

Contemporary Aerial Material Capabilities: The Implications of Drone Use in Multilateral Peace  
Operations

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**Abstract:**

Unmanned Aerial Vehicles (UAVs) have been used by nation-states for decades to conduct intelligence, surveillance, and reconnaissance (ISR) in addition to lethal operations; however, they have recently entered the humanitarian sphere by being incorporated in multilateral peace operations (MPOs). This thesis seeks to complement the growing body of literature on drones in the context of MPOs. Drawing from a theoretical framework that seeks to consider the potential human and societal benefits of UAVs, it will argue that drones can be effectively used to achieve some of the specific objectives of MPOs. This thesis will first situate its analysis in the historical generations of peacekeeping and aerial power, followed with a literature review and a case study of the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO). This thesis will conclude with a reflection on the next steps for the use of drones in MPOs.

April 28, 2022

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**Table of Contents:**

<b>Abstract:</b> .....	2
<b>Acknowledgements:</b> .....	3
<b>Chapter I: Introduction</b> .....	5
<i>Methodology</i> .....	8
<i>Overview of Thesis and Theoretical Framework</i> .....	10
<b>Chapter II: A Background on Intervention, the Classification of Drones, &amp; Aerial Power</b> 11	
<i>First Generation Peacekeeping (1947-1988)</i> .....	12
<i>Second Generation Peacekeeping (1988-1995)</i> .....	13
<i>Third Generation Peacekeeping (1995-2010)</i> .....	14
<i>Fourth Generation Peacekeeping (2010-present)</i> .....	16
<i>Aerial Power</i> .....	18
<i>Classification of Drones</i> .....	22
<b>Chapter III: Literature Review</b> .....	25
<i>Theme I: The Use of Drones for Intelligence, Surveillance, and Reconnaissance (ISR)</i> .....	25
<i>Theme II: UAVs, International Humanitarian Law (IHL), and Ethical Concerns</i> .....	28
<i>Theme III: The Logistics of MPOs</i> .....	33
<i>Theme IV: The Limitations of Drones</i> .....	37
<i>Contemporary Gaps in the Literature on UAVs in MPOs</i> .....	40
<b>Chapter IV: A Case Study of MONUSCO</b> .....	42
<i>Background</i> .....	42
<i>UAVs and MONUSCO: A New Era of MPOs?</i> .....	44
<i>The Implications of Drone Use in MONUSCO and Beyond</i> .....	46
<b>Chapter V: Conclusion</b> .....	49
<b>Works Cited:</b> .....	51

## **Chapter I: Introduction**

Peacekeeping can be defined as a process that helps nation-states transition from conflict to peace (United Nations, n.d. (c)). According to the United Nations (UN), it can manifest into many different activities, including, but not limited to: observing ceasefires; assisting in the creation of constitutions; conducting elections; delivering humanitarian aid; and demobilizing belligerents (United Nations, n.d.). As it currently stands, the UN and other multilateral entities who engage in multilateral peace operations (MPOs)<sup>1</sup> use a wide array of tools to achieve their mandates – these include the use of de-miners, aerial equipment, and human resources, along with logistics and their coordination. Despite using these tools, the material capabilities deployed by the UN and other actors is an underexplored area of research. There is a new grouping of material capabilities that have recently surfaced within the sphere of MPOs: this grouping of capabilities falls under the category of unmanned aerial systems (UASs)<sup>2</sup> (United Nations Department of Peace Operations / Department of Operational Support, 2019). UASs, with one of its sub-grouping hardware known as unmanned aerial vehicles (UAVs), better known to the wider public as *drones*, have in the contemporary context gained traction as a tool to assist in the processes of achieving international peace and security. This research aims to highlight the degree to which UAVs can assist the UN and other multilateral agencies execute the mandates outlined in their respective MPOs.

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<sup>1</sup> In this thesis, I will use the term *multilateral peace operations (MPOs)* when speaking of peacekeeping broadly; however, I will also refer to these operations as peacekeeping operations in their historical context (see Chapter II). The Stockholm International Peace Research Institute (SIPRI) defines MPOs as peace missions conducted by the United Nations (UN), along with other multilateral international organizations in order to establish peace and security.

<sup>2</sup> Unmanned aerial systems (UASs) is an umbrella term coined by the UN's Department of Peace Operations / Department of Operational Support (2019) to give credence to the rising understanding of how unmanned aerial power can be grouped together. In this text, UAVs will signify unarmed unmanned aerial vehicles due to the fact the UN and other multilateral entities do not use armed UAVs. I will therefore explicitly state whether they are lethal UAVs or UAVs (meaning they are unarmed).

With the goal of introducing this research and the chapters herein, what follows below will establish the historical context of aerial equipment used by MPOs and highlight the gap in the current academic literature. It will also detail the aim and guiding research questions (problématiques) of the thesis, state the significance of the work and outline the limitations of the research. Finally, this introductory chapter will outline the methodology used to conduct this research and provide an overview of the ensuing chapters.

The UN began engaging in MPOs in 1948. At the time of their inception, they were mainly tasked with observing ceasefires between two or more parties, which remained the case for most missions during much of the Cold War. However, at a critical juncture in the international political arena – the fall of the Soviet Union – MPOs were required to take on new tasks. This includes the rise in stabilization missions; the observance of elections; defending the mandate with any means necessary along with an increased emphasis on protecting of civilians. During the 1990s, the UN and other entities also became concerned that their MPOs ought to be more effective in response to rising challenges and a broader range of responsibilities. With this change in the direction of MPOs, new equipment was needed in order to respond to threats of international peace and security. Original aerial surveillance was limited due to the need for pilots to be in the cockpit, in conjunction with logistical challenges such as treacherous terrains. With the advent of UAVs, some of these challenges of aerial power have been significantly reduced. Some UAVs require an individual to pilot from ground level, whereas others are considered pilotless in that they fly autonomously. Drones are able to navigate treacherous terrains in order to surveil belligerent forces in all types of weather, and according to some researchers, can therefore be utilized as a tool to assist the UN and other entities to achieve their mandates. Moreover, these attributes of drones, plus their ability to not put peacekeepers in

harms way and be deployed quickly allows for them to be a legitimate alternative to previous aerial equipment, such as airplanes and helicopters. The rise of this new technology has equipped multilateral organizations that engage in MPOs with the potential to aid in the operationalization of their mandates, rather than rely on technology that dates from the 20<sup>th</sup> century. In this regard, with drones being used by these organizations, they have entered the contemporary era of aerial power and are able to further enhance their material capabilities.

As it currently stands, there is a research gap regarding the use of UAVs for MPOs. There is a lack of scholarship into how drones can impact MPOs. To date, only a handful of missions have utilized drones. The research does indicate, however, that there can be legitimate reasons why one would want to further consider their use in future MPOs; therefore, this research seeks to contribute to the research on evaluating the advantages and disadvantages of the use of drones in MPOs with a particular focus on their use in achieving specific mission objectives.

Two main areas of inquiry guide this research and the ensuing chapters: (1) what are some of the factors that explain the opposition to the use of UAVs; and (2) how can drones assist the UN and other multilateral agencies in achieving international peace and security? By exploring these questions, this research can contribute to the growing scholarship on drone usage in MPOs.

All research has limitations, and the current research is no different. There are two main limitations: (1) there is a lack of scholarship regarding the use of UAVs by non-state actors, in part because historically they have been armed and used in warfare rather than for peacebuilding; and (2) there is a hesitancy by non-state peacekeeping actors to utilize this new technology due to concerns surrounding international law, ethics, privacy, and security. This hesitancy by non-

state actors is a limitation because it correlates in the lack of missions that have incorporated the use of drones, which in turn leads to minimal case studies of drones in the context of MPOs.

### *Methodology*

This thesis will investigate the use of UAVs by the UN and other international entities that engage in peacekeeping and peacebuilding missions. Broadly speaking, it will also investigate the historical usage of aerial equipment in support of mission mandates set out by the UN and other entities in pursuance of international peace and security. The central elements of the methodological approach that guided this research are outlined below.

The methodology draws from different documents published by the UN. It also captures information regarding other organizations, such as the Organization for Security and Co-operation in Europe (OSCE). The research also draws from think tanks, such as the Stockholm International Peace Research Institute (SIPRI), as well as scholarly sources, stemming from academic journals, and books.

Regarding the UN, the research makes use of data and classifications on UASs from the United Nations Department of Peace Operations (DPO), previously known as the Department of Peacekeeping Operations (DPKO). Because the UN is the primary organ ensuring international peace and security, I have considered its presence in the historical and contemporary era significant to my thesis. Further organizations, such as the OSCE, have also been analyzed. The data regarding these agencies largely stems from the scholarly articles from academic journals on the thesis in question.

Think tanks, such as the SIPRI, provide written reports on the numerical data of MPOs – this includes research regarding MPOs and their historical records. Think tanks are a good source



for the research at hand because they allow the scholar to retrieve up-to-date findings from researchers and analysts who are experts in the field rather than the primary data that is gathered by the UN and other entities.

This research also draws from numerous academic journals such as *Stability: International Journal of Security & Development*, *Journal of Intervention and Statebuilding*, *International Peacekeeping*, *African Peace and Conflict Journal*, and *The International Journal of Human Rights*. These journals have all led me to find relevant articles surrounding the use of UAVs in the context of MPOs. Of the scholarly articles I have read and incorporated into my literature review, the majority stem from the disciplines of Political Science and International Relations. Ultimately, the scholarly journals and articles are relevant such that they are situated in the contemporary era, along with highlighting different aspects of UAVs and their use in MPOs.

There are a handful of books I have either read in full or have read excerpts from that have guided me this research. Grégoire Chamayou's *A Theory of the Drone* was the first book I read. Although it is philosophical in its theoretical framework and does not situate the use of drones in the context of MPOs, but rather in their use by nation-states during wartime, it is still relevant to the research in question because it allows the researcher to understand how UAVs can be seen as circumventing space and time, in conjunction with the asymmetrical relationship between the drone and the target. As well, I analyzed specific chapters from *The Good Drone*, *Air Power in UN Operations: Wings for Peace*, and *The Eye of War: Military Perception from the Telescope to the Drone*. Books of this nature, within the field of Political Science and specifically on aerial power and MPOs, allow me to further enrich the ensuing chapters that will be outlined before the outlining of the theoretical framework.

### *Overview of Thesis and Theoretical Framework*

This thesis is structured as follows: in Chapter II, I begin by introducing the four generations of peacekeeping and outline the chronological history of aerial power in the context of MPOs. Furthermore, the classification of drones will also be outlined in Chapter II. In Chapter III, the core of my analysis, I engage in a literature review. The literature review will demonstrate the scope of the research by providing an overview of scholarly articles and databases on and related to the topic of analysis. The review of literature serves as a guide for the main conclusion of this thesis, namely that drones can aid in achieving specific goals of MPOs. The gaps in the literature will also be analyzed in the literature review. In Chapter IV, a case study will be conducted surrounding the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO), the site of the first use of drones on a wide scale in an operation. The implications of their use will also be outlined. Chapter V will conclude this work and give recommendations regarding their future use. The theoretical framework used is one that sees drones as tools to be a force for the good of humanity. Rather than utilizing a traditional International Relations theory, using this framework has guided the research in order to reach its conclusion, which is that the material capabilities that drones possess are able to help MPOs achieve certain aspects of their mandates.

## **Chapter II: A Background on Intervention, the Classification of Drones, & Aerial Power**

The Great War, and all its destruction and casualties, led US President Woodrow Wilson to deliver his infamous Fourteen Points speech to Congress, calling for the establishment of an international organization (IO) that would be dedicated to the good of humanity. During the interwar period of the 20<sup>th</sup> century, the League of Nations was created as the world's first IO with the intentions of maintaining global peace and security. The League of Nations was ultimately disbanded in 1946, as it was unable to stop Japanese and German aggression and the start of the Second World War. However, despite being disbanded, many scholars note that it did lay the foundation for the UN, which was established in October 1945. Soon after, the UN established its first peacekeeping mission, the United Nations Truce Supervision Organization (UNTSO), which continues to operate to this day (United Nations, n.d.). From these early days, the progressive institutionalization of peacekeeping led to the implementation of numerous MPOs by regional and multilateral actors.

As will be examined in the section below, the evolution of peacekeeping can be categorized into four 'generations<sup>3</sup>': the first generation (1947-1988), which documents the beginnings of peacekeeping and its tactics; the second generation (1988-1995), which appeared after the collapse of the Soviet Union and yielded a change in techniques; the third generation (1995-2010), which refers to peace support operations; and the subsequent fourth generation (2010-present), which introduces a cosmopolitan approach to peacekeeping (Solà-Martín & Woodhouse, 2011)<sup>4</sup>. The purpose of this brief overview is to examine the chronological history

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<sup>3</sup> The idea of peacekeeping being divided within generations is well established. Nonetheless, I will be utilizing the work of Solà-Martín & Woodhouse (2011), Malan (1998), and Curran (2017) when describing the so-called generations.

<sup>4</sup> Whilst the co-authored piece was published in 2011, and thus does not have much information written on the fourth generation of peacekeeping, it nonetheless encompasses the new shifting paradigm in utilizing instruments of MPOs, as we see with the use of drones.

of aerial power as it pertains to the four generations of peacekeeping. This brief overview will mainly consist of information provided by Solà-Martín & Woodhouse (2011); however, it will also be supplemented by other scholarly analyses on the generations of peacekeeping. The third and final subsection of this chapter will then look at the classification of UAVs.

### *First Generation Peacekeeping (1947-1988)*

The first generation of peacekeeping encompasses missions launched prior to the end of the Cold War. This generation is generally characterized by its tendencies of non-intervention and observing and monitoring techniques; in that regard, UN peacekeeping operations were designed to monitor hostilities before they spiralled out of control (Ibid, 2011, p. 9). UN Secretary-General Dag Hammarskjöld and future Prime Minister of Canada Lester B. Pearson formulated five guiding principles of peacekeeping that underpinned the first generation: (1) the ability to use force only in self-defence; (2) consent of all parties; (3) monitoring of missions by the Secretary-General of the UN; (4) the notion that all participants must be participating voluntarily; and (5) neutrality of the mission (Ibid, 2011, p. 10). Regarding these five guiding principles, they had significant implications on future MPOs: they ultimately created a reference guide for the UN's strategic building blocks of peacekeeping, in order to both (1) adhere to the principles in future missions, and (2) allow for the UN to be criticized based on these principles if they strayed away from them. Despite the first generation's point of focus resting on interstate conflicts, changing environments call for changing responses, and that is what exactly occurred at the end of the Cold War.

### *Second Generation Peacekeeping (1988-1995)*

For some analysts, the second generation of peacekeeping was vastly different than the first generation. It ultimately expanded on traditional peacekeeping and introduced the concept of *peacebuilding*<sup>5</sup> to global politics. There was a need to remodel the ability of peacekeeping following the rise of intrastate conflict and the challenges it posed, in conjunction with the decline in aid being distributed to the Global South from the West and the Soviet Union (Ibid, 2011, p. 15). Malan (1998) echoes this, as he states that the second generation of peacekeeping began at the end of the Cold War, when proxy conflicts ended in the Global South (p. 13). Considering that the demise of the Cold War led to a newfound focus on intrastate conflicts (Ibid), the following are the numerous policy changes that occurred at the various levels of peacekeeping: at the military level, there was the ability to demobilize troops, use de-miners, and observe troop action in order to prevent infiltration from belligerent groups; at the political level, there was a newfound push to observe the rule of law, hold and observe elections, and protect sovereignty; and at the humanitarian level, there was the protection of humanitarian workers, observing the flow of irregular migration, and logistical support for healthcare (Solà-Martín & Woodhouse, 2011, pp. 17-18). Despite these potential changes, there were significant shortcomings in the MPOs conducted by the UN, specifically in Rwanda, Somalia, and Bosnia and Herzegovina. The second generation was not able to prevent mass genocide in both the former and latter, yielding a significant revision of how the UN conducts peacekeeping and how it can address its shortfalls. Nonetheless, despite the shortfalls, there were important implications during this critical juncture in respect to peacekeeping and its wider application to the use of

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<sup>5</sup> Peacebuilding is a term that encompasses numerous processes that are originated to create and sustain efficient peace. Solà-Martín and Woodhouse (2011) write that it has a civilian component to it, whereas previous mandates that did not utilize peacebuilding did not consider the civilian dimension in the framework of maintaining peace and security.

drones in the contemporary era: the responsibilities of MPOs grew, and this meant that the responsibilities of aerial power also grew. With these newfound implications and changes, another generation soon followed, which is the third generation.

### *Third Generation Peacekeeping (1995-2010)*

Solà-Martín and Woodhouse (2011) write that the third generation began in the mid 1990s, when the UN began to further prioritize the safety of civilians in conflict areas along with the safety of those implementing the MPOs. Envisioned through Col. Phillip Wilkinson and the UK's Joint Doctrine and Concepts Centre's peace support doctrine, they understood that the remedies for contemporary sociopolitical ailments ought not to be first generation tactics, but rather utilize second generation methodologies with a revitalized third generation strategy to execute mission mandates effectively (Ibid, 2011, pp. 27-28). Malan (1998) highlights that the third generation began due to the "primordial animosities which had been suppressed, rather than addressed, during the Cold War freeze" (p. 15).<sup>6</sup> The third generation called for robust security and development capabilities in the process of sustaining international peace and security. This approach to peacekeeping meant that the UN should wield more "hard power" than it ever had, with the new doctrine outlining that a new military capacity ought to be operationalized to assist threatened populations (Solà-Martín & Woodhouse, 2011, p. 28). The third generation began to question traditional normative conceptualizations of sovereignty<sup>7</sup>, as it began the use of

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<sup>6</sup> It should be noted that Malan (1998) does not explicitly say when each generation begins and ends; however, he states that the intervention in Rwanda (1992-1995) occurred during the third generation of peacekeeping. This demonstrates that there is not a consensus amongst observers and scholars as to when each generation begins and ends.

<sup>7</sup> For a further understanding of the extent to which the conceptualization of sovereignty changed during the 1990s, see chapters IV and V of Laura Zanotti's *Governing Disorder: UN Peace Operations, International Security, and Democratization in the Post-Cold War Era*.

“consent-forming techniques.” This shift in the UN’s stance on the sovereignty of nation-states meant that the need for consent on the part of state representatives was put into doubt when humanitarian operations were to be considered, which in turn questioned the original peacekeeping principles laid out in the first generation (Malan, 1998, p. 15). The questioning of the original peacekeeping principles was a part of a robust strategy that involves the desire to achieve “high consent,” which uses consent-forming techniques to receive its desired results, as envisioned by Lester B. Pearson and Dag Hammarskjöld. The consent-forming techniques in question include consultations with the public, negotiation, and liaison (Solà-Martín & Woodhouse, 2011, p. 31). This is linked to the reconceptualization of sovereignty, which had an external factor (respecting the sovereignty of other sovereign states) and internal factor (respecting the fundamental rights of the local population within the given territory) (Zanotti, 2011, pp. 66-67). These changes were also accompanied by key policy discussions both in and outside the UN. A notable epoch-making peacekeeping report during this period was the 2000 Brahimi Report.

The Brahimi Report (2000), a response to the challenges faced by UN MPOs and led by Algerian diplomat Lakhdar Brahimi, introduced the following: the idea of creating brigades to be on standby; civilian police and human rights experts in MPOs; the idea of “human security<sup>8</sup>” and increasing the efficacy of security instruments<sup>9</sup> (Solà-Martín & Woodhouse, 2011, pp. 33-34). An example of the third generation’s new ideas being operationalized is the United Nations Interim Administration Mission in Kosovo (UNMIK), which coincided with the North Atlantic

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<sup>8</sup> For further information on the reconceptualization of peacekeeping to uphold human security, see chapter IV of Laura Zanotti’s *Governing Disorder: UN Peace Operations, International Security, and Democratization in the Post-Cold War Era*.

<sup>9</sup> Drones, while in the year 2000 were only being used by a handful of nation-states, would adhere to this principle when it made its first appearance in global MPOs in 2006.

Treaty Organization's (NATO's) Kosovo Force (KFOR) being implemented in the intrastate regional conflict zone (Ibid, 2011, pp. 35-37). Peacebuilding was conducted, which included human rights supervision, electoral supervision, developing a legal system with a judiciary, and training a police force, to name a few (Ibid, 2011, p. 38). An emphasis was maintained on the micro level, i.e., the civilian, to redefine its new doctrine. UNMIK also comprised of a four tier/pillar system: civil administration; humanitarian assistance; reform for democratization and institutionalization; and reconstruction of the local economy (Ibid). Despite this newfound doctrine from Col. Wilkinson, the UK's Joint Doctrine and Concepts Centre, and the Brahimi Report (2000), a cosmopolitan theoretical framework towards peacekeeping has recently surfaced.

#### *Fourth Generation Peacekeeping (2010-present)*

Solà-Martín and Woodhouse (2011) highlight that there has been another generational shift in the past twelve years. Cosmopolitanism, and the idea that it can be a guiding normative framework in which peacekeeping is envisioned, would be a departure from Westphalian nation-state centric approach; rather, it would highlight the extent to which humanitarian standards can be applied to MPOs and justify the further conceptualization of “human security” and the Responsibility to Protect (Ibid, 2011, p. 42). Curran (2017) states that the term ‘cosmopolitan peacekeeping’ was posited by Oliver Ramsbotham and Tom Woodhouse<sup>10</sup> in 2005 (p. 64). It diverts from state-centric International Relations to focus on the local population and has two overarching goals (Ibid). The first goal is for MPOs to wield the capacity to protect the local population from violence. The second goal is for MPOs to contend with the “positive peace

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<sup>10</sup> This is the same person that authored *United Nations, armed conflict and peacekeeping* with Solà-Martín in 2011.



dimension' of the human security agenda" (Ibid). The new generation is also linked to the concept of civilian peacekeeping, where they can assist military peacekeepers and contribute to the entrenchment<sup>11</sup> of cosmopolitanism (Solà-Martín & Woodhouse. 2011, pp. 43-44). These civilianized peacekeepers could, in essence, act as a second layer of peacekeeping. They can assist human rights experts and activists; strengthen ceasefires; and assist in monitoring elections (Ibid, 2011, p. 46). In short, the fourth and current generation of peacekeeping (and peacebuilding) takes on a cosmopolitan ethos. This takes form through the MPOs that the UN and other entities initiate, centred on the idea of human rights.

The analysis of the four generations of peacekeeping is significant to this thesis because it situates MPOs in its historical context and acts as a way to compartmentalize peacekeeping. Moreover, these four generations will be referred to throughout the thesis to create a chronological order on the development of both MPOs and aerial power. Drones were used in the third generation of peacekeeping (mainly by nation-states in non-UN operations, such as their lethal use by the US) to assist in the adherence to the reconceptualization of sovereignty. As well, they continue to guide MPOs in the fourth generation of peacekeeping by assisting in the protection of civilians and deterrence of human rights abuses. Considering the periodization of MPOs into four generations to understand the evolution of aerial power in peace operations, the ensuing sub-section on aerial power will utilize a chronological format that parallels the four generations listed above.

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<sup>11</sup> In the context of this thesis, entrenchment is the solidification of a new idea (cosmopolitanism) in the understanding of how one conducts MPOs.

### *Aerial Power*

The source that was utilized throughout the research regarding the history of aerial power in MPOs is *Air Power in UN Operations: Wings for Peace*. This edited volume is a comprehensive collection of essays by scholars and former members of the military. The ensuing work on the background of MPOs and the material capabilities they utilize will illustrate a brief history on the aerial power of the UN. In doing so, this thesis can establish a foundational understanding of the drones' predecessors to comprehend the chronology of technological innovation of aerial power. This chronology will be done through the generations of peacekeeping.

According to Dorn (2014), the UN's aerial power has three areas of material capabilities it utilizes in order to achieve its mandates: (1) *transportation*, which includes the transportation of peacekeepers into conflict zones, in addition to the transportation of goods and services in order to assist peacekeeping personnel in upholding international peace and security; (2) *firepower*, which is the legitimate use of force by the UN either in self-defence or to protect the civilians of the region; and (3) *aerial surveillance*, which includes aircraft that are both piloted and pilotless to surveil a given terrain during a period of conflict to mitigate and reduce the degree to which violence might be used by parties. Whilst all three categories of material capabilities are vital to the extent to which aerial equipment can assist in MPOs, aerial surveillance was a capability that was neglected by the UN and multilateral actors until recently (Ibid, 2014, pp. xxv-xxx).

Regarding transportation, aerial equipment is used to assist in the ferrying of both troops and goods and services. During the deployment of UN troops in the first generation of peacekeeping at the beginning of the United Nations Operation in the Congo (ONUC), Dorn

(2014) writes that up to 50 C-124<sup>12</sup> airplanes were used to transport 9,000 UN troops to strategic locations throughout the country (p. 18). Moreover, due to the treacherous terrain, airplanes were critical to the transportation of services to the troops at ground level to sustain the operation (Ibid). Spooner (2014) further elaborates on the degree to which airplanes were used to facilitate transportation during ONUC. Canada agreed to utilize its North Stars<sup>13</sup> to assist in transporting supplies from Pisa, Italy to the Congo during the ONUC mission (Ibid, 2014, p. 43). One can therefore comprehend that air power has played a significant role in the transportation of goods, services, and personnel during MPOs.

The use of firepower by the UN, whether from aerial or ground-level power, has historically been a cause of controversy. The UN has consistently upheld the pillar of self-defence, despite the restructuring of the concept in recent generations of peacekeeping (Cox, 1999). Originally utilizing a “narrow” approach to self-defence, especially in the first generation of peacekeeping missions where UN forces were there to mainly observe ceasefires (Ibid, 1999, p. 250), the conceptualization of self-defence by the UN has shifted dramatically to encompass the defence of the MPO and its mandate, coinciding with the third generation of peacekeeping and its reconceptualization of sovereignty (Ibid, 1999, p. 254). Aerial firepower has therefore played a substantial role in this reconceptualization of self-defence and the use of force to enforce MPO mandates. The earliest examples of this are from ONUC, when in 1961 the UN utilized aircraft from member states, such as Sweden’s J-29 Tunnan fighter jets, India’s B(I)58 Canberra bombers, and Ethiopia’s F-86 Sabre jets to assist in suppressing the belligerents at the

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<sup>12</sup> Nicknamed “Old Shaky,” the Douglas C-124 Globemaster II was built by Douglas and was first flown in 1949. It had a speed of 304 mph, a range of 1,200 miles and could fly up to 18,400 ft (Boeing, n.d.).

<sup>13</sup> A development of the Douglas C-54/DC-4, the Royal Canadian Air Force (RCAF) Canadair North Star were used for transportation of goods and services. The North Star had a maximum speed of 353 mph, service ceiling of 36,000 ft and range of 420 miles (Government of Canada, n.d.).

request of the Congolese government in Katanga (Dorn, 2014, pp. 21-22). The idea of expanding the conceptualization of self-defence was magnified after the Cold War. Operation Deliberate Force saw aerial bombings by NATO forces who worked together with the UN to assist the newfound nation-state of Bosnia and Herzegovina (Owen, 2014, pp. 232-233). Operation Deliberate Force used precision weapons dropped from aerial equipment (Ibid, 2014, p. 234). The implications of this intervention demonstrated that firepower can be used effectively to reach the goals set out by the specific mandate (Ibid, 2014, p. 237). In the contemporary context, firepower has been used in the United Nations Mission in the Democratic Republic of the Congo (MONUC), which began during the third generation of peacekeeping, and was later renamed MONUSCO<sup>14</sup> in the midst of the transition to the fourth generation of peacekeeping. MONUSCO was authorized through a Chapter VII Resolution<sup>15</sup> of the UN Charter to use ‘all necessary means’ to uphold the mandate (Dorn, 2014, p. 241). Firepower was used in an exchange against the National Congress for the Defence of the People (CNDP), a militia based in the Congo, to repel attacks from belligerent forces. By utilizing firepower, some observers maintain that the UN can meet their mandates and effectively meet the newfound conceptualization of self-defence interpreted through Chapter VII.

Finally, aerial surveillance is a significant contributor to aircraft power. In the context of MPOs, the first major operation that utilized aerial intelligence, surveillance, and reconnaissance (ISR) was the United Nations Observation Group in Lebanon (UNOGIL), which was created in 1958 during the first generation of peacekeeping to monitor the Lebanese political crisis (Dorn, 2014, p. 136). UN troops used aerial power to observe the Lebanese-Syrian border and surveil

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<sup>14</sup> The formal name of the mission is illustrated on page 10.

<sup>15</sup> Chapter VII of the United Nations Charter legitimizes the UN Security-Council (UNSC) in its role to uphold international peace and security. This is the chapter of the Charter that is used when the UNSC creates an MPO.

potential belligerents infiltrating into Lebanon. It was proven to be an extremely valuable asset to the mission, as both aerial and ground level ISR were shown to complement one another, thus multiplying their ability to succeed (Ibid, 2014, pp. 139-141).

During the second and third generations of peacekeeping, aircraft was used for ISR during the United Nations Iraq-Kuwait Observation Mission (UNIKOM) to survey the demilitarized zone (DMZ) at the Iraqi-Kuwaiti border. This was to observe and maintain international peace and security within the region. Ultimately, whilst working with the Southern No-Fly Zone (SNFZ), they were able to survey southern Iraq to maintain peace and security (McKay, 2014, p. 191). In MONUC, which began in the third generation of peacekeeping, Mi-35 helicopters were crucial to establishing an aerial surveillance operation against enemy militias (Dorn, 2014, p. 250). The Mi-35s had robust equipment, such as sensors and cameras to track the movements of the belligerent forces (Ibid). In the current generation of peacekeeping, UAVs have been used for aerial observance in MPOs, such as MONUSCO<sup>16</sup>. One can therefore conclude that aerial surveillance plays an important role in the context of MPOs, as we will see with the contemporary advent of UAVs in the literature review.

While it is crucial to understand the generations of peacekeeping vis à vis the chronological analysis of aerial power within the UN, the classification of drones must also be analyzed. The final subsection of Chapter II will therefore review the classification of drones from both the perspective of Dorn (2014) and the United Nations Department of Peace Operations / Department of Operational Support (2019) to comprehend the extent to which UAVs are a complex grouping of aerial power.

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<sup>16</sup> The extent to which UAVs were utilized during MONUSCO will be further evaluated during chapter III.

### *Classification of Drones*

Both the United Nations Department of Peace Operations / Department of Operational Support (2019) and other analysts have outlined similar – but different – classifications of drones. The United Nations classifies drones as sub-tools of UASs<sup>17</sup>. There are three classes of UASs: class I UASs, which fly no more than 1,000 feet (ft) above ground level (AGL) and weigh no more than 25 kilograms (kg). An example of said drones are recreational drones used by the general public mostly for recreational purposes; however, they can also be used to support tactical units, because they can aid platoons via micro or mini UASs, as well as battalions with small UASs; class II UASs, which fly upwards of 18,000 ft AGL and weigh between 150 kg and 600 kg. They also have a much further range of 200 kilometers (km), and are used at the brigade level, such as with the UN Force Intervention Brigade (FIB); and class III UASs, which consist of medium and high-altitude long endurance (MALE/HALE) drones. They can fly upwards of 65,000 ft and have an unlimited range beyond the line of sight (BLOS). Class III UASs are those that assist in command and control (C<sup>2</sup>) operations, and they can be used in both larger theatres of combat as well as at the strategic and national level.

Dorn (2014), a faculty member of the Royal Military College of Canada, does not use the UN's terminology of UASs, but rather simply classifies them as UAVs, which is the term used in this thesis in the classification of drones. According to Dorn (2014), there are four classes of drones: (1) micro-UAVs, which have a range of 0.1-2 km and a weight of 0.1-2 kg – these drones are mainly used for capturing an aerial view of buildings or a scenery at ground level; (2) mini-UAVs, which have a range of 4-10 km and a weight of 2-5 kg – these are used for basic

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<sup>17</sup> Unmanned Aerial Systems (UASs) are defined as “the overall term for a system whose components include one or more unmanned aircraft, the supporting network and all equipment and personnel necessary to control the unmanned aircraft (United Nations Department of Peace Operations / Department of Operational Support, 2019).”

surveillance for the UN, such as the surveillance of a given perimeter; (3) sub-tactical UAVs, which have a range of up to 1,000 km and a weight of 10-20 kg – these are used for large scale surveillance, such as of humanitarian convoys and patrolling borders; and (4) tactical-UAVs, which have a range of at least 1,000 km and a weight of 120-500 kg – these drones are used for full-scale surveillance done at a high altitude and for long periods of time (p. 125).

Both classifications are relevant to highlight in the background section for a number of key reasons. It demonstrates the extent to which drones are a highly sophisticated grouping of material capabilities, both in the context of MPOs and in their use by nation-states. Furthermore, it highlights that there are many different terms<sup>18</sup> used to define the different material capabilities aerial hardware has to offer. As well, by illustrating both the UN and Dorn's classifications of UAVs, scholars and the general public alike are able to learn more about the depth of the material capabilities drones offer.

While drones have progressed in recent years to become tools utilized by the UN and nation-states, their depictions in the relevant literature must be analyzed. Chapter III will therefore look at the relevant literature via a systematic literature review, analyzed through a dynamic theoretical framework that sees drones as being tools that can be a force of good for humanity by assisting MPOs in achieving their mandates. The first theme (Theme I) will look at drones and their role in ISR. Following Theme I, Theme II will analyze drones and the extent to which they can undermine or uphold International Humanitarian Law (IHL) along with ethical concerns surrounding their use. Theme III will look at role that drones play in the logistics of

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<sup>18</sup> The report by the United Nations Department of Peace Operations / Department of Operational Support (2019) illustrates various terms that classify different types of drones. For a simplistic vocabulary, I have thus decided to use UAVs and drones interchangeably rather than use the term UASs and the multitude of terms the UN has reported on – nonetheless, it is still worthy to illustrate the classification of the various classes of UAVs.

MPOs. Theme IV will outline the potential limitations to the use of drones in operations, and after the thematic subsections have been analyzed, the gaps in the literature will be discussed.



### **Chapter III: Literature Review**

This thesis attempts to outline the current research surrounding UAVs and their use in MPOs. In doing so, it is therefore pertinent to explore the scholarship surrounding international intervention, examine the various thematic debates on peace operations and aerial material capabilities, and further understand how drones form part of the aerial material capabilities for 21<sup>st</sup> century MPOs. The literature review that follows will compare and contrast the works of various scholars who have engaged in this growing field of study and highlight the gaps in the literature, the ongoing debates, and the overall themes that emerge in the discussion surrounding the use of UAVs in MPOs. The goal of this review is to establish the following: (1) to outline an analytical framework that can evaluate the positive and negative implications of the use of drones in MPOs; (2) understand how drones aid MPOs in achieving their mandates; and (3) comprehend why some political actors are against their incorporation into MPOs. Chapter III begins with the material capabilities drones offer to ISR. Following this first section, IHL as it pertains to UAVs will be reviewed. The logistics of deploying drones in MPOs will also be discussed, followed with an evaluation of the limitations of UAVs. Finally, the gaps in the literature presented will be summarized.

#### *Theme I: The Use of Drones for Intelligence, Surveillance, and Reconnaissance (ISR)*

Prior to drones being utilized in MPOs, they were initially used by nation-states in warfare (Neil, 2014, p. 149). Originally wielded by nation-states, such as the United States during the Vietnam War and Israel during the Yom Kippur War in the latter 20<sup>th</sup> century (Chamayou, 2015, pp. 27-28), drones appeared to modify the laws of nature – what Bousquet (2018) calls the spatial, i.e., the space between the drone itself and the target, and the temporal,

i.e., the time it takes to engage and disengage for both parties – in order to achieve their tasks. Therefore, the degree to which the use of drones in ISR operations can increase their success rate is constituted by the ability to circumvent the spatial and temporal constraints placed on human activity. Karlsrud & Rosén (2013), alluding to Bousquet's (2018) spatial and temporal problematization, highlight that UAVs possess a modern way of "seeing and knowing," which allows them to be utilized in ways that previous aerial technology could not (p. 3). The spatial and temporal, 'seeing and knowing' trajectories of both peacekeeping and warfare are ultimately complemented through the advent of UAVs, since they alleviate some of the previous constraints imposed by the spatial and temporal spheres. The spatial sphere is circumvented because UAVs can travel far distances to separate themselves from the target they are surveilling, whereas the temporal's traditional constraints are bypassed via aerial material capabilities that reduce the time of travel from point A to point B. Both Karlsrud & Rosén (2013) and Neil (2014) highlight that (1) UAVs are a modern method of seeing the enemy and target, allowing the user to gain a strategic advantage that did not exist prior to the advent of UAVs; and (2) that the spatial and temporal trajectories are the single most important aspect of both MPOs and military operations. The spatial sphere, being redefined by the deployment of drones, means that space is no longer considered a barrier to achieving the mandates of MPOs or the military objectives in warfare as it once was. Considering that drones – in the case of this analysis, sub-tactical and tactical drones – appear to possess the ability to deviate from the laws of nature of space and time, they can traverse treacherous terrains that possess little infrastructure, whereas traditional aerial equipment is confined to infrastructure to perform their tasks, such as runways. Drones can also modify the temporal sphere previously illustrated, since they can circumvent the traditional time constraints it takes for parties to engage with each other. This circumvention occurs when drones

use their material capabilities to surveil the target by acting as if they are in their immediate proximity vis à vis the traditional time constraint the target is restricted to. As a result of the modification of the spatial and temporal spheres, drones assist in changing the traditional mode of engagement between peacekeepers, the civilians they are protecting, and the belligerents they are targeting. Furthermore, this modification of the temporal allows for UAV flights to last much longer than manned flights (Neil, 2014, p. 150). With the scholars highlighted acknowledging this change in the spatial and temporal, drones can assist the UN and other IOs in achieving the mandates of their respective MPOs by acting as a modern tool that utilizes its material capabilities to engage in modifying the spatial and temporal spheres to assist in its given tasks.

UAVs have also been used in contemporary missions and humanitarian crises, such as the European response to the occupation of Ukrainian territory by Russian military forces, and the Fukushima disaster of 2011. Apakan & Giardullo (2020) highlight that the OSCE's Special Monitoring Mission (SMM) to Ukraine has utilized drones amidst the ongoing Russian military invasion of Ukraine (pp. 481-482). The authors demonstrate that by utilizing drones and their modern technology, the SMM can complement ground-level surveillance of the volatile Eastern Ukrainian border with Russia (Ibid). The drones being used here are sub-tactical, since they surveil borders, as mentioned in Chapter II. Drones used during the OSCE's SMM to Ukraine offer resolution photographs that are fifteen times of better quality than their satellite counterparts (Ibid, 2020, p. 483). Martina Buscemi (2019) also echoes the notion that the material capabilities of drones can aid in times of crisis. UAVs possess the ability to engage in a modern form of, as Karlsrud & Rosén (2013) say, "seeing and knowing," and this has allowed for drones to be used to help in the aftermath of the Fukushima disaster in Japan by engaging in various aspects of ISR (Buscemi, 2019, p. 260). In the case of the Fukushima disaster, ISR

capabilities, such as mapping, collecting data, and search and rescue (SAR) were all utilized in the aftermath of the crisis (United Nations Office for the Coordination of Humanitarian Affairs, 2014, pp. 5-6; Buscemi, 2019). In essence, drones possess a wide-ranging toolkit of material capabilities, from sensors that utilize infrared (IR) technology to high-resolution cameras to capture clear images. These capabilities complement previous, yet still highly critical infrastructure, such as satellites and other aerial power, in ways that broaden the ability to achieve certain aspects of the mandates of MPOs.

ISR, as analyzed during this literature review, ultimately rests on the spatial and temporal spheres previously discussed. The extent to which UAVs are able to transform the previously static spatial and temporal spheres into dynamic ones is considerable such that this modification allows for drones to possess material capabilities not found in other earlier forms of aerial power. By acting as dynamic aircrafts that modify space and time, whilst wielding material capabilities via sensors and cameras to achieve their given mandates, drones can be viewed as critical aspects of aerial infrastructure for MPOs that can complement mission mandates, as seen in the OSCE's SMM to Ukraine<sup>19</sup>. The use of drones, however, must follow the current rules-based international order established after the Second World War, and Theme II will analyze UAVs juxtaposed to IHL.

### *Theme II: UAVs, International Humanitarian Law (IHL), and Ethical Concerns*

*Jus ad Bellum* is a legal term that describes the legal basis upon which a nation-state may use *legitimate* force against another nation-state (Clarke, 2021, p. 314). It is generally understood that a state can only use legitimate force when it is either in self-defence or to carry out a UN

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<sup>19</sup> Chapter IV will be a case study on MONUSCO and the use of UAVs during the mission; therefore, this study is not limited to solely non-UN missions, as seen in the OSCE's SMM to Ukraine.

Charter VII Resolution, authorized by the United Nations Security Council (UNSC). The complement to *Jus ad Bellum* is *Jus in Bello*, which are the rules that are meant to govern the conduct of parties engaged in armed conflict. *Jus in Bello* attempts to mitigate the violence of armed conflict, and along with *Jus ad Bellum*, is a part of the international rules-based system that is meant to govern conflicts (International Committee of the Red Cross, 2015). Since drones are tools used in both MPOs and warfare, they are ultimately governed by *Jus in Bello*.

Clarke (2021) writes that there are four key principles to IHL: distinction; proportionality; unnecessary suffering; and military necessity (p. 317). *Distinction* is considered the most important of the four principles of IHL, as it mandates that parties of belligerents distinguish themselves from civilians who are not engaging in warfare (Ibid, 2021, p. 318). The second principle, *proportionality*, deals with the idea that civilian loss of life and damage to civilian property must not be more than that of those who were being targeted (Ibid, 2021, p. 320). The third principle, *unnecessary suffering*, means that one cannot cause unnecessary suffering to an individual (Ibid, 2021, p. 321). The final principle, *military necessity*, is the authorization of the use of force that falls within the scope of *Jus ad Bellum* (Ibid).

In the contemporary context, there is an ongoing debate regarding how the use of drones pertains to IHL. Some argue that drones undermine IHL. They maintain that UAVs are dangerous weapons that can be abused to take advantage of vulnerable populations, whereas others argue that they may have positive implications for IHL. They maintain that drones can effectively champion IHL globally. What follows will examine some of the key points raised by the two sides of the debate on the relationship between drones and IHL.

Presently, the storage of data being collected by UAVs who engage in ISR is of significant concern, especially in its application to IHL. On this point, Buscemi (2019) writes

that the use of drones for ISR in MPOs poses a significant problem regarding the protection and storage of the data (p. 266). This sentiment is echoed by Karlsrud & Rosén (2013) and Portmess & Romaya (2015), who all acknowledge that the secure storage of the information collected by UAVs is crucial in order to uphold the aerial equipment's legitimacy as it pertains to its role in supporting the goals of IHL. It has been suggested that, in regards to MPOs, the UN must share this data with governments; however, some argue that there should be a limit on the extent of this transparency of data between the UN and a host country, in order to ensure the civilian population's trust in the mission stays strong (Morrell Andrews, 2017, pp. 7-8). It is ultimately a challenge to ensure the public – both those that critique the use of drones, and those being surveilled – that this information will not be abused and used in a manner that deems it illegitimate. Rather, those that possess vital data must ensure that it is stored in a safe database that is also resistant to possible cybersecurity attacks.

As well, many oppose the use of drones based on their perceived potential to breach the rules of *Jus in Bello* that regulate the conduct between parties engaging in armed confrontations. This perception of the “killer drone,” as it has been labelled, has even hindered their acceptance into non-lethal mission objectives, by countries such as Russia and Rwanda, who are sceptical of the technology and how it will be perceived by the local populations of a given operation (Karlsrud & Rosén, 2016, p. 54). Other bodies of work, such as Chamayou's (2013/2015) *A Theory of a Drone*, which offers an extensive philosophical critique that drones – predominately lethal ones wielded by the United States – breach ethics by contradicting just war theory and ironically embodying paradoxical qualities that undermine IHL (p. 129). Chamayou (2013/2015) highlights that the principles of distinction and proportionality were created prior to the newfound unilateral relationship where drones create a spatial and temporal advantage, therefore

nullifying their use (p. 162). While there tends to be a general consensus that lethal drones are unethical – in that they breach normative values of traditional warfare, because they ultimately yield an asymmetrical relationship between the one that wields the drone and the other that is targeted – there are some scholars that would disagree with Chamayou and argue that the use of material capabilities that UAVs offer may actually yield positive implications.

Regarding the positive implications highlighted by this ongoing debate, Karlsrud & Rosén (2013) argue that drones used in the context of MPOs can be key to upholding the standards of IHL and also aid peacekeepers in their efforts to respond to human rights abuses (Ibid, 2013, p. 1). The utilization of drones allows for the protection of civilians by gathering data via ISR, which can assist in mitigating casualties and infringements of IHL (Ibid). The authors also highlight that some of the reluctance in using drones – specifically in the context of MPOs – is mainly by troop contributing countries (TCCs) that fear drones will replace their roles (Ibid, 2013, p. 4). Despite these fears, drones of the sub-tactical and tactical nature are unlikely to replace peacekeepers; rather, just like previous aerial technology, drones are not meant to replace “boots on the ground,” but rather complement the mission.

Furthering their argument, Karlsrud & Rosén (2013) state that “there is little doubt that drones significantly increase the *precautionary obligations* of peacekeepers” (p. 5, emphasis added). The point the authors are making here is that this tool can strengthen the obligation for peacekeepers to adhere to the four key principles of IHL that were previously outlined.

Regarding distinction, those wielding UAVs would have to distinguish their aircraft from civilian recreational UAVs. The principle of distinction is one that is commonly questioned in its application to drones, since the spatial separation of the drone and target inhibits the latter from seeing the aircraft with the naked eye. Proportionality will have to ultimately be reimagined

considering the ever-growing sophistication of material capabilities aerial equipment offers (Ibid); however, some suggest that (lethal) drones adhere to this principle since they allow for targeted strikes that can reduce collateral damage. The unnecessary suffering can also be limited, since for MPOs, there is little suffering that occurs physically when compared to traditional military operations, a focal point of critics such as Chamayou. Military necessity, which outlines the obligation drones have in their adherence to *Jus ad Bellum*, is ultimately upheld because non-lethal drones that conduct ISR to uphold IHL do not apply direct force as lethal drones would.

When looking at drones and their applicability to MPOs, one must analyze IHL beforehand and understand its relevance to peacekeeping. MPOs ultimately must adhere to *Jus in Bello*, and as it currently stands, there is a contemporary debate amongst scholars regarding the relationship of UAVs to IHL. On the one hand, there is the so-called undermining of this relationship, echoed by scholars such as Buscemi (2019), Portmess & Romaya (2015), and Chamayou (2013/2015), who all share a skepticism towards drones – both lethal and non-lethal – and their juxtaposition to IHL and human rights, mainly from an ethical perspective. On the other hand, those that consider the potential positive role of drones argue that they may actually benefit IHL and adhere to the principles of *Jus in Bello*. Karlsrud & Rosén (2013), as noted above, highlight the extent to which drones can both (1) uphold the four key IHL principles Clarke (2021) outlines by having an *obligation* to use the technology for the betterment of MPOs because of their potential benefits to upholding IHL, and (2) assist in the deterrence of human rights violations. This debate is ultimately built on the foundation of what an operation brings to the table, and any MPO ultimately must consider the logistical challenges it faces which is addressed in the following section.



### *Theme III: The Logistics of MPOs*

The importance of logistics of international MPOs should not be underestimated.

Logistics is defined as “the science of planning and carrying out the administration, movement, and maintenance of forces and includes activities related to communications, engineering, and aviation services” (Little, 2019, p. 164). It is a vital part of both peace and military operations and is ultimately the foundation of any operation’s failure or success. In the context of MPOs, logistical supplies of goods and services plays a vital role. Theme III of this literature review will therefore analyze the extent to which MPOs operate on logistical grounds. This sub-section of the literature review will first begin with *Logistical Support to United Nations Peacekeeping Operations: An Introduction (2002)*, followed with Squadron Leader Henry N. Yurkusi of the Nigerian Air Force’s thesis on UN peacekeeping logistics. Yurkusi’s thesis is of interest because it outlines the key configurations within the logistical realm. After laying down the groundwork for operational logistics, humanitarian logistics will be analyzed in comparison to the analyses of Baig (2002) and Yurkusi (2008) to comprehend the extent to which the role of logistics is crucial to MPOs.

There are a few principles that underpin the logistics of the UN. This includes the following, but is not limited to: *responsibility*, which means that each member state has the same responsibility to support the assets of the UN during the deployment of forces; *foresight*, which encompasses the strategic logistical planning that occurs prior to a mission being deployed; *flexibility*, which is the extent to which a mission ought to be able to adhere to operational changes due to unforeseen circumstances; *sufficiency*, which is the guarantee that the distribution of logistical resources must be able to sufficiently meet the needs of the mandate; *accountability*, which means all record-taking must be truthful and done rigorously; and *visibility*, which is the

chain of command that must be clearly visible in its audit trail in order to be transparent (Baig, 2002, pp. 20-21).

These principles are the bedrock of numerous types of logistical support, with aviation support being the type that is analyzed in this literature review (Ibid, 2002, p. 23). Many different aviation missions exist, including intra-theatre passenger flights, aerial reconnaissance, and command and liaison, to name a few (Ibid, 2002, p. 35). Whilst there are numerous aviation missions in existence, they are meant to be guided by the principles laid out above. The Logistical Support Division, which is the main body that operationalizes the vision laid out by the Secretary-General's reports and engages in liaison with other departments, is divided into numerous sub-sectional units (Ibid, 2002, p. 42). It also consists of the Aviation Section, which is responsible for air support during missions on all forms of aircraft (Ibid, p. 48). The logistics of UAVs in the context of MPOs also depends on the class of UAVs (United Nations Department of Peace Operations / Department of Operational Support, 2019, p. 12). For example, Class I UASs could have their logistical support consolidated within a single unit, whereas Class III UASs – in Dorn's (2014) words, tactical drones – which aid in C<sup>2</sup>, can surveil larger swaths of territory. In short, the logistics of the UN are extremely complex, as the LSD is divided into numerous working units that work to sustain the logistical mechanics of the UN.

Yurkusi's (2008) work on the logistics of UN peacekeeping also examines the management of equipment in each operation. Equipment management, which includes that of aerial equipment, falls under three categories: (1) United Nations Owned Equipment (UNOE), which includes (a) non-expendable equipment valued at more than \$1,500.00 USD and have a life expectancy of five plus years, (b) expendable property, which is the reciprocal of each figure listed in (a), and (c) equipment considered to be of significance, including cameras, computers,

etc.; (2) Contingent Owned Equipment (COE), which is supplied by a contributing member state; (3) National Equipment, which is the equipment of significance from a TCC; and (4) Host Nation Equipment, which is the bulk of equipment contributed in the nation-state where the operation is occurring (Yurkusi, 2008, pp. 29-30). Yurkusi's description of the management of equipment is of significance because drones have so far been utilized by the UN from private military and security companies (PMSCs), such as the procurement of UAVs from Selex ES, a subsidiary of Italian aerospace company Finmeccanica (Doucet, 2015, p. 123), which has since been amalgamated into Leonardo (Leonardo, 2021). Drones in the context of MPOs therefore contradict the categorization of equipment, since they are supplied by a private military and security company (PMSC) and are not owned by the UN under the UNOE category or contributed via a TCC or the host nation. The resulting implications are that this technology defies the previous categorizations of equipment within the UN. As such, the UN will have to adopt a new method of categorizing equipment to accommodate for the progression of the development of aerial power.

Since the concept of logistics is multi-tiered and complex, humanitarian logistics also ought to be analyzed juxtaposed to both analyses by Baig (2002) and Yurkusi (2008). Humanitarian logistics is the process and flow of goods and services from its origin destination in service of assisting individuals affected by natural disasters (Rejeb et al., 2021, p. 1). The work of four scholars – Abderahman Rejeb, Karim Rejeb, Steve Simske, and Horst Treiblmaier (2021) – will be used to situate drones and the material capabilities they offer to humanitarian logistics. They established a detailed table that situates these material capabilities within humanitarian logistics (Ibid, p. 16). Rejeb et al. (2021) state under 'transportation and delivery capabilities' that drones can ensure quick delivery time and bypass insufficient infrastructure and

poor weather via their aerial capabilities. Furthermore, under ‘surveying and monitoring capabilities,’ they found that drones can utilize high-resolution cameras to traverse harsh conditions and use their sensors, cameras, and spatial awareness in post-disaster surveillance. As well, under ‘communication and integration capabilities,’ the four scholars write that drones can complement traditional communication devices and methods; they can be used as a hub to relay connectivity between two parties in environments where this infrastructure is not currently in place; and UAVs can increase wireless network connectivity for individuals to have access to the internet.

By situating drones in the context of humanitarian logistics, one can compare Rejeb et al. (2021) and to the work of Baig (2002) and Yurkusi (2008). On the one hand, Baig’s (2002) analysis can be considered a primary source since it is a body of work conducted on behalf of the UN. He outlined the devolved nature of logistics within the UN, demonstrating that it is highly complex in its organizational structure. Rejeb et al. (2021), on the other hand, looks at logistics through a humanitarian focal point and study the use of drones to assist in humanitarian logistics. Therefore, the work of Rejeb et al. (2021) highlights that drones can be used for humanitarian reasons, which allows for their work to be significant to this study because the framework used in this thesis sees drones as a potential force for the good of humanity when used in peace operations. Furthermore, while Baig’s (2002) analysis was prior to the UN’s utilization of drones in MPOs, it nonetheless is still applicable to the thesis in question since it demonstrates how the realm of logistics within the UN is categorized in its procurement and distribution of goods and services. Moreover, it is also apparent that Baig (2002) and Yurkusi (2008) write technically on logistics, whereas Rejeb et al. (2021) use the technical knowledge of logistics and apply it to humanitarian crises. The technical application of the logistical realm to humanitarian crises by

Rejeb et al. (2021) parallels the fourth generation, cosmopolitan approach in how UAVs can potentially deter human rights abuses. The implications of these approaches are that Baig (2002) and Yurkusi (2008) lay the groundwork that Rejeb et al. (2021) use in their humanitarian logistics analysis.

While ISR, IHL, the humanitarian and ethical concerns of drones, and logistics all play a part in the thesis in question, it still comes with its critiques and limitations. Hence, the final theme of this literature review will look at the potential limitations of using drones in order to fully understand the contemporary debate surrounding drones.

#### *Theme IV: The Limitations of Drones*

UAVs have been a contentious topic in contemporary debates as to whether their material capabilities can help both MPOs and military operations, given that the former is considered to be a part of efforts to ‘save lives’ whereas the latter are seen as engaged in destroying enemy targets and combatants. Whilst this thesis focuses on drones in the context of MPOs, the potential limitations of drones transgress the lines between MPOs and military operations. Thus, this final theme of the literature review will bookend the debate by analyzing the potential limitations of UAVs. It will begin with general assessment of their potential shortfalls, followed with an analysis of these critiques.

David Whetham (2015) writes that one potential problematic element to using UAVs in MPOs is the inability for their distinguishability from lethal aerial equipment (p. 205). A solution to the potential inability to distinguish between the two forms of equipment would mean the UN and other actors would have to paint the UAVs in bright colours so the local population could

differentiate between lethal and non-lethal UAVs<sup>20</sup> (Ibid). In doing so, the UN and others that engage in MPOs would be (1) visually distinguishing their non-lethal UAVs from lethal aerial material capabilities, and (2) allowing for the local population to understand that these brightly coloured UAVs are there to provide them aid.

Another limitation to the use of drones is the terrain of a given territory they operate within, which can strain the resources needed. Lisa Sharland's (2015) analysis of the contemporary material capabilities that can aid in countering the detonation of improvised explosive devices (IEDs) highlights that whilst drones are effective tools in identifying IEDs and their networks of implementation, the technology can be hindered by the local terrain and also requires an extensive amount of personnel in the fields of research and development to both turn the raw footage into suitable data, resulting in a gap in the ability of drones to both assist in the identification process *and* geographical and logistical constraints (pp. 591-592). While it was noted previously that a potential positive implication of drones is their ability to traverse treacherous terrains, Sharland's (2015) analysis relates to the difficulty of mobilizing resources at ground-level to process the data itself. UAVs *can* circumvent the constraints of geographical terrains; the difficulty lies in the stationing of personnel below to process the data and aid in logistical support; therefore, it can be understood that it is not drones themselves that are constrained by geographical terrain. As well, it is vital for drones to be able to traverse treacherous terrains to defy difficult geography, and for drones to overcome logistical constraints to transform the raw data into its feasible form so that it can be analyzed.<sup>21</sup>

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<sup>20</sup> I acknowledge this could be problematic in and of itself because local populations may already have a mindset that all equipment can potentially be lethal, and that painting the equipment in bright colours will not make a difference. Nonetheless, it can be considered a step in the right direction.

<sup>21</sup> This body of work does not attempt to give a recommendation on *how* to conduct these changes, as that is beyond the scope of this analysis.

Other analyses that highlight the potential downsides of the material capabilities of drones draw attention to the signals which they produce. On this issue, Apakan & Giardullo (2020) shed light on the pitfalls of the deployment of UAVs in the OSCE's SMM to Ukraine. Specifically, they write that three persistent challenges have faced the SMM in its deployment of drones: (1) since the 2018 extension of the SMM, over fourteen percent of all SMM drones flights have experienced signal interference between January and April 2019, disrupting their normal course of action; (2) at least one hundred flights have been targeted by anti-aircraft systems between April 2018 and February 2020; and (3) the use of drones by the opposing side of the SMM during the Russian invasion of Ukraine has allowed for contemporary technologies to flourish with the intention of jamming<sup>22</sup> the drones of the SMM (Ibid, 2020, p. 482). Despite these limitations, the authors maintain that drones are nonetheless valuable assets to the ongoing SMM to Ukraine to complement the aid given by the OSCE (Ibid, 2020, p. 483). In this regard, it is implicitly implied by Apakan & Giardullo (2020) that all technologies do have limitations; however, it depends whether or not the positive benefits they yield outweigh the negative. In their analysis, however, they explicitly state that the positive outweigh the negative, because they argue that drones possess material capabilities that are significant to the OSCE SMM to Ukraine and thus aid the SMM to the extent that they are worth the potential limitations.

Chamayou (2013/2015) also highlights the potential limitations to drones, ultimately supplementing the analysis presented by Apakan & Giardullo (2020). He writes that latency of the signals that drones produce, and the implications of this latency in the context of the spatial and temporal sphere drones hover within, yield a delayed image to the operators of UAVs (Chamayou, 2013/2015, p. 74). The scholar further reinforces his argument regarding the

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<sup>22</sup> To jam is to interfere with electronic signals and reception.

limitations of drones by highlighting that the signals drones produce can be easily intercepted (Ibid, 2013/2015, p. 75). To support this statement, it is noted that Iraqi insurgents were able to intercept the video feed of the American Predator in 2009, in conjunction with Hezbollah's interception of Israeli UAV video feeds (Ibid). Furthermore, Chamayou (2013/2015) also notes that the reliance on drones which are pilotless can be easily manipulated by interfering with their GPS signals (p. 76). These flaws, then, ultimately pose a legitimate threat to the data being collected and its (in)secure storage (Ibid). Whilst Chamayou (2013/2015) would not consider the positive implications to outweigh the negative ones, like Apakan & Giardullo (2020) offer, it nonetheless demonstrates that there are indeed limitations and vulnerabilities to this contemporary technology. Furthermore, Theme IV highlights that there are indeed serious limitations to drones, and that these limitations must be considered when evaluating their use in the context of MPOs. The UN and other bilateral agencies that engage in MPOs must therefore consider these limitations to conclude as to whether they are sufficient to use in their respective operations in order to be beneficial to humanity and society.

Whilst the four thematic sections of this literature review analyze the ongoing, contemporary debates surrounding UAVs, there is nonetheless gaps in the present literature that has been presented. The final section of this literature review will summarize these gaps.

#### *Contemporary Gaps in the Literature on UAVs in MPOs*

As it currently stands, there are gaps in the contemporary literature on UAVs in MPOs. This is mainly due to the UN's reluctance to utilize UAVs in their missions. As we will see in the next chapter, MONUSCO was the first instance where UAVs were deployed in a wide range effort to uphold the given mandate. The literature surrounding UAVs in the context of MPOs has



unfortunately lost significance over the years, as the bulk of research dates from 2013 to 2018. Since MONUSCO, there has been little use of UAVs in MPOs on such a wide scale level. The reasons for this were mainly outlined in the fourth thematic section on their limitations.

Therefore, this thesis attempts to bridge this knowledge gap and continue the research on drones in the context of MPOs in the second and third decade of the 21<sup>st</sup> century. Moreover, it is critical for scholars to delve further in the research surrounding UAVs in the context of MPOs by taking on the angles of their use juxtaposed to the privatization of aerial equipment, the political status of those being targeted by drones, and the ethics surrounding their use. Only when the research grows can the public further understand both the positive implications and potential pitfalls of drones, which in turn will allow the UN and other actors who engage in MPOs to decide if drones will be a part of future operations.

This literature review has analyzed four themes: (I) drones in the use of ISR; (II) the ethical concerns of drones and its juxtaposition to IHL; (III) the logistics of UAVs; and (IV) the potential limitations of UAVs, while also looking at the contemporary gaps surrounding the academic literature. In situating drones in the thematic debates surrounding ISR, humanitarian law, ethics, logistical analyses, and their potential limitations, this literature review has drawn on various scholars to demonstrate both the positive material capabilities of drones and their limitations. In short, UAVs are a contentious topic, both in their use in MPOs and militarized use by nation-states. Whilst drones have limitations, they can also make a positive contribution to humanitarian goals. It is therefore critical to be aware of both sides of these debates and allow scholars to look at the implications that the material capabilities offer.

## **Chapter IV: A Case Study of MONUSCO**

“UAVs ... can now be bought off the shelf even for recreational purposes, and even businesses are increasingly using them. Why should we deprive ourselves of readily available technology?” (Tafirenyika, 2016, p. n/a). This question was pondered by Hervé Ladsous, the former UN Under-Secretary-General for Peacekeeping Operations, while being interviewed by Masimba Tafirenyika of *Africa’s Renewal* in 2016. The question addresses the criticisms that have penetrated the debates surrounding drones, and ultimately complements the central argument of this thesis: that drones can support certain aspects of the goals of modern-day MPOs. MONUSCO acts as a critical juncture in the evolution of aerial power in the context of MPOs, since it was the first operation that used UAVs on a large scale. This chapter will therefore analyze the implementation of UAVs in the Democratic Republic of the Congo (DRC) and attempt to conceptualize the implications this has to offer. It will begin with an explanation of MONUSCO and its mandate, followed with an analysis of the implementation of drones in the DRC and its implications on both the local population and the overall mandate.

### *Background*

MONUC, the predecessor of MONUSCO, was established on November 30<sup>th</sup>, 1999, with UNSC resolution 1279, which was adopted following the initial coup d’état led by Laurent-Désiré Kabila against Zairian President Mobutu Sese Seko and the subsequent rebellion against Kabila and his government in 1998 (United Nations, n.d.). MONUC’s mandate was to observe the ceasefire and maintain liaison throughout the process of regime change; however, the UN expanded the operational capacity of MONUC afterwards to assist in mediating numerous intrastate conflicts (Ibid). This culminated in the establishment of MONUSCO with the adoption

of resolution 1925 on July 1<sup>st</sup>, 2010, which reflected the growing role of the UN in maintaining international peace and security in the DRC (Ibid). This new role resulted in the authorization “to use all necessary means to carry out its mandate,” which can be seen as an illustrating aspect of the reconceptualization of ‘sovereignty as responsibility’ noted in chapter II (Ibid). One of the critical junctures of this operation was the UNSC resolution 2098 (2013), which authorized the creation of the UN Force Intervention Brigade (FIB), an armed brigade tasked with an extensive amount of authority to ensure that international peace and security is upheld (United Nations Security Council, 2013). Tactical and sub-tactical UAVs were also authorized by resolution 2098 (2013) in order to carry out the mandate recommended in the President of the Security Council’s letter (S/2013/44) to the Secretary-General (Ibid). Considering the FIB and the use of drones were authorized simultaneously, it would be understood that FIB possessed the ability to utilize UAVs. The UN FIB was ultimately formed to quell intrastate (and interstate) tensions, including those with the 23 March Movement (M23), the Lord’s Resistance Army (LRA), and the Democratic Forces for the Liberation of Rwanda (FDLR), so it could uphold both the security of the civilians of the DRC along with UN personnel (Morrell Andrews, 2017, p. 3). The notion that the UN could use any means necessary to conduct its mandate meant that the creation of the UN FIB was a watershed moment in the history of MPOs, as it legitimized the use of force against armed groups engaging in active hostilities (Attuquayefio & Yekple, 2015, p. 76). This also meant there was a shift from the five guiding principles of peacekeeping highlighted in Chapter II. The addition of new aerial material capabilities in the form of UAVs was also part of this shift. Furthermore, whilst drones were not used in lethal terms, they ultimately wielded a wide range of material capabilities that assisted the UN FIB in their engagements with M23, LRA, and

FDLR. This case study will therefore demonstrate the degree to which drones have been used in MONUSCO by the UN FIB to carry out its mandate, and the ensuing implications of their use.

*UAVs and MONUSCO: A New Era of MPOs?*

Hostilities with opposing sides – predominately M23 – ushered a new conceptualization of how the UN ought to engage in combat with active belligerent groups. Utilizing this reconceptualization of sovereignty that served as the basis of the third generation of peacekeeping, the UN and its FIB engaged in direct combat, which was both (1) absent from MONUC; and (2) directly contravened the first guiding principle – the ability to use force only in self-defence – articulated in Chapter II, laid out by former Prime Minister of Canada Lester B. Pearson and former UN Secretary-General Dag Hammarskjöld. Despite the contravention of this peacekeeping principle, UAVs were used in a manner that were non-lethal and complemented other forms of material capabilities the UN possesses.

As highlighted earlier in this thesis, some scholars make the case that the material capabilities of drones may appear to compress space and time. As mentioned in Theme I of the literature review, this has been conceptualized by Bousquet (2018) as the spatial and temporal spheres. Dorn (2014) notes that the flight time of traditional aerial equipment used in MPOs plateaus at four to six hours, with most flights needing to land prior to that to refuel (p. 128). The Falco UAV system – the drone system that was commissioned by the UN to use in MONUSCO by Leonardo<sup>23</sup> (then Finmeccanica) – has an endurance of eight to fifteen hours (Dorn, 2014, p. 126), and the potential to fly up to 72 hours (Karlsrud & Rosén, 2016, p. 48). It is therefore evident that whilst all aerial equipment has the advantage of compressing both the spatial and

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<sup>23</sup> Leonardo was the thirteenth largest arms-producing and military services private company globally in 2020 (Stockholm International Peace Research Institute, 2020).

temporal, drones elevate the ability of aerial equipment to navigate the traditional constraints imposed by these spheres.

With the ability to navigate these spheres, drones have been able to employ their material capabilities in MONUSCO to carry out its mandate, specifically regarding its capacity to assist in ISR. The Falco UAV system, one that is tactical, is equipped with thermal and IR cameras that allow for the UN to operate at nighttime and surveil the opposing sides of conflict (Ibid, p. 48). The use of night time surveillance is highly strategic because flying at night allows for the UAVs to go unseen, which in turn gives the UN an advantage. Furthermore, each UAV – specifically, the class III UASs (United Nations Department of Peace Operations / Department of Operational Support, 2019) – used also wields a synthetic aperture radar that allows the UN to strategically map out the terrain in conjunction with circumventing the dense foliage (Ibid). This ability to map out the relevant topography below elevates the strategic efficacy drones possess. The efficacy stems from the use of image intelligence (IMINT) via the material capabilities UAVs hold (Kuele & Cepik, 2017, p. 51). Although it is well documented that drones provide a significant advantage in the spatial and temporal spheres through their ability to conduct ISR, and their ability to mitigate putting peacekeepers in harm's way vis à vis other forms of aerial power, they can only be effective if they can be implemented into real-world scenarios.

M23, which originally controlled vast swaths of North Kivu, a province in the DRC that borders Uganda and Rwanda to the east, was defeated by the Armed Forces of the Democratic Republic of the Congo (FARDC) and the UN FIB in late 2013 (Katombe, 2013). M23 had been one of the belligerent groups in the DRC. FARDC and the UN FIB encircled M23's forces in North Kivu to choke off the logistics of their mobilization via a classic 'divide and conquer' operation (Oliver, 2013). Three task forces within the Brigade were deployed within the region

and FARDC also had its own task forces – ultimately, it was the logistical advantage that the Brigade and FARDC possessed that allowed them to succeed, as when Goma fell the year prior in North Kivu, FARDC was hindered by logistical constraints (Ibid). Morrell Andrews (2017) also highlights that drones played a role in the disbandment of M23 in the region (p. 5). Whilst drones were in the process of being launched by the UN and did not partake in the fighting of October 2013 as noted by Oliver (2013), they ultimately contributed as a tool that wielded its material capabilities to surveil the area of North Kivu. This extended the capabilities the UN possessed to surveil the area, and it also assisted in the lasting disbandment of M23, as studies demonstrate that the presence of CCTV systems capturing footage in public impacts the behaviour of potential deviants such that they are less likely to commit a crime; therefore, drones in MPOs would exert the same impact on belligerent forces (Karlsrud & Rosén, 2016, p. 49). Succinctly, these drones were able to navigate the spatial and temporal spheres to conduct ISR against M23 to uphold and carry out the mandate of MONUSCO. In doing so, the material capabilities of drones were utilized in a specific manner that allowed for them to play a key role in the given operation.

#### *The Implications of Drone Use in MONUSCO and Beyond*

Despite the notion that the material capabilities offered by drones can be beneficial to MPOs – in this case, MONUSCO – one needs to also analyze the implications of drone use to gauge their efficacy. The implications of drone use in MONUSCO parallel previous implications of drone use elsewhere. Mainly, there have been questions about their use, i.e., the storage of data, most predominately. At the same time, some analyses bring to light the benefits of using

UAVs in MPOs, such as their ability to assist in disbanding militias. What follows will look at these implications.

One implication of using UAVs in MPOs and MONUSCO is the storage of data collected, how it is managed, and who has access to it. Selex ES, the subsidiary of Finmeccanica, which has since been amalgamated into Leonardo, has not just been contracted to supply the aerial equipment, but also will possess the ability to monitor the data and effectively use “data exploitation tools” to digest it (Rees, 2013). This potential flaw in the logistics of operating UAVs may be troublesome for many for two reasons. First, the ability to outsource the manufacturing of aerial equipment to a PMSC can be seen as a form of foreign interference since the entity the UN is dealing with is not a member state. Second, this PMSC’s ability to access sensitive data further reinforces the potential flaw that there may be foreign interference, as the manipulation of the data may serve other interests (Karlsruud & Rosén, 2016, p. 57). The UN has attempted to alleviate any doubts in its ability to both access the data being collected and to have control over it by declassifying a document intended for internal personnel to educate them on UAVs. Titled *United Nations Use of Unmanned Aircraft Systems (UAS) Capabilities (2019)*, it serves as the basis for the UN’s categorization of drones as listed in Chapter II and is directed to both personnel in MPOs and as well as staff of the United Nations Headquarters (UNHQ). The United Nations Department of Peace Operations / Department of Operational Support (2019) notes that in an ideal world, “[full motion video] data should be retained, stored and archived in such a way that it is possible to identify and retrieve the data at a future point in time” (p. 12-13). These recommendations ultimately fall short since it was created over five years after the Falco UAV systems were launched in the DRC; it does not offer exactly *where* the data will be stored, nor *how* it can be retrieved, and casts doubt that the UN had an effective plan in place to manage

the influx of data it would retain via the material capabilities of UAVs. In short, whilst the recommendations *should* be implemented, one can critique that these recommendations should have been implemented *prior* to launching UAVs in MONUSCO, since the storage of data is a crucial subject that blurs the lines of politics, privacy, and policy.

There are other implications, too, that the application of drones to MPOs create, which may be perceived as beneficial. Drones ultimately helped quell the ability for M23 to resurge after it was defeated in 2013 by continuously conducting surveillance in Eastern DRC<sup>24</sup>. Furthermore, the use of UAVs in MONUSCO was able to assist in certain humanitarian efforts. For example, over a dozen people were rescued in May 2014 after a boat capsized off the coast of the DRC, and was spotted thanks to a UAV. The attributes of drones, such as being able to fly for up to 72 hours and possess IR technology allows for their use vis à vis other aerial equipment to stand out (Padovan, 2014). As outlined throughout this thesis, the benefits of using drones in MPOs is well-documented. From their ability to guide the UN to see the opposing sides during hostile engagements, to assisting the Congolese army and others – such as the Ukrainians, as mentioned in the OSCE’s SMM to Ukraine – drones possess an arsenal of material capabilities that allow MPOs to gain a strategic advantage in their execution of ISR and humanitarian efforts; in turn, this places drones at the forefront of what is to come in the evolution of aerial equipment.

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<sup>24</sup> It should be noted that as of March 30<sup>th</sup>, 2022, M23 has regrouped. This therefore opens up the debate as to whether more drones are needed or if a new strategy ought to be incorporated into MONUSCO’s mandate.



## **Chapter V: Conclusion**

This thesis has examined contemporary aerial equipment in the form of UAVs and their accompanying contemporary aerial material capabilities. The aim of this thesis was to understand how drones can assist the UN and other multilateral agencies in achieving international peace and security. Based on the analysis offered throughout this thesis, opposition to the use of drones from some UN troop contributing countries and other actors stems from a concern that UAVs may replace boots on the ground and concerns related to privacy, data and security standards. In contrast to these concerns, drones are able to assist the UN and other entities in achieving international peace and security by providing an effective means to guide missions via their ISR capabilities and help in humanitarian crises.

The theoretical framework used in the research and writing of this work seeks to consider drones as part of the material capabilities of MPOs that can be mobilized for humanitarian goals, and in this regard, the good of humanity. The research drew on a methodology of using primary and secondary sources, along with recognized databases such as those provided by SIPRI – specifically, the *Data and trends for multilateral peace operations* and *SIPRI Arms Industry Database* – and focused on empirical data. The methodology guided the response to the two *problématiques* such that it allowed for both the problematization of scholarly articles, webpages, and primary sources that are relevant to the central argument of this thesis, which makes an argument that despite concerns expressed by some observers and scholars, *drones can nonetheless support certain aspects of the goals of modern-day peacekeeping missions. In specific terms, the advantages of using these new material capabilities include the ability to circumvent the spatial and temporal spheres; utilize cameras, sensors, and GPS technology; and allow for the potential to aid in ISR and humanitarian operations.*

Future research is needed on this topic to fully understand the implications of drone usage in MPOs. While the idea of more research being suggested has long been a cliché in academia, it is especially relevant for this topic. This is because the use of UAVs in the context of MPOs is a recent phenomenon that has only officially occurred in the last decade. This research is needed to both (1) close the gap in the current literature, since the majority dates from the 2013-2018; and (2) further determine the implications of the use of drones in MPOs. The research currently upholds the central argument of this thesis, that drones are effective in assisting UAVs to achieve certain aspects of their mandate; however, further research is still needed.

This research has demonstrated that opposition to the use of drones is based on the potential negative implications it has on the privacy of local populations and the image of the “killer drone” when thinking about UAVs. The literature review has demonstrated that the Falco UAV does not possess lethal power and possesses the contemporary aerial material capabilities to aid local populations by complementing existing MPOs. These findings – that drones *can* assist MPOs in achieving their mandates – confirm existing theories of military logistics: specifically, it confirms the notion that one needs to possess a logistical advantage over their counterpart to have the upper hand in a given conflict. Drones help reaffirm these theories by compressing space and time – the spatial and temporal spheres – in order to give a strategic advantage to the logistics of those that wield these material capabilities. Due to the plethora of material capabilities drones possess, they will be of inquiry for scholars and those that engage in MPOs for years to come.

**Works Cited:**

- Apakan, E., & Giardullo, C. (2020). UAVs for the Benefit of People: The use of Unmanned Aerial Vehicles Within the OSCE Special Monitoring Mission. *Human Rights Quarterly*, 42(2), 479-487.
- Attuquayefio, P., & Yekple, M. (2015). Drones in the Eastern Democratic Republic of Congo: A New Direction in UN Peace Operations? *African Peace and Conflict Journal*, 8(2), 74-88.
- Baig, K. (2002). *Logistical Support to United Nations Peacekeeping Operations: An Introduction* (2nd ed.). (H. J. Langholtz, Ed.) The United Nations Institute For Training and Research.
- Bousquet, A. J. (2018). *The Eye of War: Military Perception from the Telescope to the Drone*. University of Minnesota Press.
- C-124 Globemaster II Military Transport: Historical Snapshot. (n.d.). *Boeing*. Retrieved on April 8, 2022, from Boeing: <https://www.boeing.com/history/products/c-124-globemaster-ii.page>
- Canadair North Star. (n.d.). *Government of Canada*. Retrieved on April 9, 2022, from Government of Canada: <https://www.rcaf-arc.forces.gc.ca/en/aircraft-historical/north-star.page>
- Chamayou, G. (2015). *A Theory of the Drone*. (J. Lloyd, Trans.) The New Press. (Original work published 2013).
- Clarke, J. (2021). Killing Them Softly: Drone Regulation through Soft Law. *Transnational Law & Contemporary Problems*, 30(2), 311-331.
- Cox, K. E. (1999). Beyond Self-Defense: United Nations Peacekeeping Operations & (and) the Use of Force. *Denver Journal of International Law & Policy*, 27(2), 239-273.
- Curran, D. (2017). Muddling on through? Cosmopolitan peacekeeping and the protection of civilians. *International Peacekeeping*, 24(1), pp. 63-85. Routledge
- Dorn, A. W. (2014). Aerial Surveillance: Eyes in the Sky. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 119-133). Ashgate.
- Dorn, A. W. (2014). Combat Air Power in the Congo, 2003—. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 241-253). Ashgate.
- Dorn, A. W. (2014). Peacekeepers in Combat: Fighter Jets and Bombers in the Congo, 1961-1963. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 17-39). Ashgate.
- Dorn, A. W. (2014). Preface. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. xxv-xxx). Ashgate.

- Dorn, A. W. (2014). UN Observer Group in Lebanon: Aerial Surveillance During a Civil War, 1958. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 135-145). Ashgate.
- Doucet, M. G. (2015). Global Assemblages of Security Governance and Contemporary International Intervention. *Journal of Intervention and Statebuilding*, 10(1), 116-132.
- International Committee of the Red Cross. (2015, January 22). *What are jus ad bellum and jus in bello?* Retrieved February 24, 2022, from International Committee of the Red Cross: <https://www.icrc.org/en/document/what-are-jus-ad-bellum-and-jus-bello-0>
- Karlsrud, J., & Rosén, F. (2013). In the Eye of the Beholder? The UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security & Development*, 1-10.
- Karlsrud, J., & Rosén, F. (2016). Lifting the fog of war? Opportunities and challenges of drones in UN peace operations. In K. B. Sandvik, & M. G. Jumbert (Eds.), *The Good Drone* (pp. 45-64). Routledge.
- Katombe, K. (2013, November). *Defeated M23 ends revolt in Congo, raising peace hopes*. Retrieved March 13, 2022, from Reuters: <https://www.reuters.com/article/us-congo-democratic-rebels-idUSBRE9A30PE20131105>
- Kuele, G., & Cepik, M. (2017). Intelligence Support to MONUSCO: Challenges to Peacekeeping and Security. *The International Journal of Intelligence, Security, and Public Affairs*, 19(1), 44-68.
- Leonardo. (2021). *A history of success, a future in excellence*. Retrieved March 6, 2022, from Leonardo: <https://www.leonardo.com/en/about/history>
- Little, R. (2019). *Logistical Support to United Nations Peacekeeping Operations: An Introduction* (3rd ed.). (H. J. Langholtz, Ed.) Peace Operations Training Institute.
- Malan, M. (1998). Peacekeeping in the New Millennium: Towards 'Fourth Generation' Peace Operations? *African Security Review*, 7(3), pp. 13-20. Routledge.
- McKay, J. (2014). The UN Iraq—Kuwait Observer Mission and the Southern No-fly Zone, 1991—2003. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 167-192). Ashgate.
- Morrell Andrews, S. (2017). Drones in the DRC: A Case Study for Future Deployment in United Nations Peacekeeping. *Intersect*, 10(2), 1-10.
- Neil, D. (2014). Unmanned Aerial Vehicles Supporting UN Operations: A Commercial Service Model. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 147-164). Ashgate.
- Oliver, D. (2013, October). *How M23 was rolled back*. Retrieved March 13, 2022, from African Defence Review: <https://www.africandefence.net/analysis-how-m23-was-rolled-back/>

- Owen, R. C. (2014). Operation Deliberate Force in Bosnia, 1995: Humanitarian Constraints in Aerospace Warfare. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 231-240). Ashgate.
- Padovan, C. (2014, May). *MONUSCO Peacekeepers Rescue 14 People From a Sinking Boat on Lake Kivu*. Retrieved March 13, 2022, from Mission de l'Organisation des Nations Unies pour la stabilisation en République démocratique du Congo: <https://monusco.unmissions.org/node/100043465>
- Portmess, L., & Romaya, B. (2015). Digital Peacekeepers, Drone Surveillance and Information Fusion: A Philosophical Analysis of New Peacekeeping. *Theoria: A Journal of Social and Political Theory*, 62(145), 5-22.
- Rees, C. (2013, September). *Selex ES to Supply Surveillance UAS for United Nations Peace Keeping Missions*. Retrieved March 13, 2022, from Unmanned Systems Technology: <https://www.unmannedsystemstechnology.com/2013/09/selex-es-to-supply-surveillance-uas-for-united-nations-peace-keeping-missions/>
- Rejeb, A., Rejeb, K., Simske, S., & Treiblmaier, H. (2021). Humanitarian Drones: A Review and Research Agenda. *Internet of Things: Engineering Cyber Physical Human Systems*, 16, 1-20.
- Sharland, L. (2015). Counter-IED Technology in UN Peacekeeping: Expanding Capability and Mitigating Risks. *International Peacekeeping*, 22(5), 587-602.
- Solà-Martin, A. & Woodhouse, T. (2011). *The United Nations, armed conflict, and peacekeeping*, pp. 1-66 [PID\_00181760]. Universitat Oberta de Catalunya. [http://openaccess.uoc.edu/webapps/o2/bitstream/10609/50481/2/United%20Nations%20and%20peace%20operations\\_Unit1\\_The%20United%20Nations%2c%20armed%20conflict%20and%20peacekeeping.pdf](http://openaccess.uoc.edu/webapps/o2/bitstream/10609/50481/2/United%20Nations%20and%20peace%20operations_Unit1_The%20United%20Nations%2c%20armed%20conflict%20and%20peacekeeping.pdf)
- Spooner, K. A. (2014). A Fine Line: Use of Force, the Cold War, and Canada's Air Support for the UN Organization in the Congo. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 41-58). Ashgate.
- Stockholm International Peace Research Institute. (2021). *Data and trends for multilateral peace operations*. Retrieved March 14, 2022, from Stockholm International Peace Research Institute: <https://www.sipri.org/research/conflict-peace-and-security/peace-operations-and-conflict-management/data-and-trends-multilateral-peace-operations>
- Stockholm International Peace Research Institute. (2021, December). *SIPRI Arms Industry Database*. Retrieved March 13, 2022, from Stockholm International Peace Research Institute: <https://www.sipri.org/databases/armsindustry>
- Tafirenyika, M. (2016, April). *Drones are effective in protecting civilians — Hervé Ladsous*. Retrieved September 30, 2021, from Africa Renewal: <https://www.un.org/africarenewal/magazine/april-2016/drones-are-effective-protecting-civilians>

- Thomas, F. R. (2014). Observing Air Power at Work in Sector Sarajevo, 1993—1994: A Personal Account. In A. W. Dorn (Ed.), *Air Power in UN Operations: Wings for Peace* (pp. 193-211). Ashgate.
- United Nations. (2014). *Unmanned Aerial Vehicles in Humanitarian Response*. United Nations, Office for the Coordination of Humanitarian Affairs (OCHA).
- United Nations. (n.d.). *Background*. Retrieved February 20, 2022, from United Nations Truce Supervision Organization: <https://untso.unmissions.org/background>
- United Nations. (n.d.). *Background*. Retrieved March 8, 2022, from United Nations Organization Stabilization Mission in the DR Congo: <https://monusco.unmissions.org/en/background>
- United Nations. (n.d.). *What is Peacekeeping*. Retrieved April 17, 2022: <https://peacekeeping.un.org/en/what-is-peacekeeping>
- United Nations Department of Peace Operations / Department of Operational Support. (2019). *United Nations Use of Unmanned Aircraft Systems (UAS) Capabilities*.
- United Nations Security Council. (2013). Letter dated 22 January 2013 from the President of the Security Council addressed to the Secretary General, S/2013/44, United Nations. Retrieved March 13, 2022: <https://digitallibrary.un.org/record/742666?ln=ru>
- United Nations Security Council. (2013). *Resolution 2098 (2013), S/RES/2098 (2013)*.
- Whetham, D. (2015). Drones to protect. *The International Journal of Human Rights*, 18(2), 199-210.
- Yurkusi, H. N. (2008). *Harnessing the Logistics of Peacekeeping Operations* [Unpublished Certificate-of-Training Thesis in United Nations Peace Support Operations]. Peace Operations Training Institute.
- Zanotti, L. (2011). *Governing Disorder: UN Peace Operations, International Security, and Democratization in the Post-Cold War Era*. The Pennsylvania University Press.