos — and sometimes have byline in stories — as well as fixers who help the war correspondent to build a story based on their local knowledge of the area, it has become a crucial part of the war journalist job to be able to develop sources and verify and use amateur content gathered on social media and other emerging digital media (Christensen and Khalil, 2021, p.15). For example, while most major news organisations have started to develop their own expert teams specialising in authentication and verification of digital content, journalists still do preliminary vetting of content before sending it to these teams by identifying places, time, weather, among other indicators, based on their personal knowledge on-the-ground (Christensen and Khalil, 2021, p.16).

Overall, technology is making it difficult for belligerents in a conflict to propagate a uniform perspective and for media audiences to be presented with a single perspective of the truth (Kaempf, 2013, p.601). Instead, technology has enabled new actors — ranging from embedded professional reporters, governments, citizen journalists, to soldiers posting on military blogs, and even terrorist organisations — who are playing a role in the mediatisation of conflict through their own content and stories (Kaempf, 2013, p.601).

Restricting access and censorship in today's information environment will likely not be as effective because of technologies like satellite imagery and mobile phones (McLane, 2004, p.86). This is further exacerbated by the availability of military information through open sources, making secrecy next to impossible (McLane, 2004, p.86);

> Commercial satellite imagery, cellular and satellite telephone intercepts, and the internet can all be employed to track the movements of military forces. A fusion of that information, combined with the full-page war map of The New York Times and the retired generals' analysis on television, could have provided the Iraqi military an accurate picture of the US dispositions (McLane, 2004, p.87).

3.5.6 Some criticisms of traditional war journalism

Conventional war journalism has been criticised for how it is being conducted, with some scholars pointing out that the media's coverage of wars and conflicts is lacking enough

explanation, is discriminatory, biassed, and contained within particular frames in which information is provided, additionally it is seen as being more focused on action and sensationalism (McQuail, 2006, p116). There also seems to be a school of thought that subscribes to the notion that it is not possible to have war reporting that is both independent and truthful, this is further compounded with the idea that some sources the media use in conflicts are not committed to telling the truth (McQuail, 2006, p116).

Largely as a result of budget cuts in newsrooms, and also because of the increased danger around coverage of conflicts from the 90s, there has been a significant trend where media companies have been reducing the number of foreign correspondents they employ (Nohrstedt and Ottosen, 2014, p.1). Some scholars believe that news outlets can easily cope with the decline in foreign correspondents by using freelancers or using open-source information on the internet (Otto and Meyer, 2012, p.209; Sambrook, 2010). Journalists have indeed been resorting to using information obtained from local observers, eyewitnesses, as well as from social media and YouTube, among other sources. (Otto and Meyer, 2012, p.209).

There however seems to be a strong sentiment that it is becoming harder to cover modern wars in the same way traditional war and conflict journalism has been done. Former BBC war correspondent Martin Bell comments that censorship, restricted access to conflict zones and the practice of journalists reporting from the periphery of actual conflict zones — instead of from within them — due to safety concerns is making objective war reportage impossible in the 21st century (Busch, 2012, p. 63). In fact, he notes with concern that the practice of covering wars without war correspondents on the ground in the conflict zone risks undermining the value of war reporting (Busch, 2012, p. 66).

3.6 Open-Source Intelligence (OSINT)

3.6.1 Definition of OSINT

Open-source intelligence is publicly available information that anyone can look at, buy or ask for without needing any special legal status or unauthorised access (The Economist, 2021). Aside from the public nature of this information, a crucial characteristic of OSINT is that it is information that can be gathered and analysed to fulfil a certain need:

> open-source intelligence, or OSINT, is unclassified information that has been deliberately discovered, discriminated, distilled and disseminated to a select audience in order to address a specific question (Steele, 2006, p.129).

An official description of Bellingcat — the organisation that not only pioneered the use of OSINT in investigative journalism, but also trains journalists around the world on the discipline — gives a better understanding of OSINT and what it entails. Bellingcat's founder describes the group as:

> … an online collective, investigating war crimes and picking apart disinformation, basing our findings on clues that are openly available on the internet – in social media postings, in leaked databases, in free satellite maps (Higgins, 2021, p.3).

Examples of OSINT material include social media posts, commercial satellite imagery, business and property records, air traffic control data, and maritime traffic. (Loehrke, B. *et al.*, 2021, p.3). Data for OSINT is also gathered from grey literature, and offline from traditional mass media, journals, reports, employee profiles, resumes, photos and videos including their metadata (Hassan, 2018). Some scholars have referred to the use of OSINT in journalism as 'digital forensic journalism' (Seib, 2021, p.87), while others prefer it to be described as 'online open-source investigation' (Higgins, 2021, p.6). Unlike traditional journalism, OSINT does not assume readers' trust, instead it obtains it through diligence and transparency (Ahmad, 2019). Some might be tempted to think that platforms like Wikipedia, which are open-source, count as OSINT. However Higgins (2021, p.58) clarifies that WikiLeaks is more of a whistleblower platform for leaking classified information, while open-source investigators investigate and analyse information that is publicly available.

An understanding of OSINT can also be obtained by looking at the culture among its practitioners. The OSINT community is marked by a collaborative ethos which encourages sharing anything of interest in order to crowd-source insights (Higgins, 2021, p.14). One of the guiding principles at Bellingcat is transparency, with an approach that cites all sources, and acknowledges where there are limits to knowledge (Higgins, 2021, p.13).

3.6.2 OSINT in the media: Use cases, and why the media have embraced it

It is widely thought that the first time OSINT methods and techniques were used in mainstream media – since the advent of social media – was around the 2009 Green Revolution protests in Iran, where for the first time one could gather 'intelligence-grade' information off social media and incorporate this into articles and analysis (Colquhoun, 2016). A Guardian reporter covering the protests at the time commented; '…first the tweets come, then the pictures, then the YouTube videos, then the wires', adding that the social media content would eventually be confirmed by more 'conventional sources' four or five hours later (Stelter, 2009). OSINT researchers and analysts initially started collaborating with freelance journalists who were on the ground during the early days of the Syrian conflict in an effort to 'triangulate the truth' (Higgins, 2021, p.24). Application of OSINT in war and conflict reporting is especially cut out for those conflicts where journalists face a high likelihood of death or injury (Higgins, 2021, p.24).

OSINT has in recent years seen a resurgence which is thought to have been enabled by advances in the technological development of the internet and social media, as well as the lowering of hitherto barriers to entry like access to high-resolution satellite imagery (Westcott, 2019). Besides satellite imagery being more commercially available, developments in artificial intelligence (AI) are also enabling journalists to investigate open-source material (Bauder, 2022). Over the last couple of years there has been an increase in the quantity and type of data analysts can access from commercial satellite companies, (Loehrke, B. *et al.*, 2021, p.4). OSINT has been used in investigations on war crimes in Syria since 2014, while the overall techniques have not changed much since then, they are said to be becoming 'more sophisticated', this while the credibility of OSINT methods and techniques is thought to have increased (JANES, 2022).

In some aspects, open-source intelligence can be at par or even better than classified information when it comes to issues like terrorism, counterintelligence, and arms proliferation (Mercado, 2005). A good example is how in mid-February 2022 — about a week prior to the beginning of Russia's invasion of Ukraine — the Russian Ministry of Defence and President Vladimir Putin claimed as part of a disinformation campaign that the Russian military was withdrawing and would further withdraw its troops from the border with Ukraine, however the Western press used satellite imagery to prove that the opposite

was happening as more military equipment was being moved towards the Ukrainian border (JANES, 2022; Simmons, Trofimov and Lucey, 2022). Another example is how the Ukrainian government has been using geo-tagged footage of Russian troop movements crowdsourced from its citizens for its military operations (Verma, 2022). In spring 2021, teams of analysts followed up on public hints that China was increasing its intercontinental ballistic missile (ICBM) forces. Within three months, maps of a new Chinese ICBM field – created by a team at the James Marin Center for Nonproliferation Studies – were published in the Washington Post (Loehrke, B. *et al.*, 2021, p.4). The discipline has been used to study nuclear proliferation, human trafficking, and money laundering investigations in academia (Westcott, 2019). The International Atomic Energy Agency used OSINT to discover evidence of Iran's work on a process that had potential application in the development of a nuclear bomb (International Atomic Energy Agency, 2011). Additionally, intelligence agencies in the US, UK, Russia, and China are known to use OSINT to inform their secret intelligence and to research adversarial armed forces (Westcott, 2019). OSINT also stands out because of how it connects journalism with crime investigation and human rights advocacy (Higgins, 2021, p.6). Many organisations — including think tanks like RAND Corporation and Jane's Information Group — are using OSINT for analytical and investigative work around issues to do with security (Dokman and Ivanjko, 2019, p.193).

The media has found using OSINT and social media research attractive in the wake of budget cuts brought about by declining circulations and ad revenues (Higgins, 2021, p.10). There appears to be a trend towards the use of OSINT in war and conflict reporting, particularly to investigate and verify information (Jamal, 2020). BBC Africa used it effectively to expose the involvement of personnel from Cameroon 's army in the murder of two women and two young children in 2018 (Jamal, 2020). This instance forced the Cameroonian government to shift from its initial 'fake news' stance to one of 'justice and accountability'(Higgins, 2020). Another prominent success of the discipline and its methods is around the investigation by Bellingcat into the shooting down of the Malaysian Airlines MH17 flight during the Donbas war by Russian-controlled forces (Westcott, 2019). The growing popularity of OSINT presents a risk of exposure for governments using misinformation (Miller and Aldhous, 2022). OSINT analysts can identify when or where events would have occurred; the actors involved; as well as what weapons would have been used (Wise, 2022). Such analysis of online data by OSINT analysts and investigators can provide insights and facts that reporters would not normally have access to, as such OSINT methods and techniques greatly

complement the news media's work (Freear, 2022). Many news organisations are developing their own in-house OSINT capabilities, while others utilise existing OSINT organisations – many of which are independent non-profits – such that OSINT analysis has become a normal part of US and European news reporting on Ukraine (Freear, 2022). Higgins emphasises just how crucial OSINT has become to newsrooms:

> Given how much information derives from social media, serious news organisations that are not practising online verification are dangerously exposed, while those that fail to develop open-source investigators among their staff will keep missing major scoops (Higgins, 2021, p.216).

Advantages of OSINT include; how simple it is to gather information; the speed at which information can be gathered; its relative affordability; and its real-time information gathering capabilities (Dokman and Ivanjko, 2019, pp.193 - p.194). However, some of the disadvantages around OSINT include; huge amount of data to analyse; the possibility of contradictory information — given how easy the internet has made it to make and spread disinformation and fake news — however this is also countered through verification checks; and the manipulative nature of publicly available information (Dokman and Ivanjko, 2019, pp.193 - p.194).

The speed and extent of open-source investigations can augment the amount of information supplied on a particular conflict (Seib, 2021, p.86). Instead of running a story based on official statements or government sources as is the traditional norm when they don't have reporters on the ground, news outlets can base their reports on verified OSINT data or use it in conjunction with those statements and then weigh facts, with the essence of the reporting relying on cross-referenced information (JANES, 2022). In essence, journalists can use OSINT material as a source in their reporting in lieu of traditional sources, as highlighted by Higgins:

> Today, when journalists cover hard-to-access conflict zones, they are negligent if they overlook the mountains of online evidence. Traditional reporting is still irreplaceable, but it is incomplete. No longer can journalists simply rummage through the Rolodex and phone for the opinions of a retired CIA analyst. Nor do they need to transform into OSINT specialists (Higgins, 2021, p.56).

Higgins outlines that Bellingcat's approach, and that of the OSINT community, differs from that of traditional journalists who use traditional sources — most who ask to be anonymous — and in turn the reporters ask the public to trust them. The issue, he points out, is that this normative practice opens the media up to misunderstandings, manipulation and even confirmation bias (Higgins, 2021, p.122). 'Open-source investigation does more than inhibit government dishonesty; it weakens false narratives that enter the information system…' (Higgins, 2021, p.124). OSINT analysis, research and investigations are seen as credible largely because of how the practice is built around transparency and openness of methods (Ahmad, 2019). Commenting on this transparency, Washington Post visual forensics team leader Nadine Ajaka points out that OSINT 'allows readers to understand what we know and what we don't know, by plainly showing it' (Bauder, 2022).

3.7 OSINT methods and techniques

While OSINT on its own cannot replace the brave work conflict reporters do, the discipline's methods and techniques can be used to further bolster conventional war journalism by producing detailed stories that cannot be dismissed as fake news, and which can also combat disinformation.

OSINT investigations often consist of a mix of different methods, and involve an eclectic blend of 'creative and critical thinking' when working through digital sources (Grut, 2020). Typically when the media use OSINT, they outline their methodology or describe where they would have sourced the OSINT material that would have been used as a source. For example Skippage (2022) outlines how BBC News verifies OSINT material it uses in its coverage of the Russia-Ukraine war with methods that range from reverse-image searches, geolocation, and even language expertise.

The main technique of applying OSINT data in reporting on conflicts is through visual data gathered on social media and verifying that by applying *Earth observation* methods on *satellite imagery* (JANES, 2022). The reason application of OSINT in the media for war journalism mostly revolves around *geolocation* is because it is a relatively easy method to carry out, and also one that has more impact (Verma, 2022). Analysts scan conflict footage

for physical landmarks that enables them to locate where the footage was shot and to verify whether it is accurate, misinformation or disinformation (Verma, 2022). The quality of commercial satellite imagery ranges from 50 centimetres per pixel to 10 metres per pixel for Synthetic Aperture Radar (SAR) imagery which can see through clouds and can identify activity on the ground (JANES, 2022). In addition, most free satellite image providers update their imagery regularly, between every 48 hours to 72 hours (JANES, 2022). Researchers and analysts can then corroborate their observations by analysing information gathered from several different accounts on social media who will be publishing posts about the same activity as they would have observed in the same area on satellite imagery (JANES, 2022).

A crucial area within OSINT investigations and analysis is *metadata analysis*. One technique OSINT researchers and analysts use to verify the authenticity of footage is the examination of metadata files to ascertain their provenance. Metadata refers to information that programs in cameras, smartphones and computers write onto a file when they create or process it (Reuter, 2022). Information on where social media videos were initially posted is crucial in understanding the context in which the video was made and that it helps rule out old videos (Mezzofiore and Polglase, 2022). For example, videos posted on Telegram will contain specific metadata on time and location it was recorded, data that other platforms do not collect (Mezzofiore and Polglase, 2022).

Social media searching, which Higgins (2021, p.101) describes as a ‘subfield of OSINT research’ involves searching for clues on posts, comments and social media profiles (Higgins, 2021, p.101). For example, to track military movements, analysts can search social media for certain keywords, thereafter that information is verified by geolocation and video metadata analysis or by checking images for time stamps where possible to ascertain when and where the footage was made in a way that guarantees a ‘fairly moderate degree of confidence that something happened’ (JANES, 2022). This can then be validated through analysis of satellite imagery to confirm where the troops would have moved to.

Another technique used in conjunction with Earth observation is analysis of *traffic data* on services like Google Maps and then validating it with Earth observation data. The first OSINT researchers and analysts who picked up on the Russian invasion of Ukraine used this method in real-time (Gordon and Gault, 2022).

Other prominent techniques include tracking for thermal anomalies to detect shelling (Verma, 2022); use of 3D modelling software that enable them to figure out what objects are making shadows in satellite imagery, as well as websites which track routes taken by ships (The Economist, 2021); weather data analysis (Mezzofiore and Polglase, 2022) and *reverse image searching* (Mahadevan, 2022).

3.8 Types of OSINT material

The use of OSINT in journalism is dependent on a plethora of digital sources and datasets, with material that is analysed ranging from weather data, social media footage, to satellite imagery (Ggrut, 2020). Some of the more common types are discussed below.

Tracking data obtained from logging activity of military planes on websites like ADS-B Exchange, Flightradar24 and FlightAware, and then sharing the data on social media is also very popular among the OSINT community (Miller and Aldhous, 2022). In conflict situations, changes like swathes of airspace being closed; planes flying away from their normal course; and airport weather stations not working are important clues to what may be going on within a conflict zone (Reuter, 2022).

OSINT researchers and analysts also use *footage* to count equipment losses; *intercept encrypted transmissions*, and identify Russian munitions based on footage of fragments left behind after attacks (Wise, 2022). Some OSINT researchers are even making use of *databases* stolen by pro-Ukraine hackers in their investigations (Higgins, 2021; Wise, 2022).

Bellingcat's approach treats online claims like hypotheses, and it validates them only when there is evidence to back it up that can be corroborated. 'It's akin to the scientific method applied to journalism' (Higgins, 2021, p.79). Higgins notes that although Bellingcat's approach aims to do as much work as it can with open sources, collaboration with traditional reporters is essential, for example they might geolocate a photo and then work with journalists on the ground to ask people questions based on what they would have discovered (Higgins, 2021, p.89).

OSINT researchers and investigators often publish their results on Twitter as it is the best way to get access to the media (Higgins, 2021, p.95). One of the main ways OSINT researchers and analysts are sharing their findings on Twitter is through *dynamic maps* which track and visualise battles, attacks and casualties in real-time (Wise, 2022). While some organisations engaged in OSINT work have collaborated to develop resources that enable users to monitor and track events in real-time like the Russia Ukraine Monitor Map, many other OSINT initiatives like Project Owl OSINT and the popular Live Universal Awareness Map (Liveuamap) have developed their own *mapping resources* which visualise this data. Liveuamap's resource, for example, has been used by the Swiss newspaper Neue Zürcher Zeitung in its coverage of the current Ukraine war (Neue Zürcher Zeitung, 2022).

In turn, The Centre for Information Resilience working together with Bellingcat, GeoConfirmed, Conflict Intelligence Team, and Advance Democracy, has developed a resource — Russia Ukraine Monitor Map — which brings together OSINT reports on civilian casualties, military movements, destroyed equipment and bombings for use by anyone, including the media (Wise, 2022). The Centre for Information Resilience says it started mapping out verified incidents in the war to enable people to have access to accurate and reliable information on the developments in the war, and to 'boost the integrity of the information environment', as well as to archive it for reporters, researchers and other interested parties (Strick, 2022). The Centre for Information Resilience's Russia Ukraine Monitor Map has data points which represent incidents or events that have been depicted by commercial satellite imagery, photo, and video and have been verified to confirm locations and times when they were recorded (Strick, 2022). The searchable map tracks bombings, civilian casualties, Russian military movements, military losses, gunfire and damage to infrastructure (Strick, 2022).

3.9 OSINT analysts and their collaborative relationship with journalists

OSINT has largely been driven by researchers and analysts on the internet who are part of a community made up of innovative hobbyists, subject matter experts like academics, think tank anlaysts, human rights activists, and interested volunteers (Loehrke, B. *et al.*, 2021, p.3).

Higgins describes the researchers and analysts who work with Bellingcat as sitting at the nexus of several disciplines (Higgins, 2021, p.221).

The OSINT community has also developed its own normative values based on participation, transparency, iteration and tinkering (Loehrke, B. *et al.*, 2021, p.3). As Higgins points out, 'The past, present and future of open-source investigation is collaboration' (Higgins, 2021, p.215). While the OSINT community is organised across various discussion groups and chat forums on platforms like Discord and Reddit, OSINT researchers and analysts post their findings on and have formed a community on Twitter (Miller and Aldhous, 2022; Wise, 2022). Some choose to share their work with organisations like Bellingcat, The Centre for Information Resilience and the Atlantic Council's Digital Forensic Research Lab (Wise, 2022).

OSINT researchers and analysts are increasingly collaborating with journalists, in turn journalists are using them as expert sources in their reporting. (Loehrke, B. *et al.*, 2021, p.3). Journalists normally reach out to OSINT experts for background information, sourcing, and quotes, additionally analysts also pitch newsworthy analysis to journalists (Loehrke, B. *et al.*, 2021, p.4). Some OSINT researchers and analysts have backgrounds in the intelligence community, military, or as defence analysts, which gives them specialised knowledge that enables them to distinguish for example regiments or brigades from markings on military vehicles (Zarley, 2022). Others have enrolled in classes or workshops where they have learnt techniques and methods involved in open-source analysis, however more seem to have been self-taught, mostly by learning through practice (Loehrke, B. *et al.*, 2021, p.4). The importance of OSINT researchers and analysts can be seen by how they can sometimes merge their technical and policy knowledge, open-source information and individual analysis and make assessments of major international developments that lead to breaking news (Loehrke, B. *et al.*, 2021, p.4).

Media outlets sometimes partner with open-source analysts to report on a story, with the analysts supporting the journalists with visual evidence (Loehrke, B. *et al.*, 2021, p.4). OSINT researchers and analysts are trusted by journalists as sources (Loehrke, B. *et al., 2019, p.1).* In some instances, journalists work with members of the OSINT community to check government claims or to assess particular developments (Loehrke, B. *et al.*, 2021, p.4). OSINT groups and centres have reported daily communication with journalists whose outlets

are keen on collaborating with them to expand their sources and to verify information for news (Freear, 2022). There is a network of OSINT researchers and investigators that is followed by journalists who have done work on the Russia-Ukraine conflict, with some having started analysis from the Donbas War in 2014 (Warzel, 2022). There is a notion that this network, which is able to quickly geolocate and verify footage, is making it difficult for Russia to propagate its narratives (Warzel, 2022).

Media outlets that have in-house teams for OSINT analysis do sometimes collaborate with other organisations or informal networks, however they often prefer to work independently for ethical reasons like ensuring transparency of their methodologies; as well as to insulate themselves from analysts with questionable motivations (Loehrke, B. *et al.*, 2021, p.4). In some instances where outlets have their own OSINT teams, they still collaborate with the OSINT community, a reflection of the collaborative nature of the discipline (Elms, 2022). While conventional journalism is known for its competitive nature where outlets compete to get the scoop, OSINT is more collaborative with practitioners and the OSINT community co-operating on projects (Ahmad, 2019). OSINT analysts are known to co-ordinate investigations using project management software (Reuter, 2002).

3.10 OSINT and journalism ethics

While analysts can help add evidence to reporting or even assist in breaking news stories, they can also accidentally – because of lack of experience – and even intentionally, abuse their influence in a way that could bring about ethical harm (Loehrke, B. *et al., 2019, p.2)*. While carrying out their investigations and analysis, OSINT researchers and analysts have to deal with decisions that can cause harm to individuals, institutions, organisations and society indirectly or directly (Loehrke, B. *et al., 2019, p.1).* For example analysts can be guilty of misinformation, disinformation or of poorly done analysis. Furthermore, they can publish analysis that can negatively affect international security (Loehrke, B. *et al., 2019, p.2).*

With many actors working together for OSINT investigations, it is logical to expect that there will be a convergence of ethics practices among those actors, however the OSINT community has not yet developed ethical practices, and it lacks resources, guidelines and training on ethical practices (Loehrke, B. et al., 2021, p.4). Concerns have been raised about the lack of

professional standards for OSINT analysts given how their work could potentially endanger lives or unintentionally cause misinformation (Verma, 2002).

Ethics layout standards of behaviour for what one ought to do when dealing with decisions on what is right and wrong (Loehrke, B. *et al.*, 2021, p.4). Ethical decision making involves awareness of ethical dilemmas, knowing the facts that are core to a particular decision, evaluation of options based on the different ethical approaches, deciding on a choice of action, and thinking about the outcome (Loehrke, B. *et al.*, 2021, p.4). OSINT analysts have expressed that ethical oversights and miscommunication sometimes occur in their collaboration with journalists because of pressure to publish (Loehrke, B. *et al.*, 2021, p.10).

Journalism has an ethical tradition founded on principles of accountability, truth, harm minimisation, independence, and transparency which helps journalists deal with ethical issues like weighing the importance of safety and privacy against the public interest for information (Loehrke, B. *et al.*, 2021, p.4). Without practice, training and support it can be difficult for OSINT analysts to master the same ethics (Loehrke, B. *et al., 2019, p.3).*

This chapter introduced two theoretical frameworks – the *Arrested War paradigm* and the *Boundary Work model* – which the thesis will use to explain the adoption of OSINT in war journalism. The former explains the basis of how the media appropriate digital technologies to retain its gatekeeping roles in a way that makes it the authority in the *mediatization* of war and conflict, while the latter explains how the adoption and application of OSINT in war journalism can be viewed as an expansion of the field of journalism. Additionally the chapter explained how two conceptual tools – *sourcing* and *information subsidy* – will be used to explain how the media selects its sources; and how the media are provided with information, as well as the implications of this, respectively. This was followed by a historical survey that tracked the evolution of war journalism over 10 major wars. This was done to identify some key trends in war and conflict journalism. This was subsequently followed by a deep dive on OSINT which covered the definition of OSINT, common methods and techniques, key issues within the field, as well as a look at some history of its use in news media. Having established the theoretical framework, and the conceptual tools, the thesis will now discuss the methodology in the next chapter.

Chapter 4: Methodology

This chapter will discuss the details of the research methodology and how the research was conducted. The chapter will first outline the research objective and the research questions as these guide the choice of research approach, and particular methodologies that the thesis will employ. This will subsequently be followed by a brief discussion on the research methodology, starting first with why the researcher opted for a mixed-methods approach. This will lead to an examination of the two methodologies employed in this thesis – content analysis, and textual analysis. Given the complexity of this thesis – and especially as the study will use a mixed-methods approach that also includes content analysis – it is crucial that the researcher discusses how they attained or achieved objectivity, validity and reliability. Thereafter the chapter will detail how data was collected, and in doing so explain the research population; sample; sampling eligibility criteria; the coding scheme; codes and coding rules; and limitations of the study. This chapter, along with the findings chapter that follows next, will be written in past tense as they both describe or report actions that were completed before writing of the thesis.

4.1.1 Research objective

The research objective of this thesis is to examine how international media are using OSINT in their coverage of the Russia-Ukraine war.

4.1.2 Research questions

The study will particularly seek to answer the following research questions (RQs):

RQ1*: How prevalent was the use of OSINT amongst the leading international media organisations in their coverage of the Russia-Ukraine war?*
RQ2*: What were the main types of OSINT material analysed, and what techniques or methods were used to present the analysis?*
RQ3*: Was the OSINT analytical work conducted in-house by journalists, done externally or conducted in collaboration with external partners?*

The research objective of this thesis is to examine how international media are using OSINT to cover the Russia-Ukraine war. The study aims to do so by uncovering the common OSINT material as well as the strategies that were employed by international media in presenting them in the hope that it will inform journalists and media houses in other parts of the world on how they approach reporting in current and future conflicts. Additionally the thesis aims to provide key insights that will inform journalists, media outlets, other journalism and media researchers on the key issues around the application of OSINT in war journalism.

RQ1 seeks to find out how prevalent the use of OSINT analysis was among the leading international media organisations in their coverage of the Ukraine war. RQ2 is concerned with how OSINT was used in the articles, particularly which OSINT material was analysed, and subsequently which techniques or methods were used to present the analysis . RQ3 asks whether the OSINT analysis and investigative work was conducted in-house by journalists, done externally, or in collaboration with external partners?

4.2 The need for a mixed-methods approach

Macnamara advises a combination of quantitative content analysis and qualitative content analysis as being 'the ideal approach' (2005, p.5), with scholars like White and Marsh (2006) supporting the idea that content analysis can be both qualitative and quantitative.

Mixed-methods research — where both qualitative and quantitative data is used in a research project — enables researchers to explore complex phenomena in detail (Halcomb and Hickman, 2015). Several scholars have shown that mixed-methods approach can enhance academic research by corroborating or explaining data through triangulation and by verifying and developing analysis to provide detailed data (Rossman and Wilson, 1985; Greene, Caracelli, and Graham, 1989; Sechrest and Sidana, 1995; Johnson, Onwuegbuzie, and Turner, 2007).

4.3 Arriving at the methodology: Content analysis

Content analysis is a research method that enables researchers to objectively, systematically and quantitatively describe the manifest content of communication (Berelson 1952, p.18).

Content analysis entails the summarisation and quantitative analysis of messages in a way that is modelled on and adheres to the rigours of the scientific method, including elements like reliability, validity, replicability, generalisability, a priori design (Neuendorf, 2002, p.10). Because of how it adheres to the scientific method, quantitative content analysis is preferred for how it produces reliable findings (Macnamara 2005, p.5).

Quantitative content analysis – and conceptual content analysis in particular – is appropriate for RQ1 given how this research methodology is based on the measurement of certain words, elements or concepts within media content (Berger 1991, p.25; Bhasin, 2020; Christie, 2007). Conceptual content analysis involves the selection of a concept for study – in this instance OSINT – with instances of its occurrence in the sample text being counted (Sabharwal, Levine, and D'Agostino, 2018). Conceptual content analysis thus enables researchers to code for certain concepts, and to subsequently make inferences based on the patterns that emerge out of the data set (Wilson, 2011).

4.4 Arriving at the methodology: Textual analysis

Generally, textual analysis is a form of qualitative analysis that is traditionally used to reveal ideological and cultural assumptions made by a piece of media text within a specific cultural context (Fürsich, 2009, p.240). In its application, textual analysis can employ a number of approaches that range from semiotic interpretive methods, linguistics, rhetoric, literary-critical strategies (Fürsich, 2009, p.241). Depending on the approach selected, textual analysis can help researchers draw diverse insights that include a text's literal meaning, its assumptions, subtexts it contains, symbolism and even values embedded in it (Caulfield, 2019). Additionally, textual analysis can thus enable researchers to give a description of the content, its functions, and how it is structured (Frey, Botan and Kreps, 2009), and even to study different aspects of media texts that include design elements and location of text (Caulfield, 2019). Textual analysis is often used in media studies to research how news outlets frame and present news stories, with researchers for example using the methodology to spot patterns in how images and language are used in articles (Hassan, 2022).

4.5 Evaluating the quality of the study

The researcher sought to ensure the quality of the measurement, and that of the study to ensure that the results would not only be valid, reliable, but also objective. This was done through three main criteria, namely; validity, reliability, and objectivity.

4.5.1 Validity

Validity in research methodology generally addresses the question of how accurately results present that which is being measured. Validity in content analysis is met when the research objectives are clearly defined and when the sample of media content to be analysed has been carefully selected (Macnamara 2005, p.12). The researcher clearly defined the research objective — which is to examine how international media used OSINT in covering the Russia-Ukraine war — and carefully selected the study sample based on the specific criteria detailed above. To select a sample for media content analysis, one needs to choose media forms and genre; issues or dates; and relevant content from the selected media (Newbold et al. 2002, pp.80-81). This study used purposive sampling, which is when articles are purposely selected from key media based on some specified criteria (Macnamara 2005, p.13). The researcher also carefully selected and described the concepts they were going to study.

4.5.2 Reliability

Reliability in research methodology refers to how consistently results can be duplicated if a study were to be repeated under the same conditions. Validity in content analysis also includes reliability, along with precision and accuracy (Neuendorf, 2017, p.40). However, to ensure reliability, the researcher designed a coding scheme and code words which were informed by the OSINT section of the theoretical framework chapter. When the researcher was designing the coding scheme, they ran an exploratory survey or pilot study of coverage by BBC, AP News, Reuters and Sky News on the Bucha massacre, Azovstal Siege, Kherson and Kharkiv offensives before finalising on the design of the coding scheme. Some things stood out from the exploratory survey which have informed the design, an example includes how some articles will make use of OSINT and analyse footage or satellite imagery but present it via text as a description.

The researcher also carefully set out well-defined strict coding rules and codes that were used to guide how the data collection was conducted, and which defined the categories used in the coding scheme. As such the researcher is confident that if a similar coding scheme and coding rules were to be used with the methodology outlined in the thesis the results would be duplicated.

4.5.3 Objectivity in content analysis

Objectivity or intersubjectivity in content analysis can be attained by the researcher selecting a representative sample (Macnamara 2005, p.8). The researcher did this by studying the key events of the Russia-Ukraine war as they were reported by three of the leading international English-language media outlets.

Keeping in line with Neuendorf's (2002, p.11) advice that a deductive scientific approach to research design should have pre-set variables, measurements and coding rules before the commencement of data collection, the researcher used his literature review and theory to come up with the variables, measures and coding rules used in the study.

4.5.4 Subjectivity in textual analysis

One of the main criticisms about textual analysis revolves around subjectivity, particularly how the methodology is prone to biases and subjective interpretations by researchers (Hassan, 2022). Moreover, it is possible that given the same data set, different researchers could likely read the same text differently which could lead to discrepancies in the findings (Hassan, 2022). To guard against this the researcher came up with a coding scheme and strict coding rules according to which data was collected.

4.6 How the data was collected

4.6.1 Research population

A research population refers to all the elements, texts or events which a researcher is interested in studying (Chadwick, 2017). This study's research population is thus news articles published on the Russia-Ukraine war by international media.

4.6.2 Sample

Given the broad scope of this research population, the researcher had to define an appropriate sample for the study. A sample is a subset of the research population from which a researcher collects data from (Huck, Beavers, and Esquivel, 2010).

The researcher selected three outlets which represent some of the leading international English-language news outlets in the world; have news websites that are well indexed on Google search enabling people from across the world to gain access to them; and lastly because they are free to access. These three are AP News, BBC News, and Reuters.

BBC News was selected because it has one of the world's most widespread newsgathering operations as well as the world's largest broadcast news operation, additionally it is considered one of the most innovative mainstream news outlets owing to how it pioneered a number of digital-news concepts (Coddington, 2011). US-based AP News and London-based Reuters – part of the "Big Three news agencies"– were selected as they are the most dominant news wires and main content suppliers of international news to other media groups and newspapers around the world (Rafeeq and Jiang, 2018). Furthermore, AP News and Reuters have been shown to be the most influential and leading sources of foreign news on news websites across the internet, and together with BBC News, and AFP are thought to be providers of "extensive international reporting" in online news (Paterson, 2007).

4.6.3 Sampling eligibility criteria

As the study sought to only examine articles published on the Russia-Ukraine war, a specific set of criteria was selected to decide which texts made it into the sample of text which was analysed.

The researcher opted for purposive sampling. Purposive sampling is a form of non-probability sampling which ensures that a sample is representative of the population (Battaglia, 2008). To ensure that the sample represents a cross-section of the research population, researchers are advised to apply 'expert knowledge' on the population (Battaglia, 2008). The sampling criteria used for this study was informed by the key moments or

highlights of the war as defined by the *New York Times* in a period stretching from 24 February to September 2022 (Bigg, 2022). These key moments included;

- February: Initial invasion on 24 February, and initial Russian attacks into Ukraine
- April: Russian missile strike on the Kramatorsk train station
- April: Bucha massacre
- May: Siege of Azovstal Iron and Steel Works
- June: Ukraine regaining Snake Island
- June: Sinking of the Moskva
- July: Fall of Lysychansk to Russia
- August: Ukrainian Kherson counteroffensive
- August: Ukrainian attack of Russian air-base in Crimea
- September: Ukrainian Kharkiv offensive

The researcher then came up with a list of keywords or search terms that were used to collect data on each of the 10 key moments identified above. This list can be found in *Table 1*.

Event	Google Search term
February: Initial invasion on 24 February	Russia invades Ukraine
April: Russian missile strike on the Kramatorsk train station	Kramatorsk railway train station missile attack
April: Bucha massacres	Bucha massacre
April / May: Siege of Azovstal Iron and Steel Works	Siege of Azovstal
June: Ukraine regaining Snake Island	Snake Island
June: Sinking of the Moskva	Moskva
July: Fall of Lysychansk to Russia	Lysychansk
August - November: Ukrainian Kherson counteroffensive	Kherson counteroffensive
August: Ukrainian attack of Russian air-base in Crimea	Crimea air base attack
September: Ukrainian Kharkiv offensive.	Kharkiv offensive

Table 1: Table listing the key moment or highlight in the Russia-Ukraine war, and their associated Google Search terms

The researcher used a particular set of search terms on the "News" tab of Google Search for each key moment or highlight of the war (see Table 1), and restricted the search results to the period between 24 February 2022 and 31 December 2022, with the search results sorted by relevance. These search parameters were used in conjunction with the following search operators for the respective news outlets:

- AP News: 'apnews.com search term'
- BBC News: 'bbc.com search term'
- Reuters: 'reuters.com search term'

For example, to search for articles published by AP on the Bucha Massacre, the following search query would be used on the News tab of Google Search 'apnews.com Bucha massacre'(see example on Appendix A), with the results to the date range 24 February and 31 December 2022[1]. The researcher would then work through the list of AP News articles and only analyse those that fit the sample criteria.

The sample only included full news articles published between February 24 2022 – the day the war began – and 31 December 2022, with the stories covering developments within the war itself. As such the content of the articles had to be related to a key moment or event within the conflict, as highlighted above. In instances where videos or interactive content was embedded in the article, that additional content was analysed as well. Additionally, the sample excluded instances where material or handouts that came directly from either the Russian or Ukrainian governments or their forces was used in the articles, even if it was in the public domain like for example on social media, or televised briefings. This was done to avoid the possibility of including results that could have been propaganda in nature. Articles

[1] Data collection was carried out between 14 February 2023 and 14 April 2023. On completion, the researcher found that Google had between 15 March and 28 March effected a core update on Google Search which affected how its search algorithms and systems presented results to users by omitting entries that are similar. With the new update there was an option to by-pass this which the researcher did not make use of in the course of data collection. It is highly likely that these changes did not affect the study as they take weeks to become noticeable as Google's crawlers need to index and reassess webpages. See: (Hawley, 2023).

containing OSINT material or sources obtained from the Telegram messaging service were not included in the study as well as the service is technically not social media

4.7 Coding scheme

The coding scheme (see Fig. 1) and coding rules were designed on a hypothesis that the international media outlets under study used OSINT in their coverage of the Russia-Ukraine war.

The researcher opted to use a set of predetermined codes and categories influenced by the work done on the thesis' literature review and the OSINT section in the theoretical framework chapter. For example, it emerged that it is common practice and part of the transparency and collaborative culture that is behind OSINT to mention how the analysis or investigation was carried out (Higgins, 2021). As such in instances where OSINT analysis is used, publications typically mention or describe what OSINT material was used, present it a certain way and describe how it was analysed or verified, and in instances where external analysts or partners are used this is disclosed. A case in point is how BBC News explained its methodology around how its Visual Journalism Team uses daily assessments published by external partners like the Institute for the Study of War (ISW) and the UK Ministry of Defence (UK MoD) when creating maps visualising advances made by, as well as areas gained by Ukrainian and Russian forces (BBC News Visual Journalism Team, 2023). Additionally, the researcher carried out an exploratory survey of coverage by AP News, BBC News and Reuters on the Bucha massacre, Azovstal Siege, Kherson and Kharkiv offensives before designing the coding scheme, with insights from this pilot study also informing the design of the coding scheme and coding rules.

4.8 Codes and Coding Rules

OSINT Analysis

This category recorded whether OSINT analytical and investigative work was conducted internally, externally or collaboratively. *Internal* denotes instances where OSINT analysis was carried out internally within the news organisations. In instances where OSINT was used in an article but no external party was named as having carried out the OSINT analysis, this was coded as *Internal*. *External* denotes instances where OSINT work was conducted by OSINT analysts and investigators that are not part of the news outlet, this includes

individuals and other organisations. In instances where the outlet disclosed it had collaborated with an external party or where the outlet used externally provided OSINT in conjunction with its own analysis, or additional work, for example in data visualisation or graphics, this was coded as *Collaborative*

Application

This category recorded how instances of OSINT were applied or used within the respective articles in the sample. Coding rules for this category required the researcher to ascertain the extent to which the OSINT was *Prominent* or *Passive*. *Prominent* application would include instances where a piece of OSINT was referred to in the headline, lead paragraph or constituted the main source of the article. Additionally if the piece of OSINT is referred to several times in the article it will be assigned as *Prominent*. For an instance to be coded as *Passive*, the OSINT must be used either in a single mention or in a way that does not materially affect the article. For example in a way that the exclusion of the OSINT would not change the outcome of the article.

Event Date and Publication Date

This Event Date category recorded the month a key moment or highlight occurred for each of the respective articles analysed within the sample. The Publication Date category recorded the date the article was published.

Headline, Outlet, and URL

The title or headline of the news article for each article in the sample was coded under this category. Outlet denotes the specific publication which published an article. WhileURL shows a URL link to the sample article.

OSINT material type

This category recorded the type of OSINT material used in each article within the sample. Codes used include include *Multiple* (denotes the use several types of OSINT material or sources within an article); *Satellite imagery* (denotes any type of satellite imagery and other types of Earth Observation data); *Tracking platforms* (includes any platform designed to track aeroplanes and ships like ADS-B Exchange, Flightradar24 and FlightAware); *Hacked records* (denotes the use of hacked records and hacked information that is now in the public domain,

including intercepted phone calls or other electronic communications); *Maps* (this denotes the use of maps created from OSINT-based information, or representing some other research in a map format); *Footage* (this denotes both verified and unverified video or photographic footage, including that which was sourced from social media or CCTV); *Databases & Reports* (includes reports and online databases of information). *None* (this denotes instances where no OSINT was used).

Partners

In instances where external OSINT partners were mentioned, the names of those individuals or organisations were coded.

Presentation of OSINT

This category recorded the method or how the OSINT sources or material were presented in the articles. It consisted of the following; *Interactive* (this code includes any interactive content, visualisations or graphics); *Image* (this code denotes instances where the OSINT material was presented in the form of an image; *Video* (this code denotes instances where the OSINT material was presented in video format); *Text* (This denotes instances where an explanation or breakdown of the OSINT material was done in words); *Map* (this denotes instances where the OSINT material was presented in the form of a map); *Multipl*e (this denotes instances where OSINT material was presented in more than one method, for example a combination of interactive content, image, video, text, and maps); and *None* (this denotes instances where no OSINT material was used).

Notes on methods and techniques

This category recorded, in instances where the information was stated, the methods and techniques that the outlets used in their analysis. The notes also detailed important information on methodology, key dates, sources, external partners involved, how the OSINT material was sourced, and how the analysis was presented in the article. These were later used for reference in the data analysis section of the thesis.

A1:K1028 | UK MoD, Institute for the Study of War, UNHCR, Unitar - Unosat, Centre for Information Resilience, Bellingcat, Conflict Intelligence Team, Maxar Technologies

	A	B	C	D	E	F	G	H	I	J	K
1	Outlet	Publication Dat	Event Date	Headline	URL	OSINT material	Presentation of OSI	Application	OSINT Analysis	External Partners	Notes on methods and techniques
138	AP News	17/03/2022	March	Cheap but lethal Turkish drones bolster I	https://apne	None	None	N/A	N/A	N/A	
139	Reuters	17/03/2022	March	Russia getting bogged down in Ukraine,	https://www	Satellite imagery	Text	Passive	External	N/A	The article refers to how commercial satellite pictures showed a theatre
140	BBC News	19/03/2022	March	Ukraine: What have been Russia's milita	https://www	Databases & Repor	Interactive	Prominent	External	International Institute for Strategic	The article features an infographic showing a comparison of the militar
141	BBC News	19/03/2022	March	Ukraine war: Tanks in streets' as fightin	https://www	Satellite imagery	Image	Prominent	External	Maxar Technologies	The article features a satellite image of the Mariupol theatre before it wa
142	AP News	19/03/2022	March	Live updates: Zelenskyy says 9,000 leav	https://apne	Satellite imagery	Text	Passive	Internal	N/A	Description of how satellite photos analyzed by The Associated Press s
143	AP News	19/03/2022	March	Mariupol police officer pleads for help fro	https://apne	Footage	Text	Prominent	Internal	N/A	Link to video posted in the article
144	Reuters	19/03/2022	March	U.S. warns China not to fuel Russia's as	https://www	None	None	N/A	N/A	N/A	
145	BBC News	20/03/2022	March	Ukraine war: Western agents seek to ge	https://www	None	None	N/A	N/A	N/A	
146	AP News	20/03/2022	March	Zelenskyy says siege of Mariupol involvi	https://apne	Satellite imagery	Text	Passive	External	Maxar Technologies	Description of satellite imagery supplied by Maxar Technologies being u
147	Reuters	20/03/2022	March	Zelenskiy calls for peace talks with Mosc	https://www	None	None	N/A	N/A	N/A	
148	Reuters	20/03/2022	March	Mariupol, under heavy bombardment, bi	https://www	None	None	N/A	N/A	N/A	
149	Reuters	20/03/2022	March	Mariupol says thousands deported from	https://www	None	None	N/A	N/A	N/A	
150	BBC News	21/03/2022	March	As it happened: Nato to boost forces in E	https://www	Multiple	Multiple	Prominent	Collaborative	UK MoD, Institute for the Study o	Insert 'Ukraine journalists 'arrested in Melitopol' features a map based o
151	BBC News	21/03/2022	March	Mariupol: Why Mariupol is so important t	https://www	Map(s)	Map	Prominent	Collaborative	Institute for the Study of War	The article features a map which shows the encirclement of Mariupol by
152	BBC News	21/03/2022	March	Ukraine conflict: Russia trying to starve I	https://www	Multiple	Multiple	Prominent	Collaborative	Institute for the Study of War	The article features a map which shows the encirclement of Mariupol as
153	AP News	21/03/2022	March	Live updates: Ammonia leak contaminati	https://apne	Satellite imagery	Image	Passive	External	Planet Labs	The article carries a satellite photo from Planet Labs PBC, multiple civili
154	Reuters	21/03/2022	March	As fighting rages in Mariupol, Ukraine's z	https://www	Footage	Text	Passive	Internal	N/A	The article refers to a video seen by Reuters which showed dozens of p
155	Reuters	21/03/2022	March	Ukraine says situation in besieged Mariu	https://www	Footage	Text	Prominent	Internal	N/A	The article refers to how video footage of Mariupol shows that the city h
156	Reuters	21/03/2022	March	What I saw. I hope no one will ever see'	https://www	None	None	N/A	N/A	N/A	
157	BBC News	22/03/2022	March	The article features a video which starts	https://www	Multiple	Multiple	Prominent	Collaborative	UK MoD, Institute for the Study o	The article features a map based off information from the UK MoD and
158	BBC News	22/03/2022	March	A bomb hit this theatre hiding hundreds -	https://www	Satellite imagery	Image	Prominent	External	Maxar Technologies	The article features satellite imagery shot by Maxar on 14 March which
159	AP News	22/03/2022	March	As Mariupol hangs on, the extent of the l	https://apne	None	None	N/A	N/A	N/A	
160	AP News	22/03/2022	March	20 days in Mariupol: The team that docu	https://apne	None	None	N/A	N/A	N/A	
161	AP News	22/03/2022	March	Amnesty's leader accuses Russia of war	https://apne	None	None	N/A	N/A	N/A	
162	Reuters	22/03/2022	March	Ukraine rejects ultimatums as conflict int	https://www	Multiple	Multiple	Prominent	Collaborative	Maxar Technologies	The article uses a satellite image supplied by Maxar Technologies whic
163	Reuters	22/03/2022	March	Ukraine's leader says 'nothing left' of Ma	https://www	Footage	Image	Prominent	Internal	N/A	The article features two images obtained from a screengrab of a video
164	BBC News	23/03/2022	March	A month in Ukraine: 'All normal life is gor	https://www	None	None	N/A	N/A	N/A	
165	BBC News	23/03/2022	March	Ukraine war: Ukrainian fightback gains g	https://www	Map(s)	Map	Prominent	Collaborative	Institute for the Study of War	The map – based on ISW data as of 22 March – highlights Ukranian cc
166	AP News	23/03/2022	March	Live updates: Russians destroy Chernob	https://apne	None	None	N/A	N/A	N/A	
167	Reuters	23/03/2022	March	Russian strikes turning Mariupol into 'ash	https://www	Footage	Image	Prominent	Internal	N/A	The article used a screengrab obtained off social media which showed
168	AP News	24/03/2022	March	Key moments in Russia's month-old war	https://apne	None	None	N/A	N/A	N/A	
169	AP News	24/03/2022	March	Live updates: Russia to expel more Ame	https://apne	None	None	N/A	N/A	N/A	
170	BBC News	25/03/2022	March	War in Ukraine: Estimated 300 dead in A	https://www	Multiple	Multiple	Prominent	External	Maxar Technologies	The article features a video which includes footage obtained from socia
171	BBC News	25/03/2022	March	Ukraine war: A dangerous escape on the	https://www	None	None	N/A	N/A	N/A	

Coding Scheme | Count Numbers: 1,0... | Explore

Fig. 1: Screenshot of the coding scheme spreadsheet[2]

[2] *The coding scheme spreadsheet contained 1027 entries and was not included in the appendix because of space constraints. A copy can be accessed online:* https://docs.google.com/spreadsheets/d/e/2PACX-1vSGdDkoziZz9KbaFVsrJF37AiLvIgbjDHcNaLPowUyNFwi2AQHlReBaOcbhZ5iVEV6d3ZaBkGK3eQPC/pubhtml?gid=1460098271&single=true

4.9 Answering the research questions

In quantitative content analysis, researchers often start with a hypothesis and then set up a predefined coding scheme that seeks to test the hypothesis, with results explained through the use of statistics (Wilson, 2011). For this study, the hypothesis was that international media were using OSINT to cover the Russia-Ukraine conflict.

For the purpose of this study, the researcher employed a very rudimentary form of textual analysis. Each article in the sample was read and coded on the coding scheme on a Google spreadsheet while strictly adhering to the coding rules. In each instance where OSINT material was found, as classified earlier in this chapter, notes were made explaining the use of OSINT material, techniques and methods, and actors involved.

Answering RQ1:

In order to investigate the prevalence of the use of OSINT in covering the conflict the researcher had to first ascertain how much of the coverage in the sample population in this study contained articles in which some form of OSINT material was used. This involved counting instances of OSINT material and calculating how much of that coverage included some form of OSINT material out of the total sample population.

Answering RQ2 and RQ3:

The researcher also opted to employ textual analysis in order to ascertain which OSINT material was used in the articles, and to establish how the OSINT analysis was presented (RQ2). The same approach was used to identify who conducted the OSINT analysis and the degree to which outlets collaborated with external parties (RQ3).

4.10 Limitations

The study would have done well with in-depth interviews with reporters, editors, management and OSINT practitioners at the respective media outlets reviewed in this thesis. This was the initial plan for the thesis, however owing to concerns around lack of time, and access to the media outlets, the researcher opted to not conduct the interviews. This would

have better answered RQ2 and RQ3 in more detail. The study would have also benefited from having a fourth outlet, initially the researcher intended to also include Sky News but owing to the longtime it took for data collection the outlet was eventually dropped from the study. While collecting data, the researcher did not include content from Telegram as social media content as Telegram is essentially a messaging service. However, in Ukraine and Russia, Telegram appears to be a very popular platform which is also being used as a social media platform by citizens, the military and governments alike. In hindsight the researcher should have included OSINT obtained from Telegram.

This chapter discussed the details of the research methodology and how the research was conducted. The research objective of this thesis is to examine how international media are using OSINT in their coverage of the Russia-Ukraine war. With the thesis' specific research questions being; RQ1**:** How prevalent was the use of OSINT amongst the leading international media organisations in the coverage of the Russia-Ukraine war?; RQ2: What were the main types of OSINT material analysed, and what techniques or methods were used to present the analysis?, and RQ3: Was the OSINT analytical work conducted in-house by journalists, done externally, or in collaboration with external partners? A brief discussion on research methodology ensued, with the purpose of justifying why the researcher opted to employ a mixed-methods approach to conduct the study. The chapter then examined two methodologies which were employed in this thesis – content analysis, and textual analysis. The complexity of this thesis, and its mixed-methods approach necessitated an audit of the study using three criteria: objectivity, validity, and reliability. Thereafter the chapter specifically discussed how the data was collected, and in doing so laid out the study's research population; sample; sampling eligibility criteria; the coding scheme; codes and coding rules; and limitations. The next chapter will look at the findings of the study.

Chapter 5: Findings

The Findings chapter will – with the aid of charts visualising the data – offer a condensed presentation of the key findings and data as they relate to the thesis' RQs and research objective. The chapter will start with a brief explanation on how the data was analysed. Thereafter the chapter will then present the findings in the order and structure of the RQs, starting with RQ1, RQ2, and lastly with RQ3. Before it concludes, the chapter will also offer a brief comparative discussion on how the three media outlets in this study used OSINT in their coverage of the Russia-Ukraine war, this will give a granular view of how the different outlets are using OSINT. This chapter will only discuss the primary findings based on quantitative sampling conducted in the study. A detailed analysis and interpretation of these findings and their implications will be done in the next chapter.

5.1 How the data was analysed

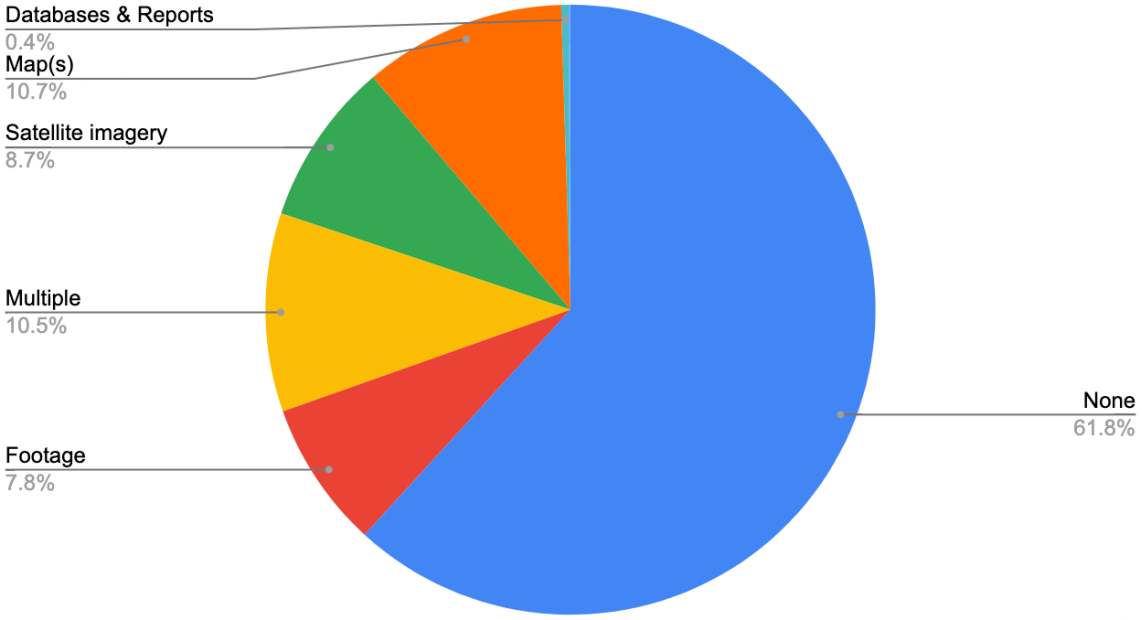
The study sought to examine how international media – particularly AP News, BBC News, and Reuters – are using OSINT in their coverage of the Russia-Ukraine war. The study did this by looking at; the prevalence of OSINT in the coverage of the Russia-Ukraine war; ascertaining what the main OSINT material collected was, as well establishing the techniques and methods of presenting the OSINT analysis. In addition the researcher examined whether the media outlets were conducting the OSINT analysis themselves or working in conjunction with external partners.

The data collected was analysed manually using the coding scheme spreadsheet on which data collection was done (see Fig. 1), as well as using the Google's Explore feature in Google Sheets (Sheets) which uses machine learning to glean insights and visualise data from datasets based on specific queries that a user inputs. For example, for RQ1, the researcher entered the prompt 'Chart for OSINT material' which returned a selection of three charts showing a graphical representation of the percentage of each type of OSINT material. The researcher then double checked this result by highlighting all the values in column F and prompting Sheets to create a pie chart. For RQ2 the researcher filtered out entries that had the

value 'None' in column F (*OSINT material)* of the spreadsheet and then highlighted all the entries in column F and created a chart from that selection. For the second part of RQ2 the researcher also drew charts on the values within column G (*Presentation of Analysis*) after filtering out articles with the value 'None' in column F (*OSINT material*). A similar approach was followed for the first part of RQ3 with the focus of the analysis this time on column I (*OSINT Analysis*). The researcher then prompted Sheets to export a list of unique values in column J (*External Partners*) which generated a list of all the external partners identified in the study, subsequent to that the researcher manually highlighted all the filtered entries in column J *(External Partners*) to generate a visualisation of the distribution of OSINT analysis by external partners.

5.2 Main findings

Fig.2: Prevalence of OSINT use in sample (N=1027)



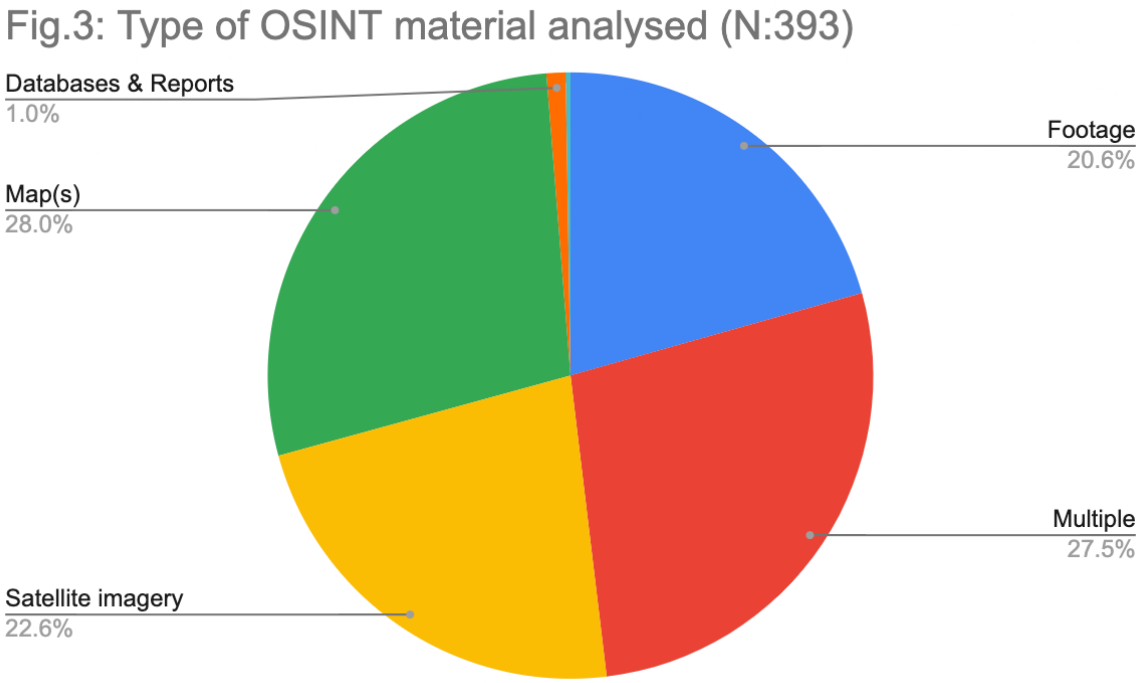
5.2.1 Results for RQ1

RQ1: *How prevalent was the use of OSINT amongst the leading international media organisations in their coverage of the Russia-Ukraine war?*

The sample comprised a total of 1027 articles, of these 282 were published by AP News, 346 by BBC, and 399 by Reuters. Of the 1027 articles, 393 (38.2%) had some form of OSINT, while 634 articles (61.8%) did not feature any form of OSINT material in their coverage. Thus, while there was some significant use of OSINT in the international media's coverage of the Russia-Ukraine war, the majority of the coverage did not feature any form of OSINT analysis (see Fig.2).

5.2.2 Results for RQ2

RQ2: *What were the main types of OSINT material analysed, and what techniques were used to present the analysis?*



Amongst the 393 articles in which OSINT analysis was conducted, the top two most common types of OSINT material analysed emerged as *Maps* 28% and *Multiple* – where several types of OSINT material or sources were analysed within the same article – 27.5%. *Satellite imagery* and *Footage* were the third, and fourth most common types of OSINT material analysed having been exclusively utilised in 22.6% and 20.6% of OSINT analysis, respectively (see Fig.3).There was only one instance of *Hacked records* used exclusively, and

only four articles (1%) in which journalists had exclusively analysed *Databases and report*-based OSINT.

5.2.2.1 Maps

Maps emerged as the most dominant form of OSINT material in this study. Maps generally displayed locations of recent fighting; Russian advances and the direction of these advances; areas under Russian military control; areas held or regained by Ukraine; Ukrainian counter offensives; the direction of Ukrainian counter-offensives; locations of cities mentioned in the articles; and key routes. Moreover, the sources of the information on which the maps were based were always listed at the bottom of the maps, together with information on when the analysis was made.

It appears the news outlets overlaid analysis they sourced from the external partners onto maps that they would have created in-house to fit their graphic and style guides. A comparison of the maps published by the outlets shows these slight aesthetic variations despite the sources of the map analysis largely being the same (see Appendices C through H). In most cases the information used to create maps was between a day old and at most not more than five days older than the article's publication date. For example Appendices C, D, and E, for instance, show maps that feature analysis that is a day old.

The majority (91%) of the map-based OSINT analysis identified in the study came from articles published by BBC News. 67.3% of this analysis was sourced from ISW, while 22.7% of articles employing this sort of analysis jointly listed the UK MoD and ISW as their sources. Furthermore, ISW was jointly listed as a source together with AEI's Critical Threats Project in 6.4% of articles that employed maps as a form of OSINT analysis. This trend shows that ISW was the biggest source of map-based OSINT analysis on the Russia-Ukraine war. Appendix C, D, E, and F show variants of the maps used by BBC News to visualise Ukrainian counter-attacks and Russian advances based on analysis by ISW, and UK MoD. Appendix G shows AP News' use of maps, with an example based on Russian military presence across Ukraine based on analysis by ISW and AEI's Critical Threats Project. Appendix H shows a Reuters map tracking the Kharkov-offensive.

5.2.2.2 Analysis based on multiple sources

The second most common type of OSINT material analysed in the study was categorised as Multiple, and referred to instances where more than one type of OSINT material was analysed within the same article. Examples of how multiple sources of OSINT material were used in one article include the articles listed below. In each instance, Russian officials had initially either denied, dismissed or given differing explanations on what had happened :

- AP News[3] coverage of the bombing of the Mariupol theatre particularly stands out. AP journalists were the last members of international media in Mariupol , leaving the city on 15 March (Chernov), yet the publication was able to meticulously cover one of the biggest stories of the war so far – the Mariupol theatre airstrike which occurred on 16 March. AP News used satellite imagery sourced from Maxar Technologies – which happened to show that the theatre's employees had painted the words 'Children' on the pavement outside to try to discourage Russian planes from bombing it – and from eyewitness footage taken before and after the attack. Additionally, using other OSINT analysis techniques, including the 3D reconstruction of the building's floor plan, AP News was able to come up with an estimate of how many people were killed in the attack.
- AP News coverage of the Bucha massacre in a long-form article[4] that employed several techniques which were applied on OSINT material obtained from different sources which were verified and analysed by five external partners through a methodology that included analysis of leaked Russian databases (*hacked records*); CCTV videos (*footage*); and *geolocation* of security cameras that recorded the footage. External partners include The Dossier Centre, SITU Research, RUSI, Ukrainian government and CIR. The analysis was presented through video, a 3D

[3] Hinnant, L., Chernov, M. and Stepanenko, V. (2022) *AP evidence points to 600 dead in Mariupol theater airstrike*, *AP News*. Available at: https://apnews.com/article/Russia-ukraine-war-mariupol-theater-c321a196fbd568899841b506afcac7a1 (Accessed: 4 May 2023).

[4] Kinetz, E., Stashevskyi, O. and Stepanenko, V. (2022) *How Russian soldiers ran a 'cleansing' operation in Bucha*, *AP News*. Available at: https://apnews.com/article/bucha-ukraine-war-cleansing-investigation-43e5a9538e9ba68a035756b05028b8b4 (Accessed: 4 May 2023).

model, and an interactive graphic that visualised and classified, and provided links to detailed descriptions of 30 attacks that occurred in Bucha.

- BBC News article[5] that was part of its coverage of the siege of Mariupol and the Azovstal plant features video *footage* posted online and filmed from within the Azovstal bunkers in Mariupol, *satellite imagery* of the Azovstal plant sourced from Maxar Technologies, and *maps* based on ISW analysis depicting how Russian forces encircled and besieged Mariupol between 2 March and 20 April, highlighting areas under Russian military control; Russian advances, and areas under claimed Russian control.
- BBC News article[6] covering the Saky air-base attack in Crimea which featured *satellite imagery* sourced from Planet Labs of Saky air-base taken before and after it was attacked, video *footage* sourced from social media showing aftermath of the attack on beachgoers that were near the base; and a *map* based on data and analysis by UK MoD and ISW showing Ukrainian advances in the south near Kherson.

5.2.2.3 Visual content

20.6% of OSINT material analysed in the coverage was *Footage*. This consisted of verified and unverified video or photographic footage, including that which was sourced from social media or CCTV. Satellite imagery accounted for 22.6% of OSINT material analysed. However not all of this was presented visually, some OSINT material would have been presented as text – where for example a description of content would have been given in words, and the raw footage not published.

19.8% of OSINT analysis was presented in a visual format (1.% video and 18.8% images). Some of the most compelling cases that show the primacy of visual content in OSINT-based war reporting in this thesis include;

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[5] BBC News and Davies, C. (2022) 'Mariupol steelworks: Video appears to show children in Azovstal bunker', *BBC News*. Available at: https://www.bbc.com/news/world-europe-61201548 (Accessed: 4 May 2023).

[6] Cheetham, J., Gillett, F. and Rivault, E. (2022) 'Ukraine war: Crimea air-base badly damaged, satellite images show', *BBC News*. Available at: https://www.bbc.com/news/world-europe-62500560 (Accessed: 4 May 2023).

- Video footage published by BBC News of the Moskva on fire before it sunk in the Black Sea (See Appendix I)
- BBC News article investigating a video of Ukrainian forces killing a captive Russian soldier[7]
- AP News article on Russian attacks on medical facilities that extensively used material sourced from Twitter and Facebook[8]
- BBC News' use of satellite imagery to debunk Russian claims on the Bucha massacre[9]
- Reuters' use of satellite imagery in an article showing destroyed Russian planes after an attack at Saky air base in Crimea[10]

While the majority of the footage published was verified by the outlets, the researcher also noted instances where articles would include the use of footage sourced on social media that the outlets would state to have been described as unverified, as yet unverified, or unconfirmed. Examples of this include:

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[7] Reality Check and BBC Monitoring (2022) 'Video appears to show killing of captive Russian soldier', *BBC News*, 7 April. Available at: https://www.bbc.com/news/61025388 (Accessed: 5 May 2023).

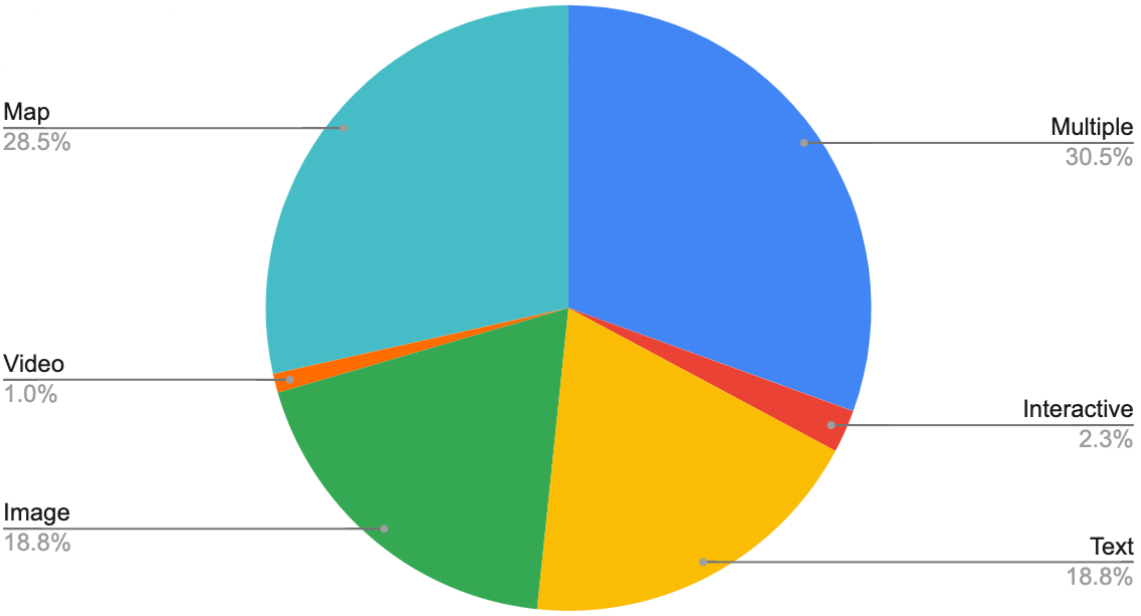
[8] Biesecker, M., Kinetz, E. and Dupuy, B. (2022) *War Crimes Watch: Russia's onslaught on Ukrainian hospitals*, *AP News*. Available at: https://apnews.com/article/russia-ukraine-war-crimes-tracker-b39137c3a96eef06f4ba1793fd694542 (Accessed: 5 May 2023).

[9] Reality Check and BBC Monitoring (2022) 'Bucha killings: Satellite image of bodies site contradicts Russian claims', *BBC News*. Available at: https://www.bbc.com/news/60981238 (Accessed: 5 May 2023).

[10] Balmforth, T. (2022) 'Satellite pictures show devastation at Russian air base in Crimea', *Reuters*, 11 August. Available at: https://www.reuters.com/world/ukraine-suggests-partisans-behind-blasts-russian-airbase-crimea-2022-08-10/ (Accessed: 5 May 2023).

- BBC News article on a Ukranian attack on a Russian ammunition depot during the Kherson counter offensive[11]
- Reuters article which referred to unverified social media footage of Russian forces capture of the Vuhlehirsk power plant after capturing Lysychansk[12]

Fig.4: How the OSINT analysis was presented



Of the 393 articles in which OSINT analysis was done, *Multiple* – which in this study denotes instances where more than one method of presenting OSINT analysis was used – emerged as the main method of presenting OSINT analysis, with 30.5% of the analysis presented this way. 28.5% of the OSINT analysis was presented exclusively through *Maps*; 18.8% of analysis was presented exclusively as *Text*, while 18.8% of OSINT analysis was presented exclusively as *Images*. Only 2.3% of OSINT analysis was presented as *Interactive* content, with just 1% of OSINT analysis presented in the form of video (see Fig.4). The least used methods of presenting OSINT analysis exclusively were *interactive* and *video* with these

[11] Kirby, P. (2022) 'Ukraine claims arms depot attack in occupied Kherson with Himars rockets', *BBC News*. Available at: https://www.bbc.com/news/world-europe-62132441 (Accessed: 5 May 2023).

[12] Zinets, N. (2022) 'Russian forces capture Ukraine's second biggest power plant, Ukraine says', *Reuters*, 27 July. Available at: https://www.reuters.com/world/europe/fate-ukraines-second-biggest-power-plant-balance-after-russian-advance-2022-07-27/ (Accessed: 5 May 2023).

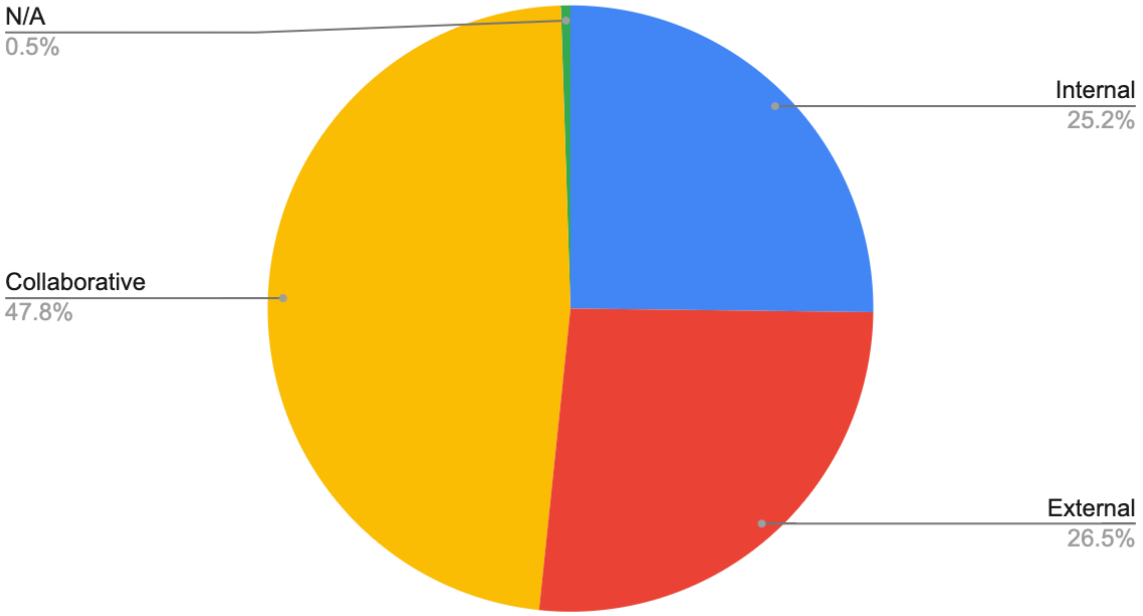
methods having been exclusively used in 2.3% and 1% of thé articles that featured OSINT, respectively.

5.2.3 Results for RQ3

***RQ3**: Was the OSINT analytical work conducted in-house by journalists, done externally or conducted in collaboration with external partners?*

The data shows that 25.2% of OSINT analysis was conducted internally or in-house by the media outlets. 47.8 % of OSINT analysis was collaborative, while 26.5% of OSINT analysis was sourced externally.

Fig.5: Share of OSINT analytical work



The Institute for the Study of War (ISW), Maxar Technologies, and Planet Labs / Planet Labs PBC were the most common external partners that the news outlets in the study exclusively sourced their OSINT analytical work form, accounting for 26.1%, 17.8%, and 4.1% of analysis, respectively.

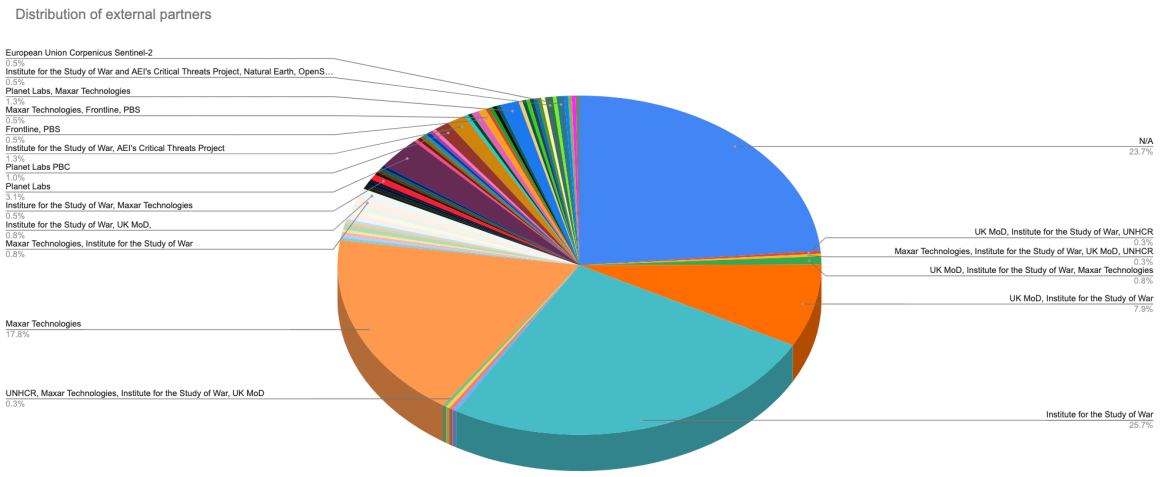


Fig.6: Distribution of OSINT analysis among external partners (enlarged version of the chart is in Appendix B)

There were also instances where the media outlets collaborated with more than one external party on an article (for example, when an article simultaneously contained OSINT analysis from more than one external partner.) The most common combinations were:

- ❖ UK Ministry of Defence (UK MoD) and ISW (8.3% of articles containing OSINT analysis)
- ❖ ISW and American Enterprise Institute (AEI) Critical Threats Project (1.8% of articles containing OSINT analysis)
- ❖ Maxar Technologies and ISW (1.3% of articles containing OSINT analysis)
- ❖ UK MoD and Maxar Technologies (1.1% of articles containing OSINT analysis)

Overall, the external partners identified in the study are:

- Government and governmental agencies: UK Ministry of Defence (UK MoD); Ukrainian Government; European Space Agency (EU Copernicus Sentinel-2)
- Think tanks: Royal United Services Institute (RUSI); American Enterprise Institute's (AEI) Critical Threats Project; International Institute for Strategic Studies; Kiel Institute for the World Economy
- International NGOs: United Nations Office for the Coordination of Humanitarian Affairs; UNHCR; Unitar - UNOSAT; International Partnership on Human Rights;

Ukrainian Healthcare Center and Physicians for Human Rights; Office of the High Commissioner for Human Rights

- Media organisations: Frontline; PBS; New York Times; Reuters; Der Spiegel; The Associated Press
- Open-Source specialists: Bellingcat; Conflict Intelligence Team; The Armed Conflict Location & Event Data Project (ACLED); Oryx; Centre for Information Resilience (CIR); The Dossier Center
- Private companies: Renault; Refinitv Eikon, ImageSat International, BlackSky
- Academic organisations: Flanders Marine Institute

5.2.3.1 Sidelining of OSINT community

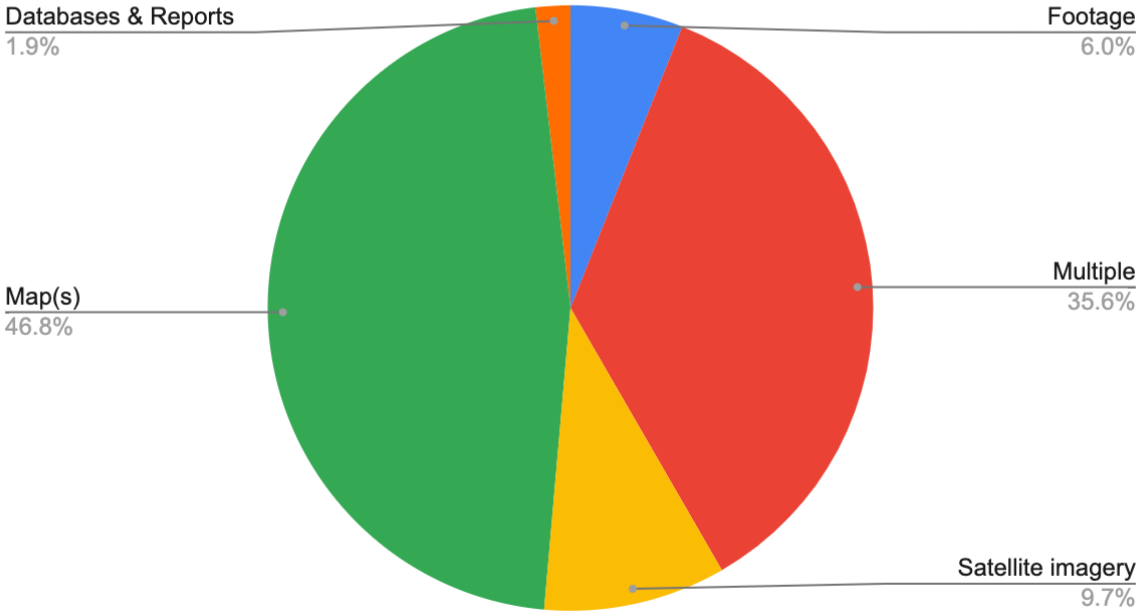
The study did not feature a significant amount of OSINT obtained from the OSINT community which comprises individual analysts and researchers, and specialists like OSINT investigators Bellingcat. One of the few examples of OSINT material sourced from individual OSINT analysts included a Tweet – that the BBC embedded in an article (Appendix I) – of a video of the Moskva on fire after it was struck by two Ukrainian missiles, reports of which the Russian Ministry of Defence (MoD) initially denied, but later recanted saying the ship had suffered a fire onboard which detonated munitions, and that the ship then sunk while it was being towed in stormy weather. While OSINT pioneer Bellingcat, and Centre for Information Resilience collaborated with AP News on a project which was used in about three articles analysed in the study – one such article can be read here[13] – that were part of its War Crimes Watch Ukraine project, these specialist organisations did not feature in a significant amount of analysis.

[13] Dupuy, B. (2022) *Ukraine train system attacks may be war crimes, experts say*, *AP News*. Available at: https://apnews.com/article/russia-ukraine-war-crimes-government-and-politics-0abd99fd89a62042287341e88758d32f (Accessed: 10 May 2023).

5.3 Comparison of AP News, BBC and Reuters

5.3.1 BBC News

Fig.7: Type of OSINT material analysed (BBC News)



There were some differences in how the three outlets used OSINT in their coverage of the Russia-Ukraine war. BBC News had the highest percentage of articles employing some form of OSINT analysis (62.4% of its coverage or 216 articles). In instances where OSINT material was analysed, the majority of analysis was exclusively based on *Maps* (46.8%); S*atellite imagery* (9.7%)*; Footage* (6%), and *Databases and reports* (1.9%). 35.6% of the articles that included some OSINT analysis employed different forms of OSINT material or sources (categorised as *Multiple)* (see Fig.7).

The most common way OSINT analysis of the war was presented to readers by BBC News was through *Maps* (47.7%). 36.1% of the articles presented analysis in a way that combined images, interactive media, maps, text and or video, which in this study was categorised as *Multiple*. 7.4% of OSINT analysis was presented in the form of *Images*. *Interactive content* and *Video* were both tied at 1.9% (see Fig.8).

Fig.8: How BBC News presented its OSINT analysis

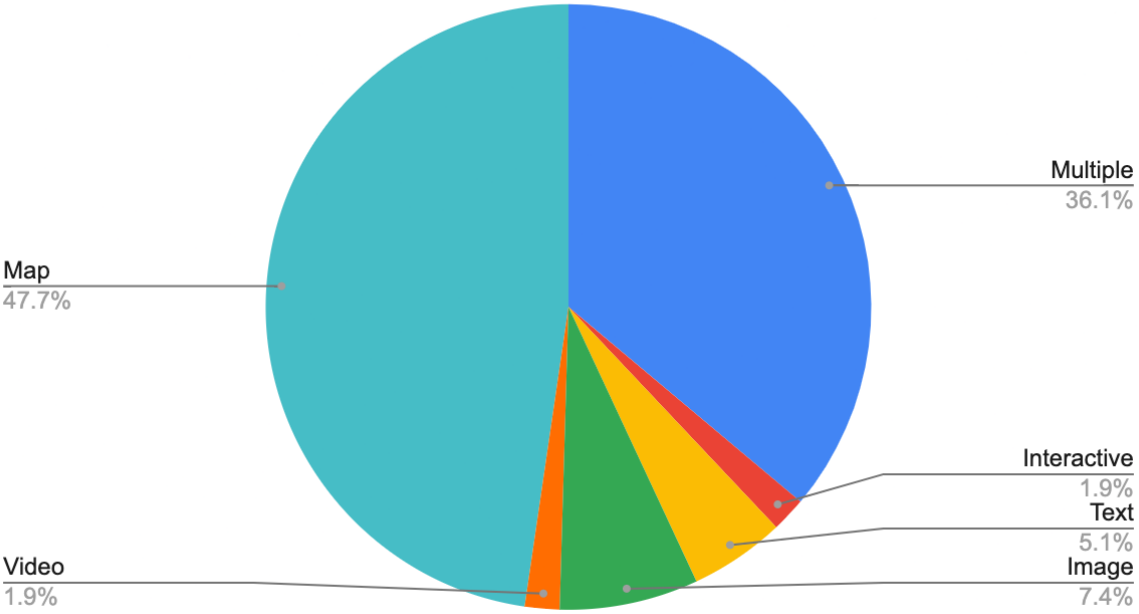
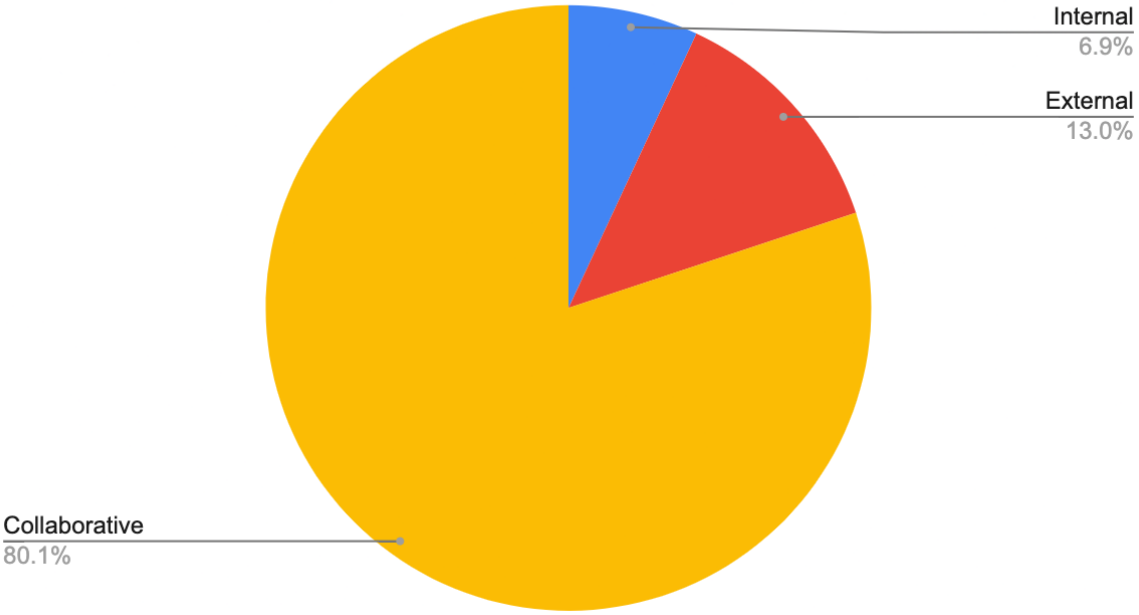


Fig.9: BBC News share of OSINT analytical work

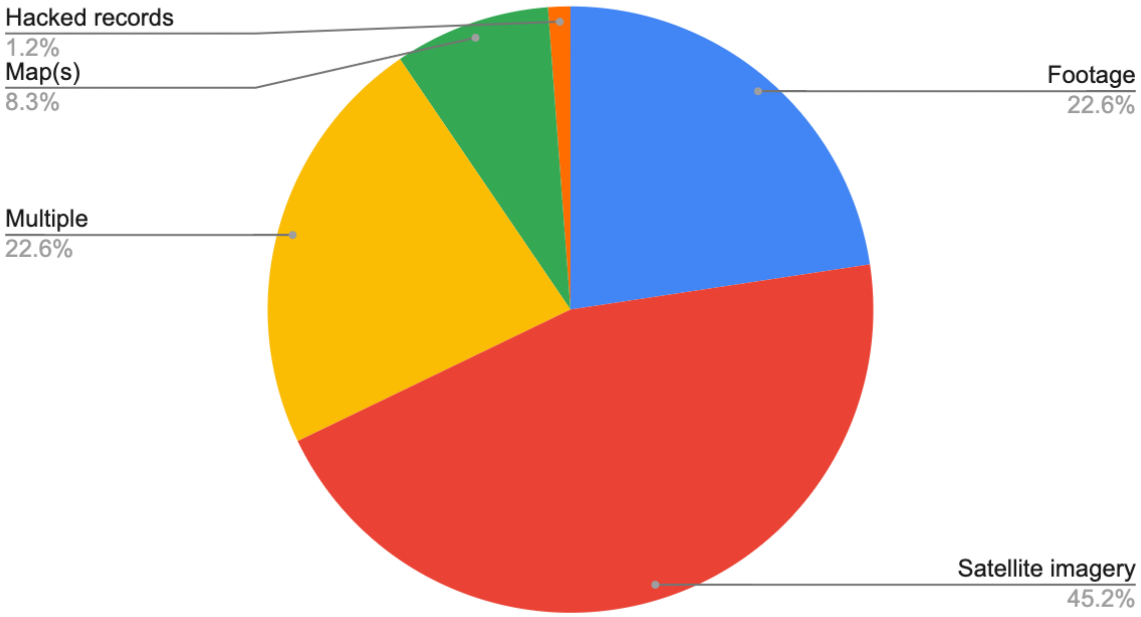


The majority of BBC News' OSINT analysis was conducted *Collaboratively* (80.1%), 13% *Externally*, and 6.9% *Internally* (see Fig. 9). 46.8% of the articles in which OSINT was applied involved analysis which was sourced from ISW, with 7.9% involving OSINT analysis sourced from Maxar Technologies, effectively making the two organisations BBC News' main OSINT partners. There were several instances in which OSINT analysis was sourced

from multiple partners for the same article. 15.8% of such articles listed UK MoD and ISW as joint sources, while ISW and Maxar also jointly listed in 2.3% of the articles.

5.3.2 AP News

Fig.10: Type of OSINT material analysed (AP News)



29.8% (84 articles) of AP News' coverage of the war employed some form of OSINT analysis. Of this, 45.2% of analysis was exclusively based on *Satellite imagery*; 22.6% on *Footage*. 22.6% of AP News' coverage of the war employed OSINT analysis that featured different types of OSINT material within the same article (categorised as *Multiple*), while 8.3% of OSINT analysis was exclusively based on *Maps* (see Fig.10).

In terms of presentation of OSINT analysis, *Text* (35.7%) and *Images* (20.2%), emerged as the most popular methods in instances where one method of presentation of OSINT material was employed. This while 29.8% of coverage employed several methods of presentation simultaneously (categorised as *Multiple*). The least common methods of exclusively presenting OSINT analysis were *Maps* (8.3%) and *Interactive* media (6%) (see Fig. 11).

Fig.11: How AP News presented its OSINT analysis

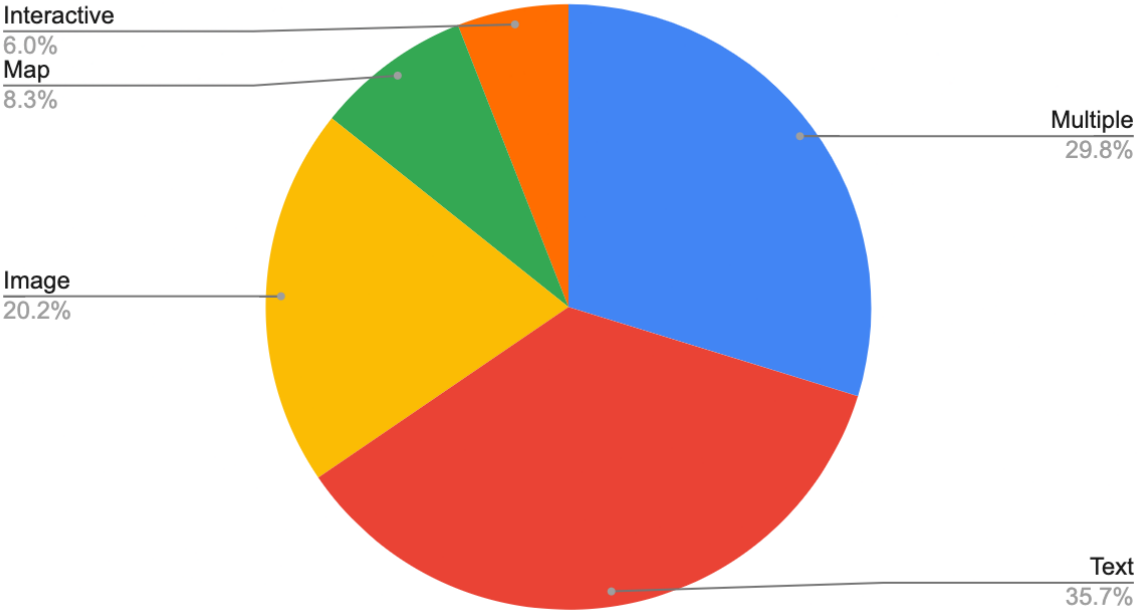
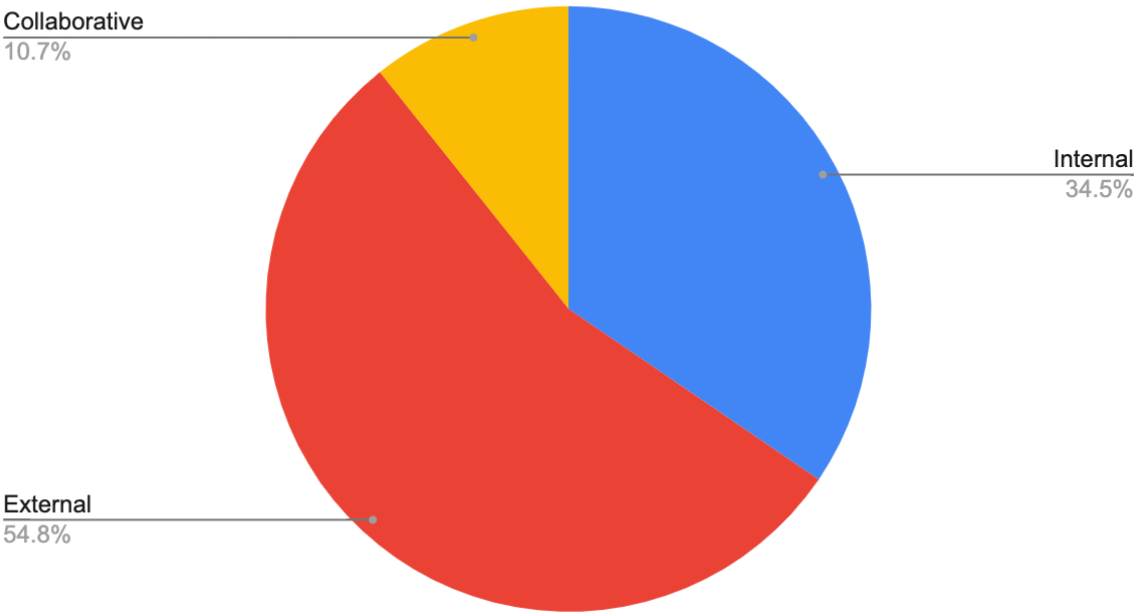


Fig.12: AP News share of OSINT analytical work

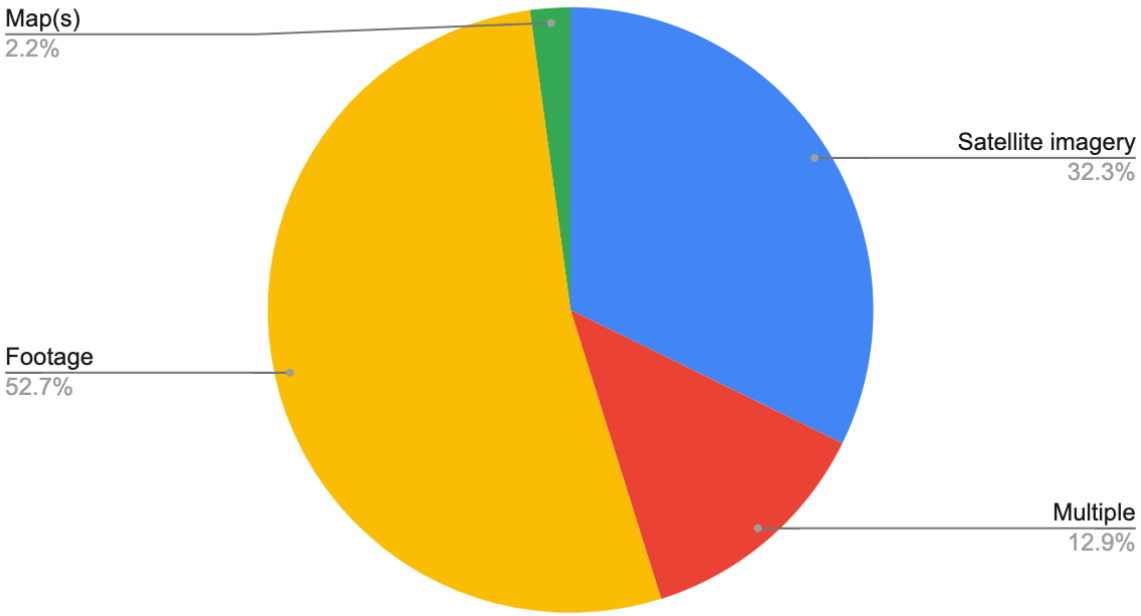


The majority of AP News' OSINT analysis was conducted externally (56%), with 34.5% having been done internally, and 9.5% having been collaborative (see Fig. 12). AP News' main OSINT partners emerged as Maxar Technologies and Planet Labs, with 33.3% and

9.6% of OSINT analysis exclusively sourced from them, respectively. Additionally, 7.2% of AP News coverage which employed OSINT had analysis sourced from both Maxar Technologies and Planet Labs simultaneously, while OSINT analysis provided by the ISW and AEI's Critical Threats Project were simultaneously used as sources for 7.1% of the coverage that contained OSINT.

5.3.3 Reuters

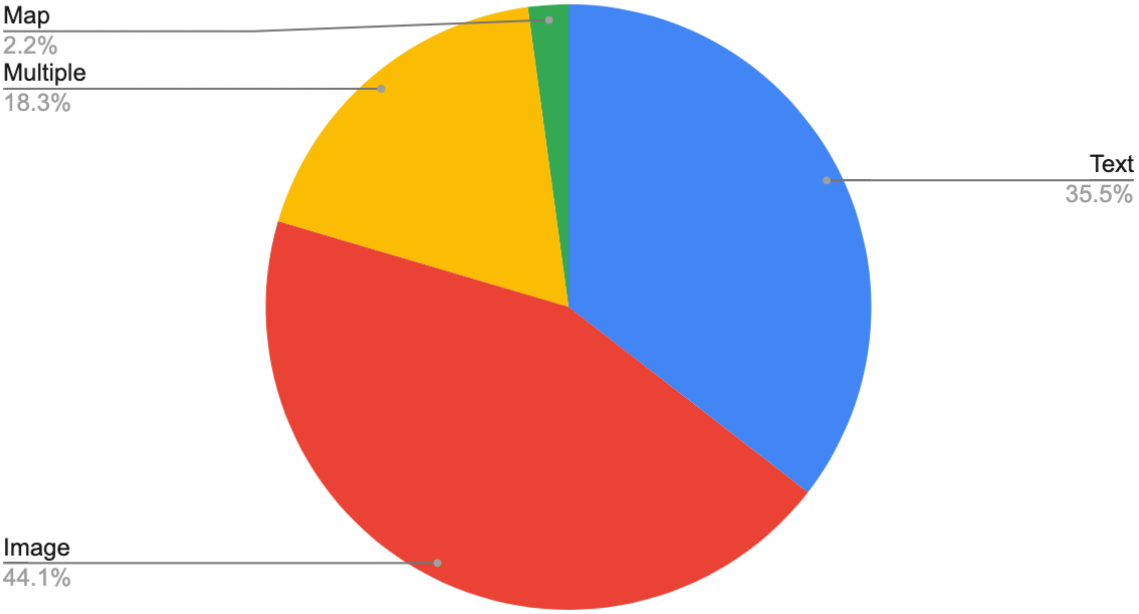
Fig.13: Type of OSINT material analysed (Reuters)



Reuters used OSINT the least among the three outlets, with only 23.3% (93 articles) of its coverage of the war using some form of OSINT analysis. The bulk of this coverage (52.7%) was exclusively based on analysis of *Footage*, followed by *Satellite imagery* (32.3%), with *Maps* accounting for only 2.2% of coverage employing OSINT analysis (see Fig. 13). At least 12.9% of Reuters coverage that employed OSINT combined several forms of OSINT analysis within the same article (categorised as *Multiple*).

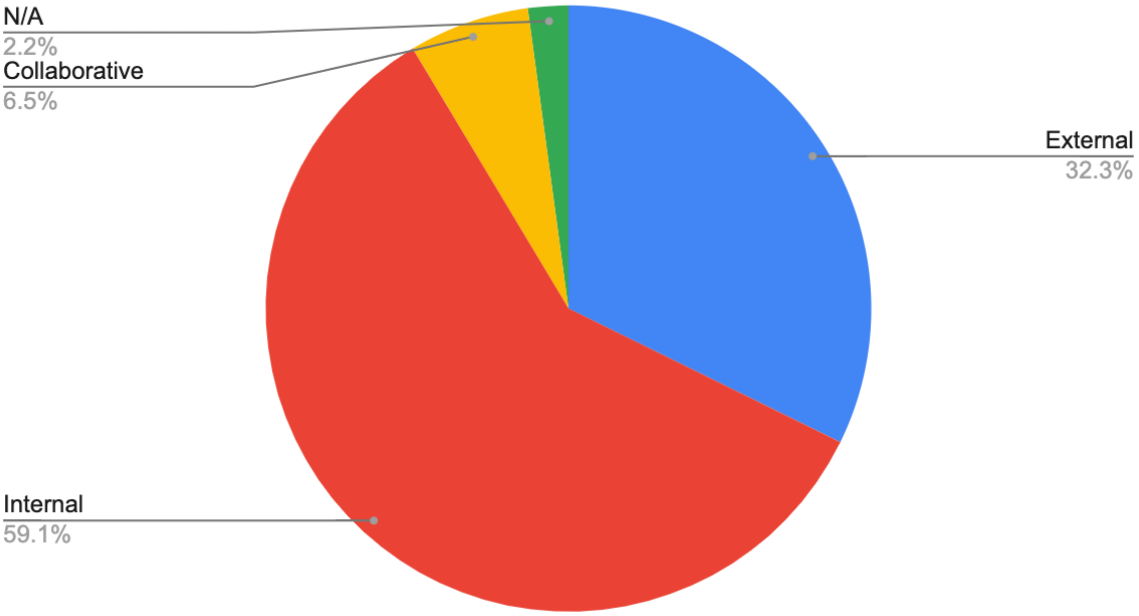
The most common methods Reuters used to present this analysis in articles where only one method was used were *Images* (44.1%) and *Text* (35.5%) (see Fig.14). The least common method was through *Maps* (2.2%). 18.3% of Reuters coverage that employed OSINT used a combination of the different methods (categorised as *Multiple*).

Fig. 14: How Reuters presented its OSINT analysis



Unlike AP News and Reuters, the majority of OSINT analysis that Reuters published was done internally (59.1%); this while only 33.3% of OSINT analysis was done externally, with only 5.4% of Reuters' OSINT analysis being collaborative (see Fig. 15).

Fig.15: Reuters share of OSINT analytical work



About 25.8% of Reuters coverage in which OSINT was applied had analysis exclusively sourced from Maxar Technologies; 4.3% from Planet Labs, and 3.3% from the European Space Agency. Additionally, 8.7% of Reuters' OSINT analysis was sourced from both UK MoD and ISW, and 1.8% from ISW and AEI's Critical Threats Project. Furthermore, 1.3% of Reuters' OSINT analysis was sourced from both Maxar Technologies and ISW; 1.1% from UK MoD, ISW and Maxar Technologies; and 1.3% from Planet Labs and Maxar Technologies.

5.4 Summary of findings

This thesis sought to examine how international media are using OSINT in their coverage of the Russia-Ukraine war. The thesis sought to answer three RQs:

RQ1: How prevalent was the use of OSINT amongst the leading international media organisations in their coverage of the Russia-Ukraine war?

RQ2: What were the main types of OSINT material analysed, and what techniques or methods were used to present the analysis?

RQ3: Was the OSINT analytical work conducted in-house by journalists, done externally or conducted in collaboration with external partners?

The thesis established that only 38.2% of the coverage studied used some form of OSINT analysis, while the majority (61.8%) of articles studied did not feature any form of OSINT analysis. In instances where the coverage featured some form of OSINT, the most common type of OSINT material analysed were *Maps* (28%); while about 27.5% of the coverage employed more than one type of OSINT material within the same article. *Satellite imagery* and *footage* emerged as the third and fourth most common types of OSINT material, having featured in 22.6% , and 20,6% of analysis, respectively. The practice of presenting OSINT analysis in more than one method within the same article emerged as the most common method to present OSINT analysis – this would occur when more than one type of OSINT material was analysed within one article – with 30.5% of analysis presented in this manner. *Maps*, *Text* and *Images* were the second, third, and fourth most popular ways of exclusively presenting OSINT analysis, respectively. While at least a quarter (25.2%) of the OSINT analysis was done in-house by the media organisations, slightly more analysis (26.5%) was conducted externally, with the remaining 47.8% of analysis being conducted collaboratively

between the media and external partners. The study then identified The Institute for the Study of War, Maxar Technologies, and Planet Labs as the top three external partners that the media outlets exclusively sourced their OSINT analysis from. The next chapter of this thesis will analyse and interpret these findings in detail.

Chapter 6: Discussion

The research objective of this thesis was to examine how international media are using OSINT in their coverage of the Russia-Ukraine war. The thesis particularly sought to answer three main research questions:

RQ1*: How prevalent was the use of OSINT amongst the leading international media organisations in their coverage of the Russia-Ukraine war?*

RQ2*: What were the main types of OSINT material analysed, and what techniques or methods were used to present the analysis?*

RQ3*: Was the OSINT analytical work conducted in-house by journalists, done externally or conducted in collaboration with external partners?*

Only 38.2% of the coverage studied used some form of OSINT analysis, while the majority (61.8%) of articles studied did not feature any form of OSINT analysis. In instances where the coverage featured some form of OSINT, the most common type of OSINT material analysed were *Maps*, *Multiple* (where more than one form of OSINT was analysed), *Satellite imagery* and *footage.* The practice of presenting OSINT analysis in more than one method within the same article emerged as the most common way to present OSINT analysis – this would occur when more than one type of OSINT material was analysed within one article – with 30.5% of analysis presented in this manner. *Maps*, *Text* and *Images* were the second, third, and fourth most common ways of exclusively presenting OSINT analysis, respectively. While at least a quarter (25.2%) of the OSINT analysis was done in-house by the media organisations, slightly more analysis (26.5%) was sourced externally, with the remaining 47.8% of analysis being conducted collaboratively between the media and external partners. The study then identified The Institute for the Study of War, Maxar Technologies, and Planet Labs as the top three external partners that the media outlets exclusively sourced their OSINT analysis from.

This chapter will explain and interpret the results, as well as discuss the implications of the findings using the concepts and frameworks that are laid out in the literature review and theoretical framework chapters. The chapter will commence with a discussion on how the *Arrested War paradigm* and the concepts of *sourcing* and *information subsidy* make the ideal theoretical and conceptual toolbox for further studies on the application of OSINT in journalism. Thereafter the discussion will aim to explain why the media seems reliant on

think tanks for OSINT analysis using the Arrested War paradigm. Subsequent to that there will be a discussion on sources and information subsidy, which will lead to the use of the concept to explore why a few external partners are dominating the provision of OSINT analysis to international media. The researcher will then discuss why the use of OSINT is the next evolution of war journalism. This will be followed by a discussion on the concept of *combined OSINT and* how it is a strategy against disinformation. The chapter will then explore some similarities between OSINT-driven war journalism, and conventional journalism when it comes to the importance of visuals. Lastly, the chapter will look at the prominence of maps in OSINT-driven war journalism, and discuss some issues identified in the study around methodology when it comes to maps.

The thesis aims to develop key insights that will inform journalists, media outlets, as well as other journalism and media researchers on the key issues, and best practices in the application of OSINT in war journalism.

6.1 A theoretical and conceptual toolbox for the study of OSINT in war journalism

As has been highlighted in the literature review, and theoretical framework, the application of OSINT in journalism is relatively new, and thus this field lacks comprehensive theoretical discussions that particularly address it. One of the biggest challenges the researcher faced in writing the thesis was finding a single theory that could be used to frame a study on OSINT, however given the complexity of the topic the researcher opted to use the *Arrested War paradigm and mediatization; sourcing, and information subsidy;* as well as the *Boundary Work model*. The researcher proposes that when used together, the *Arrested War paradigm and mediatization; and sourcing, and information subsidy* could form a theoretical and conceptual toolbox that could be used in the study of the application of OSINT in war journalism.

6.2 The Arrested War paradigm and OSINT in war journalism

The *Arrested War paradigm* describes how mainstream media employ different strategies to adapt to changes in technology and digital content to maintain their relevance as key and superior sources of information during times of conflict (Hoskins and O'Loughlin, 2015).

The Arrested War paradigm shows how news media operate during war, particularly how they wield digital content in a way that enables the media to retain its role as gatekeepers, and effectively as the authority when it comes to communicating about war, despite there being several other channels that are capable of doing so. While the internet and social media technologies have enabled anyone with internet access to produce and distribute content, the media has still been able to adapt to the internet's ubiquitous nature and effectively turned its users into sources of information that it can tap into to supplement its own conventional coverage.

The application of OSINT in war journalism in the information age is a prime example of this theory in practice, as this study has shown. Looking at the use of OSINT in war journalism, the study has shown that faced with challenges like lack of access to media outlets can verify and validate content that traditionally existed outside of the media sphere – like videos and

photos shot by citizens or members of the military – into mainstream media content. This is most crucial in warzones where due to lack of access to the battlefront, sometimes the only material available might be that produced by eyewitnesses on the ground. These would traditionally not qualify for use in mainstream media. But, by employing internet-based tools to verify this open-source material, the media can validate the content and in turn use it to mediate conflict. Furthermore the media can collaborate with other external actors, like subject matter experts, think tanks, or even satellite imagery companies to analyse a diverse set of sources that can be used to complement traditional reporting, and in doing so help the media to consolidate information and build a comprehensive picture of a conflict.

The process by which the media selects what non-conventional sources or OSINT material it uses, or the choice of external actors it collaborates with to analyse that information reinforces the media's gatekeeping role and gives it control of the narrative, at the same time enabling the media to become the producers of irrefutable information on war thus effectively making it the prime mediators of conflict.

6.2.1 Why is the media reliant on think tanks for OSINT analysis?

The thesis' findings generally support the researcher's hypothesis that international media are using OSINT to cover the Russia-Ukraine war. As discussed in the introduction, the restrictive operating environment the media are reporting under in Ukraine – which include lack of access to conflict zones, control of information, misinformation and the high risk of deaths journalists were facing – necessitate the use of alternative sources of information in gathering information on the war. However, the fact that only 38.2% of the articles sampled in the study employed some form of OSINT was an unexpected outcome for the researcher, as there was a lot of OSINT material that has been posted on Twitter and has been verified by the OSINT community from the onset of the conflict. The assumption was thus that the majority of coverage would be based on some form of OSINT.

The media's apparent reliance on OSINT analysis from think tanks like ISW, and less from individual OSINT researchers and analysts, and established OSINT specialist organisations like open-source investigative reporting pioneers Bellingcat, ACLED, CIT, CIR, and Oryx was an unexpected outcome. The researcher expected there would be a significant amount of OSINT analysis sourced from these members of the OSINT community. For example, the

study only recorded three instances of articles featuring analysis from Oryx, and three featuring analysis by Bellingcat. This despite these organisations and individuals coming up with compelling OSINT analysis on developments in the war that was widely posted on social media.

The Arrested War paradigm, the researcher believes, can help explain the unexpected outcomes of this paper. The study established that the majority of the OSINT analysis applied by media in this study was sourced from the ISW, despite there being a plethora of individuals and organisations with capabilities in OSINT analysis. This suggests perhaps some degree of gatekeeping occurred, which raises concerns around agenda-setting which are beyond the scope of this study. Hoskins and O'Loughlin (2015, p.1321) discuss how, according to the Arrested War paradigm, 'Any content that is acclaimed as alternative, oppositional, or outside only acquires significant value when acknowledged and remediated by the mainstream'. Therefore, according to this framework, the media has the authority to validate analysis done by individual OSINT analysts or specialist organisations by publishing it. From an Arrested War paradigm perspective, one can infer that this gatekeeping could have been done so individual OSINT researchers and specialist organisations – who widely share their work on Twitter and other social networks – would not create competition for control of the narrative, and in doing so maintain the media's role as the authority on mediating the war. This issue can also be examined from a sources and information subsidy conceptual lens.

6.3 Of sources and information subsidy

Combined OSINT – this refers to an OSINT analysis approach which the researcher identified and will explain in detail later in this chapter – is reliant on the use of multiple open-source material and on collaboration with as many OSINT analysts and researchers as possible. The practice highlights the importance of sources and sourcing in modern war journalism. As earlier covered in the theoretical discussion, sourcing is a critical element of news production (Moon and Hadley, 2014, p.290; Manning, 2001), so much that a well-sourced article is an indicator of quality journalism (Cozma, 2015). Diversity of sources as such would be one of the goals of *combined OSINT*, as source diversity can have an effect on media credibility, framing, and the public's perception of news coverage (Cozma 2006, Christians et al. 2009).

6.3.1 Explaining the 'OSINT analysis monopoly'

The data in this study suggests that there is what appears to be what the researcher refers to as an '*OSINT analysis monopoly*' where a handful of organisations appear to be providing OSINT analysis to the media, despite there being a number of other actors that have the same capabilities.

The study established that only 25.2% of OSINT analysis was done internally, with 47.8% being collaborative, and 26.5% of analysis having been conducted externally. Furthermore, the study established that ISW, Maxar Technologies, Planet Labs were the main external partners that the three media outlets worked with. Several questions - which beg answers - abound. For example, what criteria influenced the selection of external partners the media organisations worked with? What influenced the editors to choose one think tank over another - for example why work with ISW over say RUSI, AEI or IISS? Additionally, why did the outlets opt to work with think tanks over organisations that specialise in or have an established track record in OSINT analysis or research of conflicts or in conflict situations like Bellingcat, CIR or ACLED? Answering these questions is beyond the scope of this study because of access limitations and time restrictions, this thus presents an opportunity for further study around use of OSINT in war journalism.

The concept of *information subsidy* outlined in the theoretical framework of the paper, can help explain some of these choices. It explains the provision of information to the media at little cost or in a way that requires minimal effort on the part of the media (Shin, 2010; Sweetser and Brown, 2008). However, there is a trade-off. While media organisations could benefit from cheaper news production costs, there is a possibility these organisations will want their interests, views, and or agendas promoted in return (Park, Bier and Palenchar, 2016; Moon and Hadley, 2014; Gandy, 1982).

Commercial satellite imagery 'can be quite expensive', however commercial satellite providers have been known to provide imagery for free (Willman, 2021). While Planet Labs is said to have terms of service agreements with up to 10 media organisations that include the BBC – which provides subscribers with direct access to its satellite imagery database – it does deal with other media outlets on a 'case-by-case basis' (Corcoran, 2018, p.21). Although

the company provides news agencies with access to imagery, there tend to be complications due to copyright and licensing concerns (Corcoran, 2018, p.21). Planet Labs predicts media interest ahead of major news events and in some instances prepares imagery for the media ahead of time. While the firm was in 2018 not providing in-house analysis, it gives the media recommendations on external experts (Corcoran, 2018).

Maxar Technologies on the other hand offers free imagery and in-house analytical services to select media partners, in addition it co-operates on long-term exclusive investigations with select media outlets (Corcoran, 2018, p.25). Maxar also provides some media outlets with imagery in exchange for attribution (Corcoran, 2018, p.25). The media selects sources based on journalistic norms as well as economic rationale (Moon and Hadley, 2014). As such, media outlets will select sources that are of least economical cost to them. We can thus infer that with satellite imagery the media outlets selected providers based on which company was cheaper, or which one offered imagery for free.

However, from an information subsidy perspective, it is worth considering the implications of the media sourcing OSINT analysis from think tanks. Moreso if if one becomes more dominant than others in the media, like ISW was in this study. For example, can the media trust their analysis without verifying it independently with other analysts? Is it pragmatic from an objectivity standpoint for the media to publish an article based on OSINT analysis done by a think tank? This as the neutrality and objectivity of some think tanks has been called into question in the past, with links to the UK government having been established in the case of RUSI (Wearing, 2015). Given the media's tendency to follow its national foreign policy when covering a conflict (Nohrstedt, 2009), it is important to investigate such linkages between the media and external partners providing news organisations with OSINT analysis if the media is to guard against PSYOPS and propaganda. This is particularly important in the context of US-based ISW, and bearing in mind that the outlets covered in the article are all based in NATO-member countries which are backing Ukraine in the conflict. Research has shown that the selection of a source has an influence on the news frames the media adopts (Cozma, 2015, p.437); moreover information subsidies have an effect in news production and framing (Park, Bier and Palenchar, 2016, p.657).

Another reason for the need for source diversity, especially in OSINT, is to guard against the danger of wrong or incorrect analysis making its way into the news. Having multiple sources would in a way provide safeguards against this.

6.3 Is OSINT the next evolution of war journalism?

While the coverage that included OSINT analysis was in the minority, it is undeniable when one looks at the use of OSINT by the three outlets that there is some indication that the application of OSINT in war journalism could be the next evolution of the field. Just about a quarter of the OSINT analysis done in this study was conducted in-house. 62.4% of BBC News coverage of the war included some form of OSINT, while more than a quarter of AP News coverage also made use of OSINT. Moreover, the fact that Reuters conducted the majority of its OSINT analysis internally, despite having used OSINT the least among the three outlets suggests there is significant uptake and adoption of OSINT by international newsrooms. Furthermore these results – on Reuters conducting the majority of its analysis internally – appear to track with Baker (2022) statement that Reuters has a user-generated content team that reviews, verifies and sources content captured or recorded by eyewitnesses.

Furthermore, that BBC News had the most coverage with OSINT analysis also tracks with how the outlet started training its staff in open-source media in 2018. The fact that two of the publications in the study are known to be training staff in OSINT skills is proof that OSINT work is being ‘ professionalised’ by the media, according to the Boundary Work model .

The study has shown how the media is leveraging developments in technology to improve how war journalism is practised through OSINT. It appears the adoption of OSINT is both in keeping with some common conventions of war journalism, while at the same time addressing some concerns raised about war journalism.

Technology determines how conflicts are communicated (Ciuriak, 2022, p.2). As the historical survey in Chapter 3 highlighted, advances in technology from portable film, satellite broadcasting technology to social media have all had an influence on how journalism is practised in general, but more so on war journalism. OSINT, which is enabled by a number of technologies – ranging from satellite imagery technology, the internet, social media, and

AI – is no different. As these technologies develop and improve, so will the ease and speed of OSINT analysis. Based on the trends observed in this study, the researcher believes OSINT is the next evolution of war journalism.

This evolution can be seen by how contemporary war correspondents now perform curatory roles which require that they provide context, use multiple sources, and have nuance in their reporting, while at the same time being capable of verifying material obtained from social media Christensen and Khalil, 2021, p.4). Furthermore, the dynamic information environment we are in calls for journalists to have a mixture of both traditional journalistic skills, as well as capabilities in new methods of sourcing, gathering and verifying information (Christensen and Khalil, 2021, pp.9-15).

Criticism levelled against war journalism revolves around how it lacks sufficient explanation and is instead focused on action and sensationalism; how it contains certain biases and is not truthful; and how it is framed (McQuail, 2006, p.116). As this thesis has shown, the use of OSINT in war journalism can provide media consumers with a degree of analysis and information about conflicts that is unprecedented. The plethora of data sources that can be drawn from in open-source reporting not only make for richer storytelling, but also for factual journalism that is backed by data. OSINT methods and techniques are similar to those used in combating disinformation and misinformation (Toler, 2020). This is of particular importance in the age of fake news, and in an information environment where disinformation is a potent threat to the public. Additionally, the speed at which some OSINT analytical methods can be applied effectively means that media consumers almost have real-time access to developments on the ground as they happen. The BBC News Visual Journalism Team (2023) pointed out that its maps are based on daily assessments published by external partners like ISW and UK MoD. Appendices C, D, and E, for instance, show maps that feature analysis that is a day old. Moreover, as the examples shown in this paper have shown, OSINT can complement traditional reporting in instances where it is too dangerous for journalists to work, or in instances where they face restrictions that significantly interfere with their work.

Data gathered in this study suggests that media outlets have significantly adopted the use of OSINT in war journalism. This tracks with Loehrke's (2021) observation that most media outlets have in-house teams for OSINT, and that application of it in the newsroom is becoming a normal feature in American and European news organisations in their coverage

of the Russia-Ukraine war (Freear, 2022). Higgins (2021, p.216) suggests that outlets that do not have OSINT capabilities might 'keep missing scoops. Staff trained in OSINT techniques reduce reliance on sourcing analysis from external parties, thereby enabling media organisations to be independent, and more transparent with their methodology (Loehrke.,et al 2021). This all points to the idea that journalism is undergoing a paradigm shift where OSINT could become a mainstay of journalism.

6.4 Combined OSINT: Multiple sources as a strategy against disinformation

A key finding of the study was how the news outlets were analysing several types of OSINT material within an article. The study found that 27.5% of articles that contained some form of OSINT used this approach – analysing several types of OSINT material gathered from different sources within the same article. The literature review highlighted work done by Gregory (2022) which shows that open-source material, particularly footage obtained on social media, can be prone to manipulation by actors waging disinformation campaigns. This threat, he suggested, saw the media and OSINT analysts and researchers rely on multiple open-source material in their investigations in order to mitigate and manage that risk. This practice is apparent in the way the news outlets in this study were also employing the same approach to produce articles that could not be dismissed or questioned on the basis of the authenticity of the open-source material the OSINT analysis was based on. This approach, which the researcher suggests be described as *combined OSINT* appears to be an effective strategy to counter disinformation.

6.5 OSINT upholds the primacy of visual storytelling

Visual storytelling is a dominant characteristic of war journalism (Nohrstedt, 2009). The results of this thesis suggest that this is the case too when OSINT is used in war journalism. Out of the 393 articles in which OSINT analysis of some sort was conducted, about 43.2% consisted of analysis of *satellite imagery* and *footage* (video and photographs obtained from social media).

While the majority of the footage published was verified by the outlets, the researcher also noted instances where articles would include the use of footage sourced on social media that the outlets would state to have been described as unverified, as yet unverified, or unconfirmed.

This practice is very concerning in an information environment where there are reports of disinformation campaigns, and especially considering how visual content is prone to manipulation (Nohrstedt, 2009, p.105; Warzel, 2022). In this context, it would probably be prudent for the media not to publish unverified visual content, as getting it wrong would consequently play into Russia's claim that 'all information is just manipulation' and that news is open to contestation (Warzel, 2022; Hoskins and O'Loughlin, 2015, p.1322). If the media were to make the mistake of publishing unverified content which wound up being proven to be fake, it would have a devastating impact on the credibility of that outlet, and the public's trust in the media in general, especially if it were a big story like the Bucha massacre.

6.6 Prominence of maps in OSINT-based journalism

Maps emerged as the most dominant form of OSINT material in this study. The prominence of maps as both OSINT material and as a method of presenting open-source reporting is in keeping with Wise's (2022) observations on how OSINT researchers conducting analysis on the Russia-Ukraine were collecting, verifying and combining information on dynamic maps to track and visualise battles, attacks and casualties in real-time.

The BBC News Visual Journalism Team (2023) pointed out that its maps are based on daily assessments published by external partners like ISW and UK MoD. The maps would also show this information, that is when the analysis was made. However, the researcher noticed that while this information was given, there was not much given with regards to the methodology behind the assessments. This again raises questions on how reliable ISW's analysis is, as well as about objectivity given that the media are being supplied with analysis on a conflict in which the provider of the analysis – the UK MoD – is essentially involved in. This thus calls for a review on how OSINT analysis and presentation of data involving maps should be done so there's full transparency. After all, OSINT analysis, research and

investigations are seen as credible largely because of how the practice is built around transparency and openness of methods (Ahmad, 2019). The researcher recommends that ISW and the media outlets start including a brief description of their methodology with the maps.

6.7 Implications

This study provides a new insight into how international media are using OSINT to cover the Russia-Ukraine war. The data shows that use of OSINT has not been that prevalent, with only 38.2% of coverage containing some form of OSINT analysis. The data provides a clear understanding of how OSINT is used when covering conflict, with analysis focusing on maps, satellite imagery, and visual footage. The most common way to present OSINT analysis is through a combination of methods where possible, as well as through maps. The data also reveals that media organisations are conducting at least a quarter of their OSINT analysis in-house, although slightly more analysis is being done externally, however close to half of the OSINT analysis is being conducted collaboratively between the media and external partners. The study highlighted how the Institute for the Study of War (ISW) is the dominant provider of analysis on the war in the form of maps, with Maxar Technologies the leading provider of satellite imagery.

6.8 Limitations

The methodological choices of the thesis were constrained by lack of access to the media outlets that this thesis researched. The thesis would have benefited from in-depth interviews with the journalists, editors and management at the respective outlets. In-depth interviews would have better answered RQ2 and RQ3 in more detail. Moreover the researcher did not treat Telegram as social media, and given that the messaging platform is used as a social media platform in Russia and Ukraine, it is possible the researcher might have missed some relevant texts during data collection.

6.9 Recommendations

The researcher recommends media outlets start including a brief description of the methodology behind a map when publishing maps presenting some form of OSINT provided

by an external party. The researcher also recommends that scholars use the *Arrested War paradigm and mediatization;* and *sourcing, and information subsidy* concepts as a theoretical and conceptual toolbox in the study of the application of OSINT in war journalism.

Future research is needed to establish how media organisations select third parties that they work with as OSINT analysts when covering war or conflict. Future research should also examine ISW's dominance in the provision of analysis or OSINT maps to international media in the Russia-Ukraine war.

Chapter 7: Conclusion

The research objective of this thesis was to examine how international media – particularly AP News, BBC News, and Reuters – used OSINT in their coverage of the Russia-Ukraine war. The thesis particularly sought to answer three main research questions:

RQ1*: How prevalent was the use of OSINT amongst the leading international media organisations in their coverage of the Russia-Ukraine war?*

RQ2*: What were the main types of OSINT material analysed, and what techniques or methods were used to present the analysis?*

RQ3*: Was the OSINT analytical work conducted in-house by journalists, done externally or conducted in collaboration with external partners?*

The findings were as follows:

RQ1: The thesis established that the majority of the coverage by the three outlets did not feature any form of OSINT content in their coverage of the war. In fact, only 38.2 of the coverage featured some form of OSINT content.

RQ2: In instances where the coverage featured some form of OSINT content, the most common type of OSINT material analysed were *Maps* (28% of analysis). This was closely followed by *Multiple* (where more than one form of OSINT material was analysed in an article) which accounted for 27.5% of analysis , *Satellite imagery,* and *footage* emerged the third, and fourth most common types of OSINT analysed, respectively, accounting for 22.6% and 20.6% of total OSINT analysis.

The practice of presenting OSINT analysis in more than one method within the same article emerged as the most common way to present OSINT analysis – this would occur when more than one type of OSINT material was analysed within one article – with 30.5% of analysis presented in this manner. 28.5% of the OSINT analysis was presented exclusively through *Maps*; 18.8% of analysis was presented exclusively as *Text*, while 18.8% of OSINT analysis was presented exclusively as *Images*.

RQ3: While at least a quarter (25.2%) of the OSINT analysis was done in-house by the media organisations, slightly more analysis (26.5%) was sourced externally, with the

remaining 47.8% of analysis being conducted collaboratively between the media and external partners. The Institute for the Study of War, Maxar Technologies, and Planet Labs emerged as the top three external partners that the media outlets exclusively sourced their OSINT analysis from.

The thesis employed a mixed-methods approach to conduct the study off the hypothesis that international media were using OSINT to cover the Russia-Ukraine conflict. The mixed-methods approach involved combining conceptual content analysis – which is a type of quantitative analysis – with textual analysis, which is a type of qualitative analysis. This approach was selected as the researcher sought to not only count instances where OSINT had been used, but also to make inferences based on the data. Textual analysis was selected as it allowed the researcher to perform a rudimentary form of textual analysis where he could read texts in the sample and code the results on a coding scheme accordingly.

The researcher expected the majority of coverage in the sample to contain some form of OSINT, however the results showed that the majority of articles in the sample did not contain any OSINT.

The thesis was constrained by lack of access to the media outlets that this thesis studied. The thesis would have benefited from in-depth interviews with the journalists, editors and management at the respective outlets. In-depth interviews would have better answered RQ2 and RQ3 in more detail. Moreover the researcher did not treat Telegram as social media, and given that the messaging platform is used as a social media platform in Russia and Ukraine, it is possible the researcher might have missed some relevant texts during data collection.

The researcher recommends media outlets start including a brief description of the methodology behind a map when publishing maps presenting some form of OSINT provided by an external party. The researcher also recommends that scholars use the *Arrested War paradigm and mediatization;* and *sourcing, and information subsidy* concepts as a theoretical and conceptual toolbox in the study of the application of OSINT in war journalism.

Future research is needed to establish how media organisations select third parties that they work with as OSINT analysts when covering war or conflict. Future research should also examine how certain organisations have established dominance in the provision of OSINT

analysis to international media in the Russia-Ukraine war, and what the implications of that are.

Overall, the thesis addressed a gap in knowledge around the use of OSINT by international media in the coverage of the Russian-Ukraine war. The researcher identified an '*OSINT analysis monopoly*' where a handful of organisations appear to be providing OSINT analysis to the media, despite there being a number of other actors that have the same capabilities. The data gathered in the study – which appears to be backed up by existing literature – also suggests that media outlets have significantly adopted the use of OSINT in war journalism, and that the use of OSINT is the next evolution of war journalism, and that it will become a mainstay in journalism.

The researcher also discovered a trend, which he referred to as *combined OSINT* where news outlets were analysing several types of OSINT within an article. This linked to existing research that showed that OSINT researchers tend to rely on several forms of open-source material because of how prone to manipulation footage obtained on social media is. The researcher also established that this approach can be used as a strategy to fight disinformation. Other interesting findings were how the application of OSINT in war journalism had

Furthermore, given that scholarship on OSINT's application in journalism is such a new field and as there is a lack of comprehensive theoretical discussions that particularly address it, the researcher contributed to journalism studies by coming up with a theoretical and conceptual toolbox that can be used by other researchers in later studies. That is, by combining the *Arrested War paradigm* with the concept of *sourcing* and *information subsidy.*

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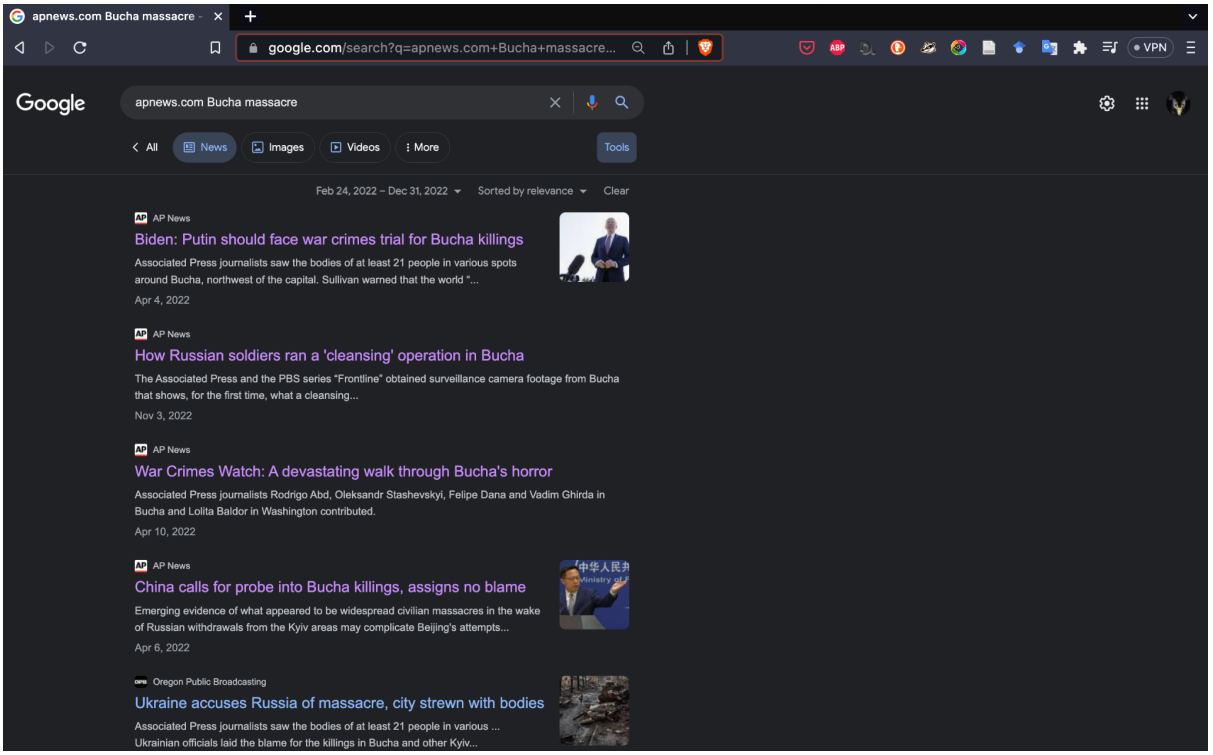
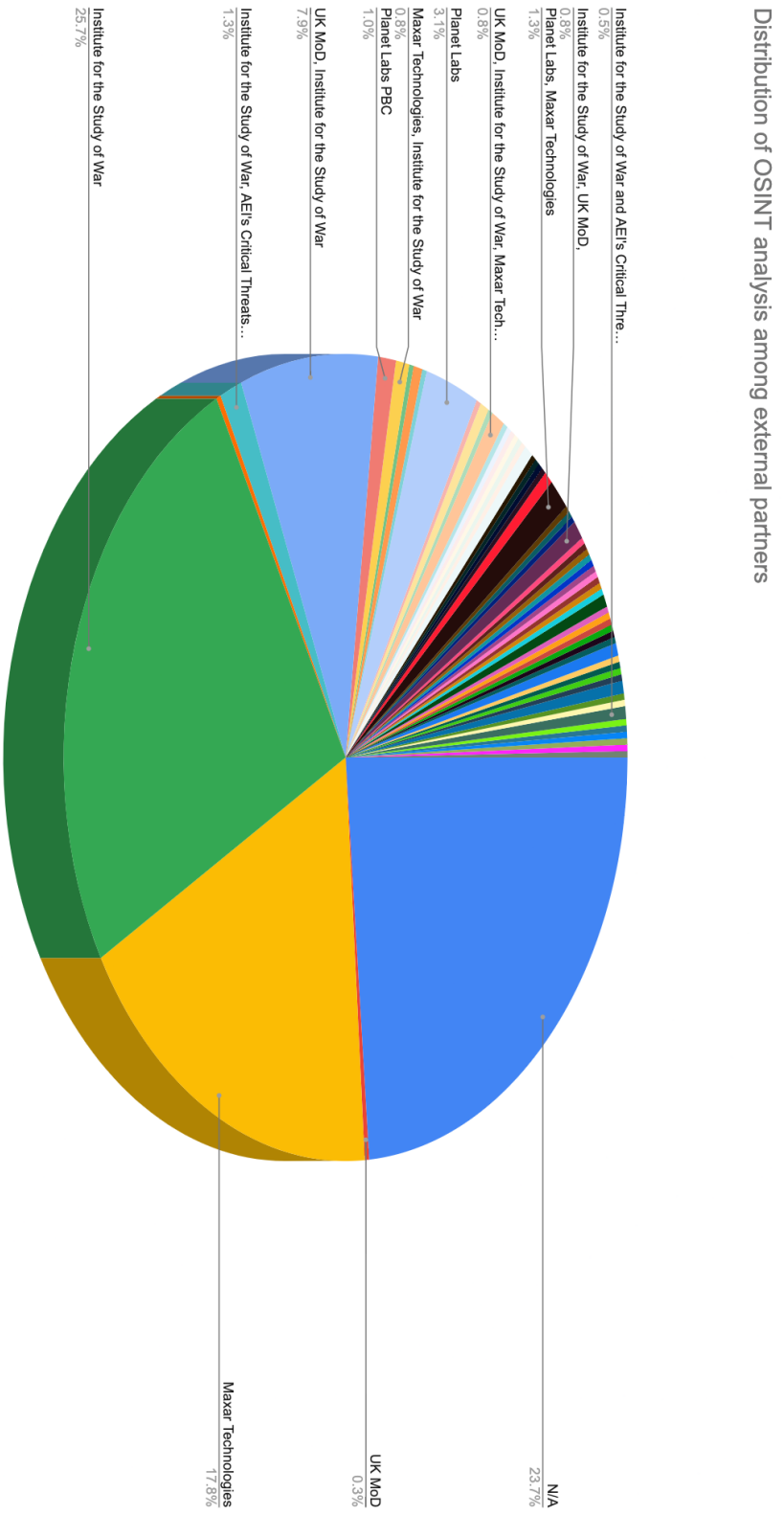
Appendix A



Screenshot of the Google search query for AP News articles for the Bucha massacre.

Appendix B



Distribution of OSINT analysis among external partners.

Appendix C

BBC News map showing Ukrainian counter-attacks based on ISW analysis. The map highlights locations of Ukrainian counter-attacks, as well as areas where Russia was making advances.[14]

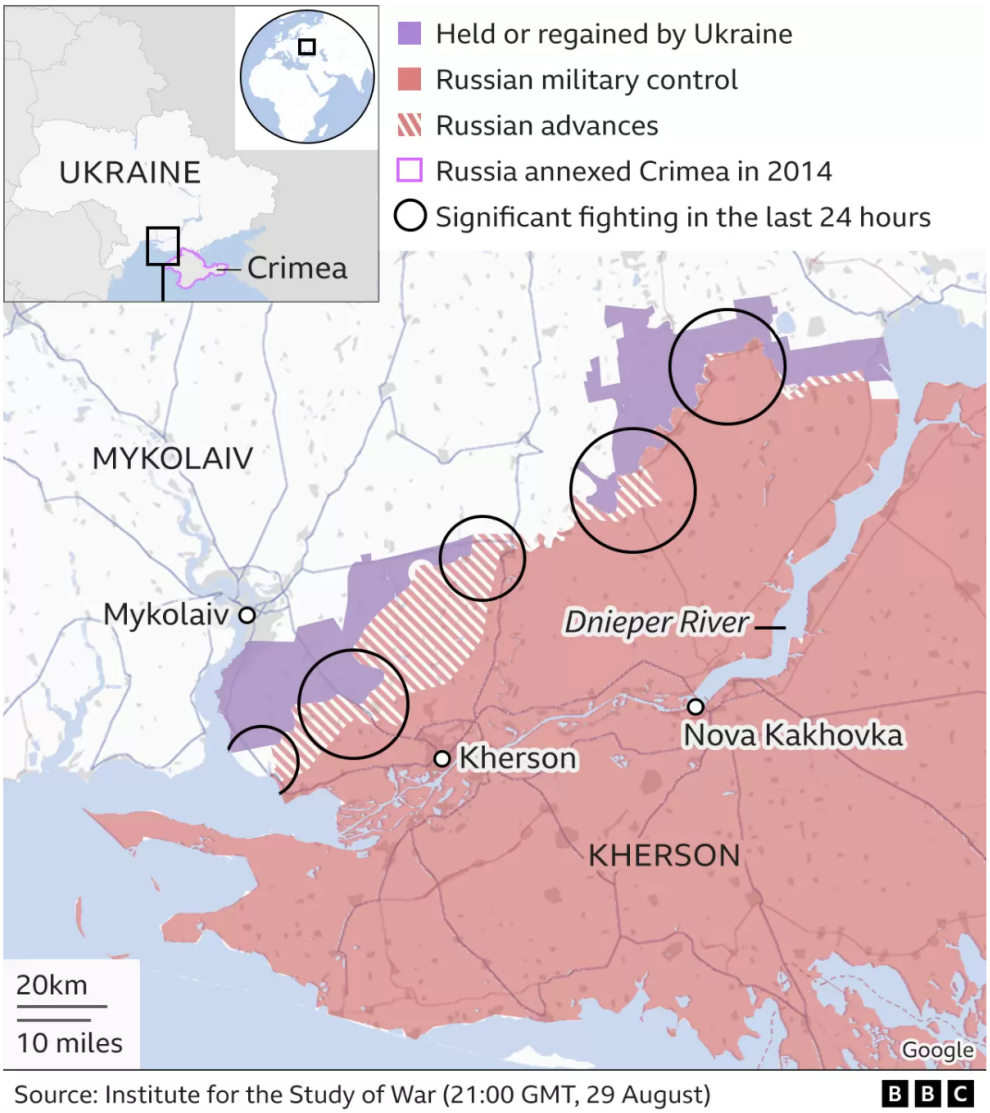
[14] BBC News (2022) 'Ukraine war: Ukrainian fightback gains ground west of Kyiv', *BBC News*. Available at: https://www.bbc.com/news/world-europe-60847188 (Accessed: 4 May 2023).

Appendix D

BBC News map showing direction of Ukrainian advances, areas held or regained by Ukraine, as well as Russian advances according to UK MoD and ISW analysis[15]

[15] Murphy, M. (2022) 'Ukraine war: Kyiv's forces moving towards occupied Kherson - Zelensky', *BBC News*. Available at: https://www.bbc.com/news/world-europe-62283196 (Accessed: 4 May 2023).

Appendix E



BBC News map showing the Kherson counter-offensive based on ISW analysis. The map marks areas where fighting was reported 24 hours before it was published[16]

[16] Sands, L. and Lukov, Y. (2022) 'Kherson: Ukraine claims new push in Russian-held region', *BBC News*. Available at: https://www.bbc.com/news/world-europe-62712299 (Accessed: 4 May 2023).

Appendix F

BBC News map showing progression of Kherson counter-offensive based on ISW analysis [17]

[17] Guerin, O. (2022) 'Ukraine war: Accounts of Russian torture emerge in liberated areas', *BBC News*. Available at: https://www.bbc.com/news/world-europe-62888388 (Accessed: 4 May 2023).

Appendix G

AP News map showing Russian military presence across Ukraine based on analysis by ISW and AEI's Critical Threats Project.[18]

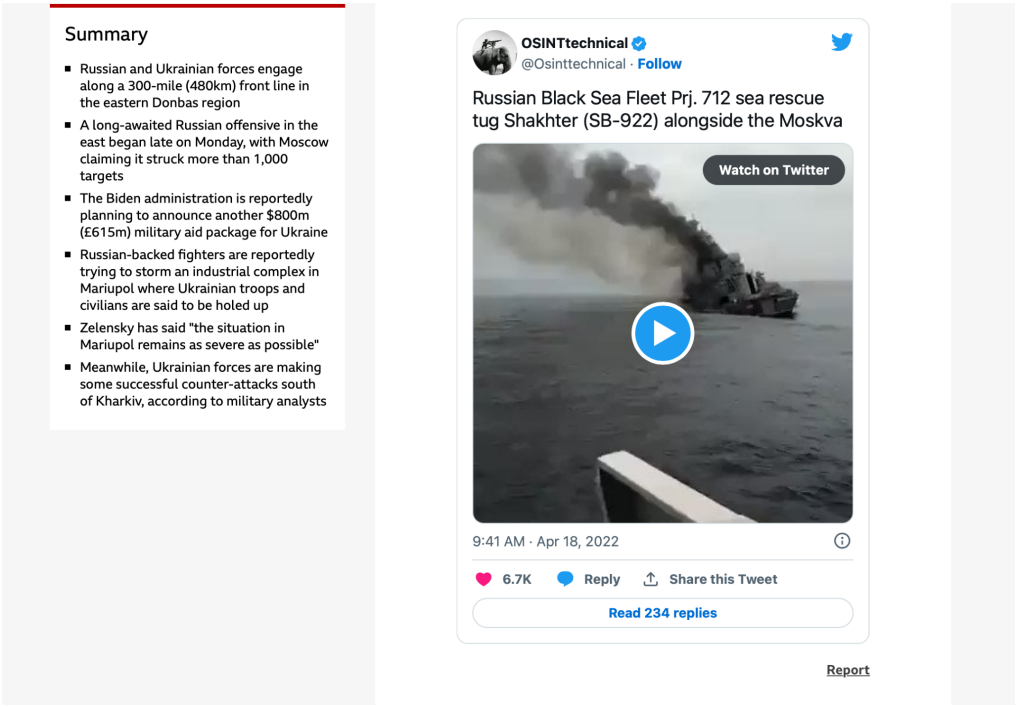
[18]Blann, S. (2022) *Russian shelling heavy in east; Ukraine strikes key bridge | AP News*, *AP News*. Available at: https://apnews.com/article/russia-ukraine-fires-donetsk-ef079e9648ceb5dab4a4fd3bc0954406 (Accessed: 3 May 2023).

Appendix H

Reuters map showing the progression of Ukraine's Kharkiv-offensive based on analysis by ISW and AEI's Critical Threats Project[19]

[19] Balmforth, T. (2022) 'Ukraine leader promises victory during frontline town visit as Russia digs in', *Reuters*, 14 September. Available at: https://www.reuters.com/world/europe/ukraine-pushes-counter-offensive-biden-sees-long-haul-2022-09-14/ (Accessed: 4 May 2023).

Appendix I



Screenshot of an example of a Tweet by a member of the OSINT community embedded into a BBC News article covering the sinking of the Moskva.[20]

[20] BBC News (2022) *As it happened: Ukraine war latest news: Forces clash along eastern front line - BBC News*, *BBC News*. Available at: https://www.bbc.com/news/live/world-europe-61136997/page/6 (Accessed: 3 May 2023).