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Leveraging PeaceTech: The Role of Technology in UN Peace Operations

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STATEMENT OF ACADEMIC INTEGRITY

I declare that I have adhered to all rules of academic integrity in the submitted thesis.

This written work is the result of my own personal effort, is based on my research and relies on the cited literature.

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Introduction

The rapid evolution of technology changed virtually every aspect of human life and revolutionized the world in ways that were not thought possible before. For many, this change has been a positive one, associated with progress, prosperity and efficiency. This seemingly endless technological optimism paved the way for an increasingly influential belief: technological solutionism, or the tendency to find “technological solutions for complex social problems” (Madianou 2025, 47). However, such an approach can encourage the search for technological solutions before the underlying problem has been fully understood, inadvertently creating the illusion of problem solving, while potentially overlooking its social, political and structural roots.

This optimism has been further reinforced by a broader culture of technological disruption that can be seen most clearly in the Silicon Valley mantra “move fast and break things” (Zuckerberg 2012), which prioritizes innovation and efficiency over caution, risk assessment and safeguards. From a human rights perspective, this tension has become increasingly important in current debates surrounding technological implementation. It has also become central to debates on peace and security, as states and international organisations increasingly invest in PeaceTech¹ (PeaceTech Lab 2024), technological tools for managing peace and conflict. For one organisation in particular, the United Nations, technological innovation is often presented as an opportunity to address challenges of effectiveness in peace operations, particularly at a time when the legitimacy and performance of UN peace operations are facing increased scrutiny (Karlsrud 2018a).

It is important to underline that not all contexts can follow the same logic of disruption. In the context of UN peace operations, the consequences of implementing technologies without adequate consideration of their social and political effects can extend far beyond inefficiency. They can affect legitimacy, accountability, human rights and ultimately, the safety of the very populations that the missions are supposed to protect. This is particularly important given the UN’s responsibility to operate according to principles that place civilian protection and the imperative to “do no harm” (Anderson 1999) at the centre of its work. The introduction of

¹ The term was coined by Himelfarb, CEO of PeaceTech Lab, in 2008 and encompasses all relevant technology that can be used in order to achieve peace or prevent conflict, from databases, surveillance equipment and smartphones to geographic information systems (GIS), unmanned aerial vehicles and artificial intelligence and as such will be used in this thesis (PeaceTech Lab 2024).

technology into peacekeeping therefore creates a fundamental tension between the pursuit of greater effectiveness and the potential for new forms of harm.

The thesis examines that tension through researching the growing use of technology in UN peace operations, while deliberately focusing on tools developed for surveillance because of their widespread use across operations. These tools are deployed because of their ability to generate information, improve situational awareness, monitor spaces and support decision making, especially in rougher terrains. Therefore, surveillance technology provides a good case for examining whether its deployment increases effectiveness and whether that effectiveness can impact mission success in the long term.

This thesis does not seek to determine whether technology or surveillance in peacekeeping is good or bad. Instead, it examines the tension between its operational value and its broader operational and human rights consequences. The overarching argument throughout the thesis is that surveillance technology in UN peace operations can produce real, but relatively short-term effectiveness gains, while being deployed within a context of declining UN legitimacy and persistent structural accountability problems. As the case studies in the thesis will show, under these conditions, surveillance technologies aimed at strengthening the effectiveness and credibility of peace operations may simultaneously contribute to the erosion of the legitimacy they intend to reinforce (Legaz 2026).

The thesis is guided by one central question and two subsequent questions addressing this tension. The central question engages with the first part of that tension, effectiveness and more broadly with technological solutionism: *To what extent does the deployment of surveillance technology translate into long-term and sustained effectiveness in UN peace operations?*

The first question is central to the thesis, while the following two are derived from it and serve the purpose of highlighting the impact of PeaceTech on accountability and human rights, engaging with the second part of the tension. The second question shifts the focus to accountability, especially when it comes to the rights of the local populations: *What accountability mechanisms exist to protect local populations from human rights harms arising from the use of surveillance technologies in UN peace operations and how effectively do these mechanisms function in practice?*

The third question examines UN's principles and human rights commitments against the practical implementation of technology on the ground: *To what extent does the use of surveillance technology in UN Peace Operations align with the organization's stated human rights commitments?*

To answer these questions, the thesis relies on official UN documents, as well as the growing literature on PeaceTech, technology, surveillance, colonialism and human rights. The empirical analysis focuses on two case studies that illustrate the implementation of unmanned aerial vehicles (UAVs) or more commonly referred to as drones, and other surveillance technology in the Democratic Republic of Congo through The United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) and in Mali through the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA). Both are good examples of implementation of PeaceTech in UN peace operations that allow a sound assessment of their operational effectiveness, while providing a good basis for examining the real life consequences of the implementation of technology (Karlsrud and Rosén 2017).

The central concern that motivated this research was clear from the beginning: the UN is facing criticism regarding both the legitimacy and effectiveness of its peace operations. The initial approach to this thesis was more in line with technological optimism and technological solutionism, with the belief that technology can be the solution to these challenges. However, the research process and my subsequent work in the digital rights field led me to challenge this initial framing. Therefore the thesis now questions, not the technology itself, but rather the consequences of its implementation on actual operation effectiveness, as well as accountability, legitimacy and human rights of the local populations.

This thesis is divided into several parts. First, the context will set the foundation of the thesis by diving into the UN's changing political position and the ongoing crisis, while also examining the growing trend of the implementation of technology and surveillance in peacekeeping. Next, the literature review section will place the thesis within the broader conversation around PeaceTech, surveillance, human rights and UN effectiveness and accountability. Literature review will be followed by establishing the theoretical framework and foundation of the thesis. The methodology section will go in depth on research design, case selection, sources and limitations of the thesis. The core part of the thesis will be focused on the two case studies, MONUSCO and

MINUSMA, that will help better understand the main tension in practice and answer the research questions, ending with a comparative discussion. Finally, the conclusion will provide the summary of the main points and reiteration of the main findings, while briefly looking ahead at the future implications of technology in UN peace operations.

1. Context: The UN's Changing Political Position and the Growing Trend of Surveillance in Peacekeeping

1.1 The UN's Declining Political Position

The United Nations was created at a moment when the world needed to believe that peace was possible. Following the devastating consequences of World War II, the overarching goal of the organization was and remains, “to maintain international peace and security” (Charter of the United Nations 1945). However, more than 80 years later, while the goal has remained unchanged, the perception of the organization has shifted considerably. The initial optimism that an international body could help maintain a new and peaceful world order has increasingly been replaced by discussions about the future, and even the possible end, of the United Nations (Traub 2026).

One of the most significant challenges is the paralysis of the Security Council, increasingly affected by the use of vetoes by its permanent members. Over the last five years, Russia has led in the number of vetoed resolutions, mostly concerning Ukraine, while the United States has been in second place, primarily vetoing resolutions concerning the Middle East and Palestine, particularly since October 7th 2023 (United Nations Security Council). This paralysis has contributed to the UN being sidelined in contemporary global crises, including the Russian aggression in Ukraine and the ongoing genocide in Gaza (Albanese 2025). The UN Secretary-General himself has described the Security Council as “paralysed by geostrategic divisions” (Anichukwueze 2023) and stated that the UN’s “authority and credibility were severely undermined” (Anichukwueze 2023) by its delayed response to the conflict in Gaza.

The UN is simultaneously facing a significant funding crisis caused by member states failing to pay their financial obligations. It is interesting that the permanent members of the Security Council contributing to its political paralysis are also among those most responsible for the ongoing funding crisis. As of September 2025, only \$1.8 billion had been received out of \$3.5 billion in budget assessments for 2025, with the United States, China and Russia owing the largest amounts of money (Johnson 2025). The consequences extend directly to UN peace

operations. The UN Secretary-General ordered all peace operations to reduce their budgets by 15%, affecting the number of uniformed and civilian personnel deployed (Mishra 2025). This financial crisis is also connected to increasing member state criticism of the effectiveness of peace operations, with the Trump administration proposing to eliminate their budget, because of failures in Mali, Lebanon and the Democratic Republic of Congo (Landay and Pamuk 2025).

Beyond these political and financial constraints, UN peace operations continue to face recurring structural problems. The UN's High-Level Independent Panel on Peace Operations (HIPPO) Report identified an increasing gap between what is expected of UN peace operations and what they are actually able to deliver (UN HIPPO Report 2015). This gap illustrates the persistent problem of effectiveness in UN peace operations. Karlsrud similarly refers to these recurring structural problems as “perennial dilemmas” (Karlsrud 2018a, 16-20) of UN dysfunction. First, mandates often suffer from a lack of resources. Second, there is a persistent gap between UN policy and field practice. While policy may prioritize the protection of civilians, peacekeepers have routinely avoided the use of force in civilian protection. Third, peace operations remain state centric, with host governments receiving greater support than local populations. Finally, sexual exploitation and abuse by peacekeepers remains a major problem (Karlsrud 2018a, 16-20).

These challenges demonstrate how the UN’s broader institutional crisis can cascade down into material consequences for peace operations. Political paralysis and financial problems limit the organization’s capacity, while persistent structural issues further undermine the effectiveness and legitimacy of its missions. It seems that within this context of increasing institutional pressure and demands for greater effectiveness, technological solutions become increasingly attractive.

1.2. The Shift from Liberal Peacekeeping and the Rise of Technology and Surveillance in Peace Operations

Rapid technological development has contributed to increasing technological optimism and a growing tendency to seek technological solutions for complex problems. At the same time, the declining political position of the UN and the crisis surrounding the legitimacy and effectiveness of its peace operations have intensified discussions about necessary reforms. One proposed approach has been to leverage the potential of technology, more specifically PeaceTech.

Secretary-General Guterres encouraged initiatives aimed at understanding technology and its impact, with special attention to “how these technologies can be used to support mandate delivery” (Strategy for the Digital Transformation of the UN Peacekeeping, 5).

The digital transformation of UN peacekeeping is also closely connected to the broader shift from liberal peacekeeping towards stabilization and counterterrorism (Karlsrud 2018b). This shift, which became particularly pronounced following September 11th 2001 and the broader securitization of global politics, was accompanied by increasingly robust mandates for UN peace operations. The Security Council has given increasingly robust mandates to UN peace missions since the global war on terror (Karlsrud 2018b, 143). This transformation represents a significant challenge to traditional peacekeeping principles, particularly where missions are deployed in situations in which there is effectively “no peace to keep” (Howard 2015, 8).

As missions such as MONUSCO and MINUSMA took on more robust and stabilization-oriented mandates, situational awareness and threat detection capabilities became increasingly important. It seems as though technologies such as drones and intelligence platforms consequently assumed a more central role than they had under traditional liberal peacekeeping models. This was particularly relevant in missions deployed after or alongside counterterrorism operations in the Democratic Republic of Congo and Mali. The UN has repeatedly argued that drones can “radically improve their situational awareness” (Karlsrud and Rosén 2017, 49) by monitoring terrain and population movements, making them particularly useful in difficult terrain and areas with poor infrastructure (Karlsrud and Rosén 2017, 49).

The deployment of surveillance drones under UN mandates has a longer history. One of the first instances occurred in MONUC in the Democratic Republic of Congo in 2006. However, a drone crash in Kinshasa, which killed a person and injured many others, brought the initial effort to an end. A second instance occurred with the deployment of surveillance drones in Chad in 2009 (Karlsrud and Rosén 2017, 47).

One of the first major and structural efforts to deploy surveillance systems came through MONUSCO, with the UN continuously emphasizing that these drones would not be armed in

practice (Karlsrud and Rosén 2017, 48). Their deployment coincided with the establishment of the Force Intervention Brigade (FIB), marking a significant shift in the nature of the operation (Karlsrud and Rosén 2017, 52). Another important example followed in MINUSMA in Mali in 2014. The mission operated several types of drones, around the time the All Sources Information Fusion Unit (ASIFU) was established with a focus on gathering intelligence (Karlsrud and Rosén 2017, 50).

The growing role of surveillance technology should be understood not simply as a consequence of technological development, but also as part of a transformation in the nature of UN peace operations themselves. As mandates became more robust and missions increasingly operated in complex and insecure environments, the demand for surveillance and intelligence increased accordingly.

1.3. The Digital Transformation of UN Peacekeeping seen through UN Documents

Over the years, the UN has increasingly developed policy documents and strategies addressing new technologies and their potential application in peace operations. However, the development of these official frameworks has significantly lagged behind the deployment of technologies on the ground. This gap is not unique to the UN. Rapid technological development often enables governments to deploy technologies before adequate risk assessments, safeguards and accountability mechanisms have been established. This can create a sort of a legal vacuum in which human rights remain inadequately protected while governments and companies gain more power and control. Once technologies have been implemented, reversing their use can be extremely difficult even when explicit harms emerge, with legislative responses sometimes adopting relatively lenient standards as a fix-it “solution”.

The first documented deployment of surveillance technologies such as drones occurred as early as 2006 in MONUC, while one of the first comprehensive UN documents concerning technology was developed almost a decade later. This does not mean that the UN had not previously discussed technological developments. One of the first institutional discussions in the Security Council took place in 2013, a month before surveillance systems were officially introduced in MONUSCO (United Nations Department of Public Information 2013). Regardless, the absence of

a systematic and grounded approach during the earlier stages represents a significant weakness when considering effective and preemptive safeguards for the rights of local populations and peacekeepers themselves.

The first significant document was the 2015 Final Report following the work of the Expert Panel on Technology and Innovation in UN Peacekeeping. The report was considerably more comprehensive, addressing the digital transformation of peace missions and imagining the future of digital peacekeepers that would be capable of responding to increasingly volatile environments through a wide range of technologies extending far beyond traditional surveillance systems (United Nations Expert Panel on Technology and Innovation in UN Peacekeeping 2015).

Three years later, the UN adopted another important strategic document, the Secretary-General's Strategy on New Technologies in 2018. The document established a general UN system-wide strategy for defining how the organization would support the implementation of new technologies in achieving the 2030 Sustainable Development Agenda while ensuring alignment with international and humanitarian law, particularly the UN Charter (United Nations Secretary-General 2018, 3). It established five core principles: protecting and promoting global values, fostering inclusion and transparency, working in partnership, building on existing capabilities and mandates and remaining committed to learning (United Nations Secretary-General 2018, 4-5). The Strategy is notably value centred and places significant focus on responsible technological development. At the same time, it provides limited detail regarding the specific safeguards and accountability mechanisms necessary to support these principles.

Building on the broader Strategy on New Technologies, the UN adopted the Strategy for the Digital Transformation of UN Peacekeeping (2021). The document argues that digital technologies are taking on an increasingly large role in 21st century conflicts and that UN peacekeeping must “forge its own path toward harnessing the potential of digital technologies and better deliver on its mandates, now and for the future” (United Nations 2021, 9). The Strategy builds on the Security Council encouragement of technological deployment driven by practical needs identified by users in the field (United Nations 2021). It is particularly significant because it identifies specific technologies central to intelligence, surveillance and reconnaissance (ISR),

including UAVs, radar, early warning systems and data platforms, among others (United Nations 2021). The Strategy sets four goals for creating impact in the field: driving innovation, maximizing the potential of current and new technologies, understanding threats to the safety and security of peacekeepers and to mandate implementation and ensuring responsible use. Importantly, it explicitly recognizes risks associated with new technologies. Its principles for the digital transformation of peacekeeping include human-centred use, human rights compliant technology, data protection and privacy and a do-no-harm principle that places the needs of people first (United Nations 2021, 15-20).

These strategic documents are part of a wider UN framework governing the use of new technologies. Besides strategic documents, it is important to outline several policy documents that also guide the technological transformation.

The UN Policy on Peacekeeping-Intelligence was first drafted in 2017 and revised in 2019 following deadly attacks on the local population and UN peacekeepers in Mali's MINUSMA mission and after the Security Council explicitly requested the expansion of the peacekeeping intelligence (United Nations Department of Peace Operations 2019). An important contradiction worth noting is that the peacekeeping-intelligence activities are described as "fully autonomous from and independent in all aspects of any national intelligence system or other operations" (United Nations Department of Peace Operations 2019, 4), while the very next sentence allows the possibility of intelligence sharing by liaising with non-mission entities (United Nations Department of Peace Operations 2019, 4). Furthermore, the document explicitly states that, in cases where peacekeeping intelligence may be shared, the Human Rights Due Diligence Policy (HRDDP) applies, further setting standards for the protection of human rights (United Nations Department of Peace Operations 2019, 9).

A more specific policy, Sharing Peacekeeping-Intelligence with Non-UN Entities, was adopted in 2022 and it explicitly states that before intelligence sharing occurs, the mission must complete a risk assessment that includes an entity assessment for sharing and must go through the process of sanitization, or the process of removing any sensitive information that can harm a source or asset by exposing them (United Nations Department of Peace Operations 2022, 4).

Finally, the Personal Data Protection and Privacy Principles, adopted in 2018, provide a framework centred on the protection of human rights and freedoms, particularly the right to privacy. The Principles call for risk-benefit assessments and particular caution concerning vulnerable or marginalized individuals and groups. At the same time, the document reveals a significant accountability gap, stating that “implementation of these Principles is without prejudice to the privileges and immunities of the relevant United Nations System Organizations concerned” (United Nations High-Level Committee on Management 2018, 1).

Taken together, these documents demonstrate that the UN has progressively developed a framework for the use of new technologies in peace operations. Although these frameworks were arguably developed relatively late, they have set out important principles concerning human rights, privacy, data protection, intelligence sharing and responsible technological use. At the same time, the documents remain largely innovation-forward and have built-in underlying narratives of technological determinism and the perceived inevitability of technology in peacekeeping. The resulting tension between technological innovation and the strength and enforceability of safeguards is central to the analysis in the following chapters. This section has established the institutional and policy framework within which new technologies are expected to operate, while the following chapters examine the extent to which these commitments translate into practice, with particular attention to the MONUSCO and MINUSMA case studies in Chapters 5, 6, and 7.

2. Literature review

The particular tension at the center of this thesis provides a useful lens through which to examine the existing literature, highlighting important debates and competing interpretations within different fields. The literature reviewed in this section examines PeaceTech from technological optimism to critical perspectives, questions its implications for surveillance, discrimination and human rights. It also engages with scholarship on UN effectiveness and accountability, while positioning this thesis within, and in relation to, existing research.

2.1 Technological Optimism: PeaceTech as a solution

Dorn (2011) provides a comprehensive examination of the role of technology and innovation in enhancing UN peace operations. His work underscores the importance of surveillance technologies such as satellite imagery, drones and sensors, while emphasizing that technological innovation is essential for modernizing peacekeeping practices and enhancing the UN's capacity to manage conflicts. In his later work Dorn expands on the concept of “smart peacekeeping,” (Dorn 2016) advocating for the strategic use of technology to enhance the effectiveness and efficiency of UN operations, as well as advocates for the UN to adopt a proactive approach to integrating technology into its peace missions (Dorn 2016).

Other authors examine specific technologies and their potential applications in peace operations. Corlazzoli et al. (2014) examine the use of Information and Communication Technologies (ICTs) for monitoring and evaluating peacebuilding programmes, while emphasizing the importance of adapting these technologies to local contexts. Heinzelman, Brown and Meier (2011) examine mobile technology and crowdsourcing in conflict management and peace mapping. Mac Ginty (2017) advocates for data-driven approaches to peacekeeping, arguing that big data and advanced analytics can improve situational awareness, decision-making and resource allocation, while emphasizing that humans should remain involved and attentive to local contexts. Similarly, Perera (2017) examines remote data-gathering technologies as a means of improving knowledge acquisition in conflict-affected states, while stressing the need to balance technological innovation with local context and ethical concerns.

Firchow et al. (2017) and Kahl and Puig Larrauri (2013) examine the broader intersection between peace and technology, mapping out potential applications while considering both their opportunities and challenges. Firchow et al. (2017) respond to arguments that technology can make violence more likely by positioning their contribution as peace-focused. They further describe technology in peacebuilding as being in a liminal state, in which its roles and boundaries are still being negotiated (Firchow et al. 2017).

The literature therefore already contains an important qualification to technological optimism. Mac Ginty (2017), alongside authors such as Autesserre (2014), emphasizes the need for a more human-centric approach to peacebuilding in light of the failures of previous interventions, while nevertheless remaining optimistic about the potential of technology. He also identifies a possible contradiction: increased reliance on technology may distance peacekeepers from local populations and contribute to processes of “bunkerization and securitization” (Firchow et al. 2017, 31).

Taken together, this literature presents technology as a potentially valuable tool for improving knowledge, situational awareness and operational effectiveness, while recognizing that technological deployment does not automatically resolve the underlying problems faced by peace operations.

2.2. The Critical Counter Literature

The critical counter-literature examined in this thesis extends beyond the application of technology in peace operations to the broader critique of technology in humanitarian contexts, while remaining closely connected to the UN system. Katja Lindskov Jacobsen studies the politics of humanitarian technology, arguing that even good-intentioned technological interventions can produce harm and insecurity (Jacobsen 2015). Her central argument is that humanitarian crises can and often do function as laboratories for testing new, and often problematic, technologies, such as biometrics, UAVs and even experimental medical trials. Such technologies may be considered too controversial for use in non-crisis environments and could otherwise be deemed unacceptable (Jacobsen 2015).

Jacobsen argues that these technologies are deployed through a humanitarian framing in which technological and humanitarian narratives mutually reinforce one another. The humanitarian justification presents technology as a means of protection and safety, while the technological framing can make underlying power imbalances seem procedural or neutral rather than political. Together, these framings make the deployment of technology in humanitarian settings more difficult to critique because they imply that technology is objective and inherently serves a protective function (Jacobsen 2015).

Jacobsen also explains why humanitarian crises create particularly favourable conditions for technological experimentation (Jacobsen 2015). Populations affected by crises are often vulnerable and have limited power or ability to meaningfully consent to technological deployments, while receiving minimal protections. Jacobsen describes this as exceptionalism, or the idea that technology is being deployed because the situation is exceptional and requires an otherwise exceptional intervention. In such contexts, exceptionalism can also contribute to the bypassing of due diligence and procedural processes (Jacobsen 2015).

Finally, Jacobsen identifies two distinct forms of risk. The first occurs when technologies fail. She describes the case of biometric iris scanning for refugee registration on the Afghan-Pakistan border, where the harsher conditions and larger number of people involved increased the probability of false matches compared to the circumstances for which the technology had been developed, potentially causing direct harm to vulnerable individuals (Jacobsen 2015, 57-64). The second form of risk occurs even in cases when the technology works as designed. The collection of biometric data can expose refugees to unforeseen risks, including data sharing or the use of information for purposes beyond those for which it was originally collected (Jacobsen 2015, 64-86). Jacobsen questions how technologies that carry the potential to cause human rights harms or that feed into existing conflict dynamics can, even when introduced with the best of intentions, remain consistent with the do no harm principle, adding an important dimension to the broader debate (Jacobsen 2015).

The themes of technological deployment in conflict and postconflict settings are closely connected to the concept of colonialism. Madianou (2025) provides a deeper understanding on

why digital technology has been so easily adopted across the humanitarian and peacekeeping fields. Madianou identifies six competing logics driving this digitization: accountability, audit, capitalism, solutionism, securitization and resistance (Madianou 2025).

The logic of accountability frames digital technology as a solution for the inefficiency of humanitarian and peace operations, promising more precise and evidence-based interventions (Madianou 2025, 39-43). The logic of audit claims that donor states demand robust audit trails to justify operation and aid financing, while the metrics generated by digital technologies are attractive because they seem to provide objective proof of impact (Madianou 2025, 42-44).

The logic of capitalism highlights the relationship between commercial interests and humanitarian digitalization. Madianou illustrates this through the 2019 partnership between the UN World Food Programme (UN WFP) and Palantir Technologies (Madianou 2025, 74), a company that has had and continues to have controversial and lucrative relationships with intelligence agencies, particularly the US Immigration and Customs Enforcement Agency (ICE), amid increasingly questionable human rights practices involving vulnerable groups in the US (Feng and Stanley 2026). The partnership consequently generated significant controversy regarding the privacy and safety of some of the world's most vulnerable populations (Madianou 2025, 74).

The logic of solutionism describes the tendency to prioritize the deployment and testing of technology over deeper understanding of the underlying problems (Madianou 2025, 47-50). Most relevant to this thesis is the logic of securitization, through which humanitarian and peacekeeping infrastructure becomes intertwined with security and intelligence objectives, blurring the line between protection and surveillance (Madianou 2025, 50-53). Finally, the logic of resistance acknowledges that affected populations are not merely passive subjects of these systems, but can rarely meaningfully counterbalance institutional power (Madianou 2025, 53-55).

Through Karlsrud, a related critical perspective emerges concerning technology in UN peacekeeping. Karlsrud draws on Duffield's warning that technology can become a substitute for ground truth and reflects on the "uncritical technological-determinist vision of modulating the

moods, expectations and actions of remote disaster-affected populations” (Duffield 2013, cited in Karlsrud 2018a 72). This critique reflects a broader concern within the critical counter literature. Increased surveillance and data collection may substitute technologically acquired information for genuine proximity and deeper understanding of local contexts and problems. In this sense, the technological capacity to collect more information does not necessarily translate into a better understanding of the population and environments in which peace operations operate, nor do they necessarily translate into mission success.

2.3. Technology and Human Rights

Digital technologies create significant opportunities to empower human rights and hold powerful actors accountable, but they also provide new ways of violating rights and freedoms, fueling discrimination and deepening inequality. Land and Aronson (2020) examine contemporary challenges at the intersection of technology and human rights, emphasizing the need for new technologies to be developed and deployed in ways that respect and promote human rights. Risse (2019) examines challenges associated with specific technologies, including artificial intelligence, and their implications for human rights and ethics, while Coccoli (2017) considers the broader transition of human rights into the digital space and the need for additional protections.

Special Rapporteurs and independent experts also provide important insights, particularly through their documentation of technology-facilitated human rights abuses. These experts monitor specific rights through the Special Procedures mechanism of the Human Rights Council (UN OHCHR). In her 2020 report, the Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance, Achiume, examines structural, institutional and other forms of racial discrimination in the design and use of new technologies. Achiume emphasizes that technology is never neutral, it is shaped by the values and interests of those who design it and by existing structures of inequality (Achiume 2020, 4).

In Achiume’s 2021 Report, she claims that discrimination and exclusion can often happen while pursuing bureaucratic and humanitarian efficiency without the necessary human rights

safeguards, while naming economic profits as a significant problem leading to securitization and digitalization (Achiame 2021, 1).

Civil society organizations such as Amnesty International, Citizen Lab, Access Now and Human Rights Watch also play an important role as global watchdogs by monitoring the state of human rights, advocating for stronger safeguards and accountability and documenting technology-facilitated human rights abuses. Their work covers areas including artificial intelligence, surveillance, data-driven technologies, spyware, biometrics and UAVs, with particular attention to vulnerable individuals and groups (Amnesty International).

Taken together, this literature demonstrates that the relationship between technology and human rights cannot be reduced to whether a technology is technically effective. Technological systems are embedded within existing structures of inequality and can reproduce or deepen those inequalities, particularly where efficiency or security objectives are pursued without adequate safeguards. This provides an important foundation for examining surveillance technologies in UN peace operations, where technological effectiveness must be considered alongside their implications for human rights.

2.4. UN Effectiveness and Accountability Literature

The context section of this thesis has already laid some groundwork on the UN, technological implementation and its perceived and expected impact on mission effectiveness and accountability. However, three authors are particularly important for placing these issues within the broader literature: Séverine Autesserre, Karlsrud and Legaz.

Séverine Autesserre is considered one of the major contributors to the field of peacekeeping through her extensive research on conflict zones around the world. In her 2014 book, Autesserre draws on her experience to examine the interpersonal and cultural dynamics of “interveners”, peacekeepers operating in conflict zones (Autesserre 2014). Although her work does not focus on technology or digital infrastructure, it establishes two arguments that are particularly relevant to this thesis: the problem of knowledge and effectiveness and the unequal relationship between interveners and local populations (Autesserre 2014).

The first argument builds on the way interveners understand and produce knowledge about the context in which they operate. Autesserre observes that interveners from different parts of the world, despite their different cultures and perspectives, often live in the same bubble, sharing everyday practices, narratives and habits that separate them from local populations (Autesserre 2014). She further argues that interveners construct knowledge about the host country, its population and the conflict in superficial ways. They may continue using practices that they themselves recognize as inefficient, ineffective or even counterproductive, because these practices are reinforced by the broader environment in which interveners operate. For Autesserre, this dynamic contributes directly to the ineffectiveness of peacekeeping (Autesserre 2014).

From a PeaceTech perspective, surveillance technology can appear to offer a solution to this knowledge problem by providing peacekeepers with greater access to information. However, this raises an important contradiction. If the underlying problem is not simply a lack of information, but the way interveners understand and engage with local contexts, increasing technologically acquired information may not resolve the problem. It could instead further distance peacekeepers from local populations and reduce sensitivity to local needs and context. In this sense, additional technological capacity does not necessarily address the underlying knowledge problem identified by Autesserre.

The second argument is more closely connected to the critical literature discussed above. Autesserre's concept of a structure of inequality describes the unequal relationship between interveners and local populations (Autesserre 2014). From a PeaceTech perspective, this structure of inequality may become more pronounced when new and advanced technologies are introduced that are not fully explained to, or familiar to, local populations. The resulting asymmetry in technological knowledge and power can create anxiety and real harm, while further reinforcing the unequal relationship between those deploying the technology and those subject to it.

The contributions of Karlsrud have already been discussed in the opening chapters, but his work is also important for positioning technological development within the broader structural problems of UN peace operations. Similarly to other scholars working from a critical perspective,

Karlsrud identifies several structural problems or perennial dilemmas (Karlsrud 2018a, 16-20). His analysis also draws on Barnett and Finnemore's (2004) argument that the bureaucratic culture of international organizations can, under certain conditions, operate in direct contradiction to their core principles. Karlsrud uses this argument in examining the UN's inaction prior to the genocide in Rwanda, illustrating how institutional practices can undermine the principles the organization is intended to uphold (Barnett and Finnemore 2004, cited in Karlsrud 2018, 26).

Karlsrud further notes that the Security Council has given increasingly robust mandates to peace operations since the beginning of the global war on terror (Karlsrud 2018a, 20). These mandates have contributed to an increasingly dangerous mission environment, reflected in rising attacks against peacekeepers and increasing casualties. At the same time, the changing nature of these missions has contributed to perceptions that UN peace operations are "no longer seen as impartial" (Karlsrud 2018, 20), creating consequences for both their safety and legitimacy. Karlsrud also reflects on Howard's (2015) concept of "no peace to keep" as a significant obstacle to mission success and effectiveness (Howard 2015, cited in Karlsrud 2018, 17).

Finally, one of the most recent studies directly relevant to the relationship between effectiveness and legitimacy in MONUSCO and MINUSMA argues that the operational success of peace operations can itself generate sovereignty concerns and, consequently, erode local consent (Legaz 2026). Legaz describes this as the "intelligence paradox", while framing intelligence technologies as amplifiers rather than primary causes of the erosion of legitimacy (Legaz 2026). This thesis builds on that paradox by introducing an additional human rights dimension, examining not only whether intelligence and surveillance capabilities contribute to operational effectiveness and legitimacy concerns, but also what consequences their use has for human rights and the accountability of UN peace operations.

3. Theoretical Framework

The foundation and frame of this thesis will primarily be built upon the theoretical concepts of Winner (1980) and his work on technology as political artifacts, Wyatt's (2008) and Dafoe's (2015) reflections on technological determinism, Madianou's (2025) concept on technocolonialism and will touch upon Zuboff's (2019) contributions on the topics of surveillance, capitalism and consent. This framework will be instrumental in answering the proposed research questions and supporting the three crucial hypotheses that will be laid out in the following Methodology chapter.

3.1. Theory of Technology as Political Artifacts and Technological Determinism

The overarching framing of this thesis is that technology is never neutral, something that has been highlighted several times in the previous sections. However, Winner's (2008) theory aims to prove that technology is inherently political through two main arguments. The first claims that technology is designed in a way that requires or creates a specific social or political structure to function. To back up his claim, Winner gives the example of nuclear energy. In order to ensure its safe and responsible use, nuclear management needs to have a powerful, central, hierarchical authority that will provide safeguards (Winner 1980). The dangers posed by such technologies will have to be mitigated by increasing surveillance and monitoring practices for anyone connected with that central authority, meaning nuclear power needs an environment in which full control is possible (Winner 2017, 130). This argument will serve as the ground for supporting that PeaceTech needs specific circumstances in order to be deployed and managed that includes centralization of infrastructure, expertise and access to information, in which local populations cannot equally participate because of the tech's own design.

Secondly, Winner claims that some artifacts or technologies are political because of the social and economic system that they were meant to reinforce (Winner 1980). To substantiate his claims, he gives us an example of the developments in tomato harvesting in California, claiming that the new mechanical harvester wasn't anti-worker per se, however they were developed and adopted in a context that favored large agricultural businesses that had the means and the large field sizes to accommodate such technologies advancements, while this change displaced smaller farmers

(Winner, 1980, 126). This concept can be translated into the discussion around the implementation of technology in peace operations. The question can be posed, why deploy surveillance technologies to tackle operational ineffectiveness among other possible solutions such as community liaisons or information sharing networks.

Following on the broader conclusions around the politics of artifacts, Wyatt and Dafoe's reflections on technological determinism bring more nuance on the inevitability of technological development. Technological determinism is a popular theory that suggests that technological progress equates to social progress (Wyatt 2008, 168). Firstly, Wyatt, like many others before her, agrees that technological determinism is "dead", meaning that no relevant scholars are seriously considering the idea that technology by itself has the unstoppable ability to influence social change (Wyatt 2008). However, her major contribution is that she still believes that technological determinism remains alive and powerful as a rhetoric, used to justify technological implementation, assign or deflect responsibility and accountability and mobilize funding or public support, and as such shouldn't be underestimated (Wyatt 2008). The ironic wordplay of her work "Technological Determinism is Dead: Long Live Technological Determinism" (Wyatt 2008) further reinforces her ideas, while providing a good foundation for examining the 21st century UN rhetoric, which appears to be under strong influence of technological determinism, with the goal of doing real political and institutional work (Wyatt 2008).

Wyatt also cautions against an equally unbalanced overcorrection. Having shown that technology does not autonomously drive social change, she does not conclude that technology can be infinitely shaped or that its effects are only a matter of social interpretation and policy choice. Once a technology has been developed and deployed in a particular form, it carries real, durable properties and constraints that shape what is and is not possible, independent of how actors choose to talk about it (Wyatt 2008). This distinction matters for the argument developed throughout this thesis. The claim made here is not that surveillance technologies possess the inevitable capacity to cause harm regardless of context, nor is it the claim that any harm caused by drones or intelligence-sharing platforms is simply a matter of insufficient policy or inadequate safeguards. This thesis, following Wyatt's caution, treats surveillance technologies as artifacts with real properties, such as centralized data control, asymmetric visibility and non-consensual

collection by design, that make certain harms likely under a wide range of institutional conditions, while still leaving space for choices that could meaningfully mitigate those harms.

Strengthening Wyatt's claims, Garman describes the prevailing disposition of technological determinism in which aid workers have to "get on board, or get left behind" (Garman 2015, cited in Firchow et al. 2017, 31). This description does precisely the political work Wyatt identifies. It frames technological deployment not as a considered institutional choice weighed against alternatives, but as a competitive necessity that cannot reasonably be questioned.

Dafoe grapples with the deeper understanding of technology and society. He frames his argument around scope, meaning that he believes that it is equally counterproductive to defend extreme positions of both the hard technological determinism and radical social constructivism (Dafoe 2015). His central claim is that technological development is constrained by different structural pressures in some contexts, however, human agency remains significant particularly in how technology is interpreted, adopted and used (Dafoe 2015). Dafoe describes that pressure as the military-economic-competition dynamic in which technological developments bring perceived strategic advantages to groups who adopt them, pressuring others to adopt them as well or get left behind. However, he does follow up on that claim saying that in contexts where there is no strong military-economic-competition dynamics, actors have considerably more choices in deciding whether to adopt a technology, how to use it, for which purposes and with what safeguards (Dafoe 2015). This kind of nuance reinforces the argument that the deployment of surveillance technologies in UN peace operations is shaped by structural pressures that make technological solutions more attractive, while at the same time leaving significant space for institutional and human agency in determining, whether, how and under what safeguards will PeaceTech be deployed.

3.2. Technocolonialism and the Widespread Effects of Surveillance Capitalism

A lot has already been said about the valuable contributions of Madianou (2025) in which she aims to connect the technology-facilitated human rights abuses in the humanitarian sector with deeper systemic structures associated with colonialism. The overarching theme of her research is that new technologies are not just deployed in a neutral environment, it is deployed in an

environment already shaped by history, politics, interests and power dynamics that existed long before (Madianou 2025).

Her central argument is that there are six intertwined and mutually reinforcing logics that drive this digitalisation of humanitarianism and together contribute to the phenomenon of technocolonialism: accountability, audit, capitalism, solutionism, securitization and resistance (Madianou 2025). The accountability logic claims that technology is often seen as a possible remedy for humanitarian flaws, especially when it comes to accountability. This logic can be connected to her concept of the humanitarian machine or the act of allowing humanitarian organisations to decide without actually looking like a decision was made (Madianou 2025, 39-43). The logic of audit underlines the importance of showing proof of concept, meaning that technology can be a good metric to measure progress (Madianou 2025, 42-44). The logic of capitalism examines the relationships between humanitarian organisations and private companies (Madianou 2025, 74).

The logic of solutionism can help explain the technological hype and the attractiveness of surreptitious experimentation in conflict affected areas, seemingly incompatible with the well-established do no harm humanitarian principles. An especially controversial part of technosolutionism is that it usually gets flipped on its head, rather than seeking solutions for problems, it seeks problems for existent solutions (Madianou 2025, 47-50). Her logic of securitization is an important one in explaining when technology for protection and better situational awareness starts working under a security logic, therefore creating unintended consequences. Her last logic driving the digitalisation of humanitarianism is that of resistance and examining the real possibility to change the infrastructure of technocolonialism, especially without the lack of meaningful consent (Madianou 2025, 50-53). Another one of Madianou's major contribution is to suggest that consent, in these conditions, does not function as a genuine safeguard but as a legitimating device, meaning the formal existence of a consent process can create the appearance of agency and choice, while the underlying relationship of dependency, control and colonialism remains fully intact (Madianou 2025).

This extensive framing and theoretical contributions by Madianou work well in supporting the argument that the UN deployed technologies under an increasingly securitized context,

encouraged by the capitalistic and financial motives, to increase effectiveness of its peace operations while perpetuating existing inequalities caused by colonial shaping of history, order and systems, generating potential harms on the local population, as well on mission success itself.

Finally, although Zuboff's concept does not engage directly with technology being deployed in UN peace operations, nor does it equate the UN with corporations, it does set a good foundation for examining PeaceTech deployment through her logic of surveillance and power. Zuboff (2019) explains that surveillance capitalism didn't start with the goal of actually surveilling people, it began with the goal of companies like Google, Amazon, Microsoft and Apple of improving their services for end users. However, this process led to companies acquiring large amounts of behavioral data, the majority of which was not necessary for improving user satisfaction, and using it for other purposes by turning it into profit (Zuboff 2019). Nowadays, systems are built to be closed, untransparent and non-consensual by design, meaning there is little room to negotiate about the amount of data you are leaving or to know what happens to it next. Using this logic of behavioral surplus, regardless of whether or not the UN deployed surveillance technologies as a way of increasing situational awareness and protections, the local population and context become the primary source of data, and like Zuboff's end users (Zuboff 2019), have limited room to exercise meaningful consent, decide or gain insight into how their data is being used and shared.

The second logic that supports the claims of this thesis is that of instrumentarian power, a new power emerging under surveillance capitalism that moves differently from totalitarianism. Totalitarianism operates through open violence, while instrumentarian power operates through behavioral modification that is often invisible to those who succumb to it (Zuboff 2019, 227). Zuboff describes this as a form of radical indifference, meaning that instrumentarian power is not concerned with understanding or transforming individuals as subjects, but with extracting value and power from their behavioural patterns (Zuboff 2019, 227). This distinction is particularly relevant when it comes to meaningful consent. Consent frameworks generally assume that local populations can understand peace operations and specific surveillance systems and choose whether to accept or refuse it. Instrumentarian power challenges this assumption because surveillance data may be extracted and used without individuals even being aware that this is happening. This raises the question of whether existing UN data-protection and human-rights safeguards are sufficient to address harms arising from surveillance technologies.

4. Methodology

4.1. Research design

This thesis uses a qualitative comparative case study design to examine the use of new technologies in UN peacekeeping operations in the 21st century. The thesis compares the deployment of surveillance systems, including drones and other intelligence gathering systems, in the case of The United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) and The United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA). The comparative design aims to examine how similar technological systems operate within different conflict, institutional and political contexts, while maintaining a common focus on the relationship between technological effectiveness, legitimacy, accountability and human rights.

The thesis is organized around one main research question and two adjacent questions addressing the central tension between technological effectiveness and accountability and human rights, building on the theoretical concepts outlined in the previous sections. The three hypotheses have been developed to examine different aspects of this tension through the two case studies.

The first research question examines to what extent the deployment of surveillance technology translates into long-term and sustained effectiveness in UN peace operations. Through engagement with the current UN context, relevant literature and practical case studies addressing this question, the first hypothesis argues that surveillance technologies deployed in UN peace operations produce real short-term operational benefits, but these do not translate into durable, long-term mission success.

The second research question aims to establish what accountability mechanisms exist to protect local populations from human rights harms arising from the use of surveillance technologies in UN peace operations and how effectively these mechanisms function in practice. To answer this question, the thesis draws on literature addressing accountability, as well as practical case studies that shed light on the situation on the ground. The second hypothesis argues that surveillance

technology deployment occurs within a structural accountability vacuum that leaves conflict-affected populations without meaningful protection from human rights harms.

The third research question examines the UN's principles and commitments concerning the protection of human rights and the safe use of technologies against the practical implementation of technology in the field. It investigates the extent to which the use of surveillance technology in UN peace operations aligns with the organization's stated human rights commitments. Primarily focusing on an analysis of existing UN strategic and policy documents alongside the two case studies, the third hypothesis argues that there is an identifiable gap between the UN's rhetorical human rights commitments and its actual field practice regarding surveillance governance.

Rather than representing three independent claims, the three hypotheses form an interconnected analytical argument. The first establishes the effectiveness premise, meaning that surveillance technologies can produce short-term operational benefits without necessarily generating sustained mission success. The second examines the accountability gap that may allow these benefits to coexist with documented human rights harms. The third examines why such accountability limitations may persist despite the UN's own stated human rights commitments.

This thesis is being written at a time when UN legitimacy and credibility are facing significant challenges, with the consequences of these institutional crises cascading down and affecting peace operations on the ground. Furthermore, state officials have questioned the continued involvement of the UN in peace operations, citing both historical and recent failures. Finally, several UN peace operations are currently undergoing reorganization, transition or complete withdrawal from certain conflict areas, making this a particularly relevant moment to revisit existing debates, contentions and tensions surrounding the role of the UN and the use of technology in peace operations.

4.2. Case selection

The thesis aims to examine the role technology plays in UN peace operations in the 21st century. The initial decision to focus on this time period was based on two considerations. First, technology continues to be a major driver of innovation, particularly following the widespread

adoption of artificial intelligence (Roser 2023). Beyond the rapid introduction of new technologies, this period is also significant because of the transformative role technology has played across different fields. The 21st century therefore provides an appropriate period for examining how technological development affects effectiveness, accountability, legitimacy and human rights in UN peace operations during the early stages of this transformation.

Second, the nature of peacekeeping has increasingly changed over time, with a notable shift from the liberal model of peacekeeping to a model more focused on stabilization and counterterrorism following the US declaration of a global war on terror in 2001 in the aftermath of September 11th (Karlsrud 2018a, 143). This shift has considerable effects on the deployment and use of technology, especially surveillance systems, in peacekeeping.

The choice to examine two case studies is based on Yin's (2018) work in which he states that case study research is a favorable method of research in three cases. Firstly, when the main research questions ask how or why something happened which fits well with all of the three research questions posed in this thesis. Secondly, when there is limited control over the examined events, such is the case with this thesis that examines the theory and practice of the UN and its peacekeeping operations. Finally, this method of research is preferable when dealing with contemporary events (Yin 2018, 33). The active or recently active peace operations examined in this thesis fall within this category, while also providing insight relevant to decisions concerning the future of other peace operations and the role of the UN itself.

The choice of specific case studies of The United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) and The United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) was guided by three main criteria. First, as previously highlighted, one of the first missions in which surveillance technology was systematically deployed were in Congo and Mali, making them suitable case studies for examining the full trajectory of technological deployment, use, accountability concerns and the eventual withdrawal of UN peacekeeping forces. Second, precisely because both missions started in the 2010s and ended or will soon end in 2020s, there is an opportunity to meaningfully assess the nature and effectiveness of these peace operations across their operational periods. Finally,

peace operations in DRC and Mali, as Karlsrud pointed out, represent “prime laboratories for testing these new tools” (Karlsrud 2018a, 61).

The comparative quality of this research lies in examining the similarities and differences between the two peace operations and using these to assess the three hypotheses. Of particular note are the significant similarities between the two missions, particularly regarding their geographical, political, military and counterterrorism contexts, the technologies used, with a primary focus on surveillance systems and the similar trajectory of the operations. These similarities provide an opportunity to examine the role technology played in the two peace operations and its effects on both host governments and local populations.

Finally, while authors such as Legaz have already examined these two peace operations through a comparative research design, this thesis builds on the “intelligence paradox” (Legaz 2026) by additionally examining the impact of technological deployment on human rights in relation to the UN’s stated practices and commitments.

4.3. Sources and Limitations

This thesis relies on several types of sources, including theoretical and practical academic literature, UN primary documents such as strategies, reports and policy papers, and reports produced by human rights organizations and journalists. The latter are particularly important for analyzing technology-facilitated human rights harms in UN peace operations. The sources used in this thesis do not include classified operational or internal documents or testimony from local populations. Instead, local sentiment is analyzed through secondary sources, including human rights reports and relevant academic literature.

The primary limitation of this research is the use of two case studies to develop an argument about the role of technology in UN peace operations. The thesis therefore does not claim that the hypotheses developed here necessarily apply with certainty to all other active or defunct UN peace operations. Furthermore, the fast-paced changes within the UN context, broader global challenges and ongoing withdrawal processes present additional limitations to examining a rapidly changing field.

5. Case Study: The United Nations Organization Stabilization Mission in the Democratic Republic of Congo (MONUSCO)

The Democratic Republic of Congo (DRC) is situated in the region of Central Africa and is the second largest country on the continent. It is rich in natural resources, but has historically struggled with poverty, colonial extraction and political instability. In recent history, the country has suffered through brutal colonialization, battle for independence, civil wars and continues to struggle with a large number of armed groups, causing displacement of millions of people and a “chronic humanitarian crisis” (UN Department of Peacekeeping Operations cited in Andrews 2017, 3). Therefore, the deployment of UN peace operations must be examined keeping in mind such a complex political context.

5.1. Mission Background

On June 30th 1960, the Democratic Republic of Congo declared independence from Belgium, effectively ending decades of brutal colonial rule marked by a number of atrocities (Adolphe 2023, 26). In the immediate aftermath of Congo’s independence, the country struggled with secessionist attempts and insecurity in the province of Katanga. After formal requests from the Congolese government, the United Nations established a peacekeeping operation with the mandate of protecting Congo’s independence and territorial integrity (Adolphe 2023, 26). In 1960, the United Nations Operation in the Congo (ONUC) deployed around twenty thousand peacekeepers that successfully protected the state’s independence against the secessionist movement. In 1964, seemingly after the mandate had been fulfilled, the UN troops pulled out of the country (Adolphe 2023, 26).

The following period of increased insecurity happened a few decades later, after the genocide in Rwanda and the subsequent refugee crises which destabilized the eastern Kivu regions, causing a rebellion in 1996 that led to the First and the Second Congo War. On one side, the military and political rebel movement Rally for Democracy (RCD) was backed by Rwanda, Uganda and Burundi, on the other, the national army was backed by Zimbabwe, Angola and Namibia, which ended with mass casualties, hunger and disease (Doss 2020, 163-164). In 1999, a ceasefire agreement was signed in Lusaka and the second UN peace mission was set to be deployed. The

mandate of the United Nations Mission in the Democratic Republic of Congo (MONUC) was focused primarily on monitoring the peace agreement and was meant to be more of an observation mission (Adolphe 2023, 27-28).

In 2006, after the UN helped facilitate historical national elections in DRC, the Security Council gave MONUC a more robust mandate which included conflict resolution, peacebuilding and disarmament, demobilization and reintegration (DDR) efforts (Adolphe 2023, 28). The mission was deemed mostly successful as it did succeed in overseeing the peace agreement set in place, however even then, the corruption and bad governance often overshadowed the peacekeepers efforts. Especially heavy criticism came after a 2008 massacre in Kiwanja, which occurred near the mission's own headquarters, pointing directly to UN inaction (Adolphe 2023, 28).

The real shift in the nature of UN peace operations in DRC came in 2010, after the UN renamed the mission to United Nations Stabilization Mission in the Democratic Republic of the Congo (MONUSCO), giving it an even more robust mandate that was focused on the completion of military operations, protection of the population on the ground and restoring stability (Adolphe 2023, 28). This change in mandate fits in with the broader shift from liberal peacekeeping to stabilization and counterterrorism. Furthermore, in 2013, the UN renewed MONUSCO's mandate, adding the Force Intervention Brigade (FIB) with the goal of eliminating armed groups all around the country by any means necessary in order to support the national army (Andrews 2017, 3-4).

The increasing criticism and perceived ineffectiveness of MONUSCO led to a new shift in the mission mandate. As of December 2025, the UN renewed the mission's mandate with a new goal: a UN withdrawal (African Security Analysis 2025). The critics mostly agree that the shift in the peacekeeping mandate and the focus on limited military response have not done enough and have failed to resolve deeper-rooted issues such as corruption and bad governance (Nantulya 2024).

5.2. Technology deployed

The deployment of technologies in UN peace operations can be linked to some of the armed troops deployed for military or other purposes alongside peacekeepers. The first ever deployment

of surveillance drones in an UN mandate happened to be in DRC in 2006 with the aim of monitoring the illegal shipment of arms. The drones were introduced by the Belgian troops that were a part of the wider European forces (EUFOR) that were deployed to support MONUC. However, that particular deployment turned out to be very short-lived as one of the drones was shot down, while the other one crashed killing one person and injuring several others in Kinshasa (Karlsrud and Rosén 2017, 47).

The second attempt at the deployment of drones happened during the mandate of MONUSCO and the introduction of the FIB which had a supporting role in eliminating opposing armed groups in 2013 (Karlsrud and Rosén 2017, 48). The use of drones was approved that same year and were used to monitor the arms embargo. Even though the drones had the capability to carry light weaponry, the UN continued to emphasize that the drones would not be armed and instead be used for surveillance purposes (Karlsrud and Rosén 2017, 48).

As is the case with most technological applications, the UN contracted a private company to supply the necessary equipment to the mission. The contract was given to Selex, an Italian company that provided the UN with the Falco UAV system consisting of four long endurance drones worth up to 13.25 million USD annually. The UN was hoping that such advanced systems would drastically increase situational awareness and act as a deterrent (Karlsrud and Rosén 2017, 49). The UN's decision to invest in such an expensive and centralized technological solution for its peace operations illustrates Winner's (1980) second point. Technologies are not politically neutral, but embody choices about how power and resources are organized. The choice of technology raises questions about whose interests the technology is intended to serve and whose forms of knowledge are prioritized (Winner 1980, 131). The relevant question is not whether drones can improve intelligence gathering, but why drones were selected over other possible approaches to gathering information on the ground.

5.3. Operational Deployment and Outcomes

Since 2013, UAVs have been deployed in the Democratic Republic of Congo as part of MONUSCO, primarily to increase situational awareness in difficult terrain and to serve as a

deterrent to those who would be less likely to engage in violent acts if aware they were being watched (Karlsrud 2018a, 75).

By several measures, the technology succeeded in doing exactly that. The advanced capabilities of the drones made it easier to survey terrain, scan for threats and better distribute UN forces. In some cases, drones were instrumental in monitoring the arms embargo and supporting the FIB's surveillance efforts (Andrews 2017, 4). In another case, drones were deployed outside the mission's formal and official mandate when one spotted a boat that had capsized on Lake Kivu in the area of Eastern Congo during routine surveillance, after which UN forces rescued fourteen passengers (UN News 2014).

With that said, the deployment of drones in MONUSCO must be framed within the broader discussion of the mission's goals and mandate. As previously discussed, there has been a noticeable shift from liberal peacekeeping. This shift has created space for a more militaristic approach to peacekeeping and the deployment of offensive UN troops.

In the case of MONUSCO, the deployment of the Force Intervention Brigade (FIB), with a specific mandate to defeat hostile armed groups by "any means necessary" (Karlsrud 2018, 120) has itself been heavily contested. Countries such as Russia and Pakistan expressed strong reservations about the mandate given to the Brigade, with Russia insisting that it be authorized "on an exceptional basis and without creating a precedent or any prejudice to the agreed principles of peacekeeping" (Karlsrud 2018a, 120).

This decision risked setting a dangerous precedent in tension with core UN peacekeeping principles, particularly the principle of non-use of force except in specific cases of self-defence and the defence of the mandate itself. Recognizing that such military action could carry wide and unintended consequences, UN principles treat the use of force as a measure of last resort, with particular implications for the safety and security of staff and local populations, and for local consent to the mission (UN Peacekeeping).

Second, the deployment of drones alongside and in support of the FIB generated widespread criticism among key stakeholders.

Similarly to the criticism surrounding the deployment of the FIB, some member states expressed concern about deploying drones already carrying negative associations among the general population, linking the technology to killer drones previously used for targeting, and associated with imminent threat, creating potential for fear and confusion among the local population and hindering trust between peacekeepers and locals (Kristoffer and Sandvik 2016, 26). Beyond perception and trust concerns, drones present a distinct problem for some member states, because the increased implementation of technology can ultimately mean fewer boots on the ground, with both economic and practical implications. Economically, surveillance technology could reduce the need for peacekeepers, risking job losses and reduced reimbursement to troop-contributing states (Karlsrud and Rosén 2017, 54). However, cutting costs may be exactly what drives the UN towards technological solutions and deterministic approaches if viewed from the perspective of Dafoe's (2015) argument around military-economic competition and how this competition creates pressure to adopt technological solutions (Dafoe 2015, 1059). Practically, increasing reliance on technology to provide information risks creating exactly the kind of distance between interveners and local populations that Autesserre identifies as a driver of mission failure in *Peaceland* (Autesserre 2014).

Additionally, the deployment of drones alongside the FIB in the midst of active conflict risks creating the perception that the UN is taking sides in the conflict, which can increase the risk of retaliatory attacks against civilians and UN staff (Karlsrud and Rosén 2017, 53). Peacekeeper fatalities have been particularly high in both MONUSCO and MINUSMA, a pattern that may be connected to this shifting perception of the mission and its mandate (UN Peacekeeping).

Within MONUSCO specifically, non-governmental organisations were vocal about the deployment of drones and its possible implications. The UN initially offered its drones to humanitarian actors to aid information gathering and project monitoring. This offer was met with outright refusal. Several organisations argued that using drones, primarily a military tool, for humanitarian purposes would blur the line between the two fields and endanger the core principles of humanitarian organisations (Karlsrud and Rosén 2017, 56). This illustrates exactly the dynamic Madianou identifies as the logic of securitization, or the humanitarian infrastructure becoming entangled with security and intelligence objectives in ways that blur the line between

protection and surveillance, as recognized and resisted by the humanitarian actors themselves (Madianou 2025).

A broader critique of the deployment of drones in MONUSCO is that technological or equipment procurement, alongside enlisting more peacekeepers, will have only limited success in an environment marked by formal consent, but no genuine political will for reform, weak rule of law, widespread institutional corruption and active conflict (Shikwambane 2024). Furthermore, in light of an unclear mission mandate and peacekeepers persistent inaction, or more precisely, a historical avoidance of the use of force to protect civilians, it becomes clear that even where drones provide better situational awareness, this knowledge does not automatically translate into concrete protective action (Rosén and Karlsrud 2014, 44). Many of the UN's proposed technological solutions fail to address the deeper systemic, structural and political problems underlying contemporary peacekeeping operations.

The most concrete example of such inaction, and the strongest grounds for criticism, arises in situations where peacekeepers fail to engage to protect civilians, resulting in mass casualties. In 2008, civilians were massacred in Kiwanja, in North Kivu, not far from UN mission headquarters (Adolphe 2023, 28). Fifteen years later, in August 2023, Congolese soldiers brutally suppressed a protest in Goma organized by the Natural Messianic Judaic Faith Towards the Nations - The Power of the Word (FNJMN), a highly political and religious group demanding MONUSCO's departure from the DRC, killing at least fifty-six people (Amnesty International 2024).

This case, better known as Operation Keba, documented by Amnesty International (2024), represents more than an instance of peacekeeper inaction. It demonstrates the mission's own institutional decision-making directly contributing to civilian harm. On 21 August 2023, the Head of MONUSCO's Goma Office urged the prohibition of the planned FNJMN protest on account of its "hateful and violent nature" (Amnesty International 2024) and requesting "firm intervention" (Amnesty International 2024) from Congolese authorities to prevent any threats against MONUSCO's own bases and staff (Amnesty International 2024). Amnesty International's subsequent investigation concluded that MONUSCO's stated justification could not support an outright prohibition of the protest and found that the mission's own follow-up public statement appeared to justify the security forces' violent response while shifting blame onto the protest's

organizers (Amnesty International 2024). Critically, Amnesty explicitly called on the UN Department of Peace Operations to investigate MONUSCO's own role in the massacre, not only that of the Congolese security forces who carried it out (Amnesty International 2024). This case illustrates that peacekeepers did not merely fail to act to protect civilians. In this instance, the mission's own protective risk assessment contributed to the conditions that enabled the massacre, which the mission was later criticized for failing to prevent.

The perceived passivity of peacekeepers in fulfilling their mandate, alongside a rising civilian casualty count, has further diminished the mission's reputation among local communities (Ilunga 2022). Several concerns are also directly connected to the deployment of drones specifically. Technology is never implemented in a vacuum. Each deployment must be understood within its particular context. When considering the deployment of drones in conflict areas, it is therefore necessary to consider how local populations perceive that technology. Since the declaration of the war on terror, drones have increasingly been associated with targeting, killing and offensive military measures which are associations that can shape the behaviour of local populations and generate fear. (Lidén and Sandvik 2017). During the August 2023 massacre in Goma, for instance, eyewitnesses reported seeing drones flying overhead in the moments before Congolese soldiers opened fire (Amnesty International 2024). Although the drones observed most likely belonged to the Congolese army rather than to MONUSCO, the association between drone presence and violent conflict in the population's lived experience remains clear and is directly relevant to how any UN-operated surveillance technology is likely to be perceived in the same environment.

Even where segments of the population do not associate drones directly with security threats, sentiment toward the technology remains largely negative, and it is rarely regarded as protective or beneficial to the mandate. In the DRC, locals referred to the drones as "loud mosquitos" (Karlsrud 2018, 75), expressing frustration at their constant, intrusive presence. This surveillance also raises unresolved privacy concerns: how much data is collected, where it is stored, who has access to it, with whom it is shared, and whether the population's consent to being surveilled in this manner is in any meaningful sense obtained (Karlsrud 2018a), especially taking into account how difficult it is to obtain meaningful consent in peacekeeping context as described by Madianou (2025) and Zuboff (2019) through her point about instrumentarian power.

These questions carry particular weight in host countries where understanding of the deployed technology and its purpose is limited, where rule of law and human rights safeguards remain weak and where the affected populations are among the most vulnerable. The deployment of "Western" surveillance technologies should not expose local populations to privacy violations, nor should those populations be treated as "second-class citizens" (Karlsrud 2018, 25) simply because local legal protections may be less robust than in Western states (Karlsrud 2018, 25). Given that do no harm remains a core principle of UN peacekeeping (Charter of the United Nations 1945), particular attention should be paid to the impact of sustained overhead surveillance on the rights of local populations.

Finally, criticism of the mission, and specifically of drone deployment, has also come from the host government itself. Although every UN peacekeeping operation requires the consent of the local government to operate, political will shifts over time and in many cases the UN's presence can serve to deflect or shift responsibility away from the host state. One of the most persistent criticisms is MONUSCO's inability to neutralize armed groups effectively or protect civilians (Ilunga 2022). A related concern is that MONUSCO's presence is seen as reflecting negatively on the country's sovereignty, given the degree of UN oversight and decision-making involved (Karlsrud and Rosén 2017, 57). The deployment of drones specifically was contested by the host government from the outset. The risk that surveillance technology could incriminate the national army was a significant concern, as was the broader question of data privacy. The DRC government was reportedly sceptical of data collection practices and its sharing with Western states and the UN, while simultaneously restricting the flow of information from its own army (Karlsrud and Rosén 2017, 57).

Over two decades of UN presence in the DRC have culminated in the Security Council's 2025 renewal of the mission's mandate, this time with a different goal than in previous years. The new MONUSCO mandate laid the groundwork for a gradual withdrawal of UN forces from the country (African Security Analysis 2025). This shift underlines that the effectiveness of peace operations is only as strong as the broader context in which they operate, the situation on the ground and the underlying political will. The persistent problems in the DRC, weak governance, regional rivalries, and armed conflict are deep-rooted and cannot resolve on their own (African Security Analysis 2025). As UN influence fades, it becomes increasingly clear that the

deployment of technology, or any other innovative solution, cannot resolve political and structural problems in the host country, nor within the UN itself. This supports the broader argument that the UN's current approach is simply insufficient to bring and sustain genuine peace. Simply put, the technology is neither the cause of, nor the solution to mission failure.

6. Case Study: United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA)

Mali is a landlocked country in Western Africa, with a rich and complex history. Mali was once considered a great military and economic power in the region, much of which was achieved through a favorable geographical position and large reserve of natural resources, especially gold (Ali 2018, 117). Today, Mali is considered one of the poorest countries in the world in part due to colonization, political instability and frequent conflicts. Similarly to DRC, the deployment of a UN peace operation has to be understood within the broader historical context of the country.

6.1. Mission Background

Mali's modern history was deeply shaped by French colonial rule. During the late 19th century France expanded its control over the region, which became part of French Sudan. Colonial rule disrupted existing political and economic structures and tied the territory more closely to French interests (Ali 2018, 118-119). Mali eventually gained independence from France in 1960, but the legacy of colonialism continued to influence the country's political and economic development (Ali 2018, 118-119). After gaining independence, Mali experienced periods of military rule, political instability and economic difficulty. The country committed to multiparty democracy in the early 1990s, but tensions and rebellions, particularly in the North, continued to create problems for the newly established political system (Ali 2018, 120-123).

In 2012, the situation in Mali escalated rapidly, bringing the country to the brink of collapse. The National Movement for the Liberation of Azawad (MNLA) launched a new Tuareg rebellion strengthened by combatants, weapons and resources from Libya, following the fall of Muammar Gaddafi (van der Lijn et al. 2019, 23-24). The Malian government's inadequate response contributed to growing frustration within the armed forces, culminating in a military coup that deposed President Amadou Toumani Touré. The ensuing political instability enabled the MNLA to seize control of northern Mali, while its subsequent alliance with Al Qaeda-affiliated Islamist groups allowed Islamist forces to take control of major northern towns and impose their own administration and Sharia law across the region (van der Lijn et al. 2019, 23-24).

As the conflict expanded, France intervened offensively in January 2013 through Operation Serval, alongside Chadian forces deployed under the African-led International Support Mission to Mali (AFISMA), pushing Islamist groups out of many of the major urban centres. It was against this backdrop of political instability, territorial loss, armed conflict and international military intervention that the United Nations established MINUSMA in 2013 (van der Lijn 2019, 50-51).

After the success of Opération Serval, France and the US pushed for AFISMA to be replaced by a UN operation. The Security Council decided to support this proposal and on July 1st 2013 the authority was officially transferred from AFISMA to MINUSMA. Throughout the mandate, MINUSMA had two core tasks: to stabilize the country and restore state authority in the northern and central parts of the country and to support the ongoing political process in Mali, while protection of civilians and promotion of human rights were less prominent (van der Lijn 2019, 50-51).

Notably, MINUSMA was the first UN mission to be deployed with a dedicated intelligence unit, the All Source Information Fusion Unit (ASIFU), that was staffed exclusively by European member states and its staff (Karlsrud 2018b, 13) and authorised by the French troops to use all means necessary to intervene in support of MINUSMA (van der Lijn 2019, 53). In August 2014, Opération Serval was replaced by Operation Barkhane with the goal of fighting Islamist fighters in the Sahel (Karlsrud and Rosén 2017, 49-50).

MINUSMA supported the negotiation of the 2015 Agreement for Peace and Reconciliation in Mali (the Algiers Agreement), alongside the 2013 presidential and legislative elections that restored constitutional order under President Keïta (van der Lijn et al 2019, 55). Until 2016 MINUSMA was considered to be a “relatively successful peace operation” (van der Lijn 2019, 73), improving stability and reducing civilian casualties. From that point on, attacks by jihadist groups against UN personnel, the Malian armed forces and signatories to the Algiers Agreement intensified, undermining the effectiveness of stabilisation and civilian protection efforts and producing "an extraordinary number of fatalities compared to other recent UN peace operations" (van der Lijn et al 2019, 105).

Amid persistent concerns surrounding the UN's ability to fulfil its mandate, MINUSMA's decade long deployment ended in 2023 after Mali's transitional government formally requested the termination. The government argued that the mission failed to achieve its objectives (Africa Defense Forum 2024). The subsequent assessment of the mission's ten year deployment found that MINUSMA had been constrained from the start by lack of political will of the host government, limited capabilities, an expanding mandate, insufficient resources, government restrictions and unrealistic local expectations (Africa Defense Forum 2024). Most importantly, the mission faced restrictions on the use of drones in the form of imposed no-fly zones, which affected its ability to document human rights abuses, especially in rural areas. MINUSMA formally ceased operations in December 2023, effectively ending one of the largest and deadliest peacekeeping missions (Human Rights Watch 2023).

6.2. Technology Deployed

The deployment of surveillance systems in MINUSMA went beyond the introduction of drones. From the start, the mission placed considerable emphasis on intelligence capabilities. In 2014, MINUSMA established the All Sources Information Fusion Unit (ASIFU), a new type of military intelligence capability within a UN peace operation. The unit brought together human intelligence operators, surveillance drones and attack helicopters, while also drawing on private contractors and open source intelligence (Karlsrud 2018, 62–63). ASIFU was conceptually influenced by the intelligence structures used in Afghanistan, with several of its capabilities reflecting Western experiences of counterterrorism operations in Afghanistan and Iraq (Karlsrud 2018, 61–63). Alongside these capabilities, tactical teams were deployed at the field level, while MINUSMA also developed the Ushahidi platform to map and geotag security incidents and other information in real time (Karlsrud 2018, 62–63).

MINUSMA's surveillance architecture consisted of more than individual technologies. It represented a broader effort to institutionalize intelligence gathering and analysis within the mission. The mission deployed short to medium range surveillance drones, including the Dutch Boeing Scaneagle and Swedish Eagle, equipped with infrared and other sensors and with the capability of transmitting live, real time, video feeds (Karlsrud and Rosén 2017, 50). However, the expansion of these capabilities also created challenges of coordination and information

sharing. The introduction of surveillance technology thus expanded MINUSMA's capacity to collect and process information, but also created new organizational and technological challenges around how that information could be integrated and used (Karlsrud and Rosén 2017, 65).

6.3. Operational Deployment and Outcomes

Much like the mission in DRC, MINUSMA mission in Mali was deployed amid ongoing conflict primarily to stabilize the situation and oversee the ongoing political process and the implementation of the Algiers peace agreement, and was considered relatively successful in doing just that up until 2016 (van der Lijn 2019, 73). Despite the considerable challenges it faced, MINUSMA did achieve some tangible results, especially at the local level. The Mission supported civilian protection, reconciliation initiatives, the security of critical infrastructure and capacity-building for state actors and civil society in areas including human rights and justice (MINUSMA 2023). However, these achievements remained geographically and institutionally limited. MINUSMA acknowledged that the protection of civilians in central Mali remained a significant challenge, while its ability to respond was constrained by the wider security environment and limitations on its operational capacity (MINUSMA 2022).

Establishing the robustness of the MINUSMA mandate caused tensions between UN member states, similarly to the MONUSCO case. The regional actors like the African Union (AU) and The Economic Community of West African States (ECOWAS) strongly argued for a more robust mandate, even conditioned such a mandate when AFISMA was replaced by an official UN mission. However, some member states like Russia, Argentina and Pakistan argued to limit the robustness and the use of force within the mandate. Instead, they pushed for the UN to return to basic principles of peacekeeping (van der Lijn 2019, 50-52).

MINUSMA created a really big gap between the countries in the region and the European countries. The European and NATO countries led the establishment of MINUSMA and the entire intelligence unit, which was heavily criticized by AU, claiming that "Africa was not appropriately consulted in the drafting and consultation process" (van der Lijn 2019, 52). Furthermore, the tensions between the UN membership was further aggravated by the implementation of new tools which were considered to be a double-edged sword. On one hand drones and other surveillance technologies can help protect civilians and contribute to peace, but on the other hand, there are

concerns surrounding spying on host and neighboring countries and general mistrust of technologies by the community (Karlsrud 2018a, 60). This further confirms Madinaou's claim that new technologies are not deployed in a vacuum, but in a space that has a long developed dynamic shaped by history and power dynamics that favors one side over the other (Madianou 2025).

The question posed by many authors when talking about the implementation of technologies in peace operations, has been the question of data collection and sharing in the context of risk. In MINUSMA, there has been serious disagreement about rules and practices of data sharing. MINUSMA was deployed parallel to offensive, member-led initiatives such as Opération Serval, later replaced by Opération Barkhane, which already raised concerns amongst members. However, heavy criticism followed after it was revealed that the information gathered by MINUSMA was shared with Opération Barkhane and that such information was used for targeting and selected killing, which was in gross violation of UN legal framework and the broader international humanitarian law (Karlsrud 2018, 65). This was further confirmed in an interview with the French Ministry of Defense official in 2015 who said that the French were happy with the information shared by the Dutch troops that were a part of the intelligence unit in MINUSMA (Karlsrud 2018, 66). The policies around intelligence, privacy and data protection and sharing were adopted a few years later, pointing to the fact that technological implementation, before strategic and policy documents, can lead to significant operational gaps which have direct, and sometimes irreversible, effects on human rights.

Since 2016, the legitimacy and credibility of the operation have been seriously called into question, which was clear from mass protests in different parts of the country against MINUSMA. The majority of criticism from the local populations stems from the fact that the mission continuously acted in favor of the government and other armed groups, which in itself is plagued by corruption and weak governance, and which the population considers a part of the problem (van der Lijn 2019, 80-84). Furthermore, there was a big disconnect between the expectation of the Malian people and the mission mandate. The lines between a more militaristic and robust approach, which could be reflected in the increasing use of intelligence and surveillance technologies and data sharing with offensive troops, and traditional peacebuilding

were blurring, but were never properly decided - creating the expectation of counterterrorism without an explicit counterterrorist mandate (van der Lijn 2019, 82).

MINUSMA also suffered from the same problems conceptually described by Autesserre (2014) and Zuboff (2019), the peacekeepers were too isolated to get to know the real situation on the ground due to a number of reasons, including insecurity and the fact that technology was available to fill that gap. However, some authors like Duffield argued that technology can replace the “ground truth” (Duffield cited in Karlsrud 2018, 70). And while some aspects of intelligence gathering can be enhanced through the use of technology, the core of the work of peacekeepers is missing the trust building through in person communication, like in MONUSCO, MINUSMA staff was also reluctant to act upon gathered intelligence (Karlsrud 2018, 72).

The dissatisfaction of the local population with MINUSMA can also be confirmed through survey data. Even one year after the deployment of the mission, the majority of locals were already dissatisfied with MINUSMA, while that number only rose as time went by, reaching 78% in 2019 (Smidt 2023). Significantly, the locals from the northern part of the country were less likely to criticise MINUSMA than the ones in the south, seemingly because they had more frequent human interaction with the peacekeepers, proving Autesserre’s (2014) claim about the impact of gathering knowledge through forming personal relationships, which is something technology collected data cannot mimic (Smidt 2023).

Finally, among the general dissatisfaction, even the host government heavily criticized the mission, eventually calling for its termination in 2023. The deployment of surveillance systems, especially drones, were instrumental in creating an irreversible gap between the mission and the host government. The idea of constant surveillance caused great concern for the idea of state sovereignty that reflected in the restriction of state will, while the documentation of human rights abuses and practices both by the terrorist groups and the state itself, caused frustration. In 2022, the Malian government imposed no-fly zones to obstruct the ongoing investigation of MINUSMA into the Moura massacre. MINUSMA condemned the state’s involvement in the death of over 500 people in Moura, which caused outrage amidst Malian officials (Human Rights Watch 2023). The Moura case therefore illustrates a central limitation of MINUSMA, even when the mission possessed the capacity to collect and document information about serious

human-rights violations, it could not necessarily translate that information into effective protection or accountability. Ultimately, the mission's effectiveness depended not only on its ability to gather information, but also on its ability to access affected areas, act on that information, maintain sufficient freedom of movement and host-state cooperation to fulfil its mandate, which is supported by Legaz's idea of technology deployment inadvertently causing mission's legitimacy to erode (Legaz 2026).

7. Discussion

The UN has increasingly deployed technology to enhance the effectiveness of its peace operations over the past decade. The peacekeeping missions in the DRC and Mali have been unique in several aspects, including the shift from traditional liberal peacekeeping towards increasingly offensive missions tackling terrorism (Karlsrud 2018b), alongside the deployment of new technologies, particularly drones. The two missions share a number of similarities, making them useful cases for comparison. Mapping these similarities can help identify broader patterns in the use and implications of PeaceTech in UN peace operations and contribute to assessing and supporting the three hypotheses developed in this thesis.

First, both the DRC and Mali have similar historical and political contexts that have affected their political and societal development. The combination of colonialism and frequent conflicts following independence has contributed to political instability and created conditions for authoritarian and military rule, limiting effective rule of law practices and human rights protections. Both countries also struggled with corruption and weak governance, which limited the impact of UN peace operations from the start.

The problem with the UN approach was the deterministic belief that, in such contexts, technology could effectively solve these problems and increase mission effectiveness. This is the same problem Wyatt describes: while technological determinism may be academically “dead”, it gains traction through different narratives that perform real political and institutional work (Wyatt 2008), meaning that the UN promotes narratives in which technology is the solution to widespread criticism of UN peacekeeping. This increasingly deterministic understanding creates the illusion of problem solving, although the underlying problems remain unresolved.

What is clear is that UN peace operations suffer from serious structural and political problems, including a lack of political will from host governments, a lack of UN institutional credibility and legitimacy, and the risk-averse nature of peacekeepers in protecting the mandate and local populations. An additional consideration is that the deterministic nature of technology in UN peace operations is also connected to the broader context of Dafoe’s military-economic

competition (Dafoe 2015), which puts the UN in a situation where it has to adapt or “get left behind” (Garman 2015, cited in Firchow et al. 2017, 31) and adapt to decreasing budgets through technological solutions that aim to replace boots on the ground in order to cut costs.

Both missions were deployed before or alongside offensive troops, such as the FIB in MONUSCO and Opération Serval and Opération Barkhane in MINUSMA and operated under more robust mandates that envisioned the deployment of intelligence or surveillance technologies, creating tensions among member states. This left the mandates caught between a militaristic approach and the traditional approach to peacekeeping, as well as a lack of clear direction from the Security Council, creating problems for the integrity and security of the missions and their staff.

Such an increasingly offensive position often led to the appearance that the UN was taking sides, in some cases exactly because of the use of drones and cooperation with offensive troops, which contributed to increasing attacks and casualties among civilians and UN staff (Karlsrud and Rosén 2017, 53). The MINUSMA example is particularly telling, given that it became one of the deadliest UN missions (UN Peacekeeping). This blurring of the lines between surveillance and protection can be traced back to Madianou’s arguments around the logic of securitization (Madianou 2025, 50-53).

Another feature specific to MINUSMA was the division between those responsible for mission intelligence and those who had no access to it. The division was particularly stark because European troops held situational awareness capabilities, while regional and global majority countries were excluded both from intelligence gathering and from decision-making regarding the mission itself. This illustrates Madianou’s point that technology is never deployed in a neutral environment, but is shaped by existing historical, interest and power relations (Madianou 2025).

The technology deployed in both MONUSCO and MINUSMA followed a similar path. It was usually connected to more offensive and European troops and focused largely on drones or other drones procured from private companies. MINUSMA was distinctive in that it had the first intelligence unit, ASIFU, as well as a separate open-source intelligence component and software

for mapping and geotagging incidents in real time (Karlsrud 2018, 62–63). Because the two operations were so close in time, MONUSCO's initial success with drone deployment led to similar deployment in MINUSMA.

Regarding surveillance systems specifically, they did indeed increase situational awareness, which was one of the main goals of their implementation. The technology was used to surveil potential conflicts, monitor peace agreements and arms embargoes, and document human rights abuses. It was also instrumental in the life-saving mission in Lake Kivu during MONUSCO and in documenting human rights abuses in MINUSMA (UN News 2014).

These uses brought short-term benefits, however, better situational awareness did not necessarily translate into mission success or action. Peacekeepers in both missions suffered from a risk-averse nature and an unwillingness to act on gathered intelligence to protect the mandate or civilian lives, opting instead not to expose their staff to risk. This created significant criticism both within the UN and among local populations. Such inaction creates an accountability vacuum and a significant gap between the practice of UN peace operations and their mandates and human rights commitments.

Although information sharing was also a concern in MONUSCO, the situation in MINUSMA generated particularly strong criticism and called standard UN practices into question. The mission's information sharing with Opération Barkhane, which used that information for targeting and killing individuals (Karlsrud 2018, 65), not only represents a gross violation of international humanitarian law and the UN's own practices and rules, but also represents a case in which no accountability was successfully attained.

Surveillance technology also leads to data centralization, which usually serves those with greater power, favouring UN staff rather than the population whose data is frequently collected, often without meaningful consent or privacy safeguards. In MINUSMA, such centralization could also be observed within the UN mission itself, where intelligence was entrusted to and handled by European troops, seemingly sidelining other troops and creating a power imbalance in favour of global minority states. These consequences of deploying certain types of technologies can be understood through Winner's first argument, which holds that certain technologies require

particular forms of social or political order to function (Winner, 1980). In this case, the centralization of data reinforces existing power structures by concentrating access to information among those already in positions of greater authority.

Technology also generated similar negative perceptions in both missions, particularly among local populations. Drones were often negatively associated with offensive weapons, precision killing and targeting, creating discomfort among local populations and mistrust regarding how their data was handled. In MONUSCO, drones were dubbed “loud mosquitos” (Karlsrud 2018, 75), and local populations failed to see their value.

This fits well with Winner’s (1980) and Madianou’s (2025) arguments about how technology is never neutral and carries with it a certain predetermined meaning. Beyond negative perceptions of drones, there are also serious human rights implications associated with the use of such technologies. First, there is a serious problem with meaningful consent to be surveilled. Madianou argues that such consent in the context of humanitarian missions can appear meaningful while, due to historical and contextual factors, reflecting relations of control and dependency (Madianou 2025).

Zuboff’s argument is also helpful for understanding the problem of consent. Zuboff (2019) argues that instrumentarian power challenges the assumption that local populations understand surveillance technologies and can choose to accept or refuse them. Data can instead be extracted and used without individuals’ knowledge or their real ability to refuse (Zuboff 2019).

This also extends to human rights, including the right to privacy. In Western democratic countries, there are usually ongoing debates about whether surveillance is legal and what kind of surveillance is proportionate and necessary. There are also legal frameworks and safeguards protecting citizens and their privacy. These systems are not ideal, but there is at least some degree of choice, transparency and legal protection. In countries that host UN peace operations, however, conflict-affected populations are often placed in a fundamentally different position. They may have little meaningful ability to know when they are being surveilled, what data is being collected, how it is stored and processed or with whom it is subsequently shared. More importantly, they have limited ability to refuse such surveillance or seek effective remedies when their privacy is violated.

This creates a significant power asymmetry between the UN and the populations whose data it collects. As seen in the case of Opération Barkhane, intelligence can also be shared beyond the immediate peacekeeping context, creating risks that extend beyond privacy and potentially expose individuals to serious physical harm. The issue is not simply that privacy safeguards may be insufficient, but that populations subject to UN surveillance can have little meaningful control over the collection and subsequent use of information about them.

In both operations, the use of technology to increase situational awareness can create a disconnect between peacekeepers and the ground truth and, according to Autesserre (2014), can affect mission effectiveness. In the case of MINUSMA, there is reliable evidence that local populations are more satisfied with peacekeepers when they interact with them in person and build relationships and trust (Smidt 2023).

One of the biggest similarities is that the deployment of surveillance technologies can contribute to the erosion of legitimacy and endanger state sovereignty. A lack of political will to achieve political progress and opposing interests between host governments and peace operation mandates are one reason for the erosion of legitimacy (Legaz 2026). Another is that states do not like to be restricted and surveilled, especially when such surveillance can potentially be used against them. In MINUSMA, the government even imposed no-fly zones and restrictions that obstructed UN investigations into human rights abuses (Human Rights Watch 2023). Combined, these factors contributed in both MINUSMA and MONUSCO to the tipping point at which states, among others, called for termination of the missions.

Finally, in both cases, the missions are coming to an end and have been considered failures. MINUSMA officially ended in December 2023 (Human Rights Watch 2023), with its troops gone from the country, while MONUSCO's mandate was renewed in 2025 (African Security Analysis 2025), although with a particular focus on troop withdrawal. Tracking both missions from their beginning to their almost-complete end has revealed that, despite the short-term benefits provided by the missions, PeaceTech failed to increase mission effectiveness or solve deep-rooted problems, while causing significant risks to human rights without proper accountability mechanisms set in place.

Conclusion

The central tension between efficiency, on one hand, and accountability and human rights safeguards on the other, can be seen throughout the thesis and is demonstrated most clearly in the two case studies. The three hypotheses support the claim that technological deployment in UN peace operations tip the scales in favor of efficiency, while leaving the mission itself, peacekeepers and local populations vulnerable to abuses. This is especially dangerous in the vulnerable context in which the missions are deployed.

The thesis examines the drivers of the deployment of PeaceTech and determines that the innovation is rooted in the shifting of mission mandates and especially in the deterministic rhetoric that has influenced UN decision making practices and political and institutional choices. The UN, like many other international stakeholders, has embraced the narrative of adaptation in an effort to avoid being left behind. Furthermore, the deployment of technology creates this distance between peacekeepers and operational outcomes in a way that creates a temporary solution used for deflecting criticism and blame in order to mask existing structural and political problems.

The deployment was happening before the implementation of any significant legal frameworks, with the goal of increasing mission effectiveness. However, the mere deployment of technology is not done in a vacuum, it is shaped by existing historical and contemporary dynamics, which can deepen the existing structural inequalities and amplify harm, especially towards vulnerable populations.

The UN is in the phase of declining legitimacy caused by a number of factors, including the overuse of veto powers by permanent Security Council member states, funding crisis that cascades downward, the widening gap between expectations and realities of such missions and the general criticism of the member state officials, rooted in historical failures of UN peacekeeping.

The first and central research question was to what extent the deployment of surveillance technology translates into long-term and sustained effectiveness in UN peace operations. The proposed hypothesis was that surveillance technologies deployed in UN peace operations produce

real short-term operational benefits, but that these do not translate into durable, long-term mission success. Using the case studies of MONUSCO and MINUSMA, it is clear that the deployment of drones and other surveillance technologies produced concrete benefits. These included drone monitoring that contributed to a rescue operation in Lake Kivu, that had a positive effect on the perception of MONUSCO, the use of technology to document human rights abuses, particularly in Mali, the contribution of drones to increased civilian and staff protection and deterrence of criminals and other armed groups.

However, both missions ultimately failed to fulfil their mandates due to much larger systemic and political problems that contributed to their eventual withdrawal. These problems were beyond what technology could solve and included the UN's declining credibility and legitimacy, the awkward position of the mandates between traditional peacekeeping and counterterrorism aspirations, the persistent inaction of peacekeepers in protecting civilians, despite increased situational awareness, and, on the other hand, the deep-rooted corruption, weak governance and lack of political will of host governments.

Even when technology works as intended, it creates risks that can impact human rights and liberties. This leads to the second research question: what accountability mechanisms exist to protect local populations from human rights harms arising from the use of surveillance technologies in UN peace operations, and how effectively do these mechanisms function in practice. The second hypothesis argued that the deployment of surveillance technology occurs within a structural accountability vacuum that leaves conflict-affected populations without meaningful protection from human rights harms.

There are several situations in both MONUSCO and MINUSMA that demonstrate a persistent accountability vacuum, particularly during the relevant period. First, many of the incidents occurred before official policies and practices were put in place, as technological deployment preceded the implementation of specific safeguards. Second, situations such as the Keba massacre, which implicated MONUSCO staff as being complicit, and the fall of a drone in MONUC that killed one person never received an adequate formal conclusion. In MINUSMA, there was limited accountability for the mission's sharing of sensitive intelligence with a counterterrorism operation that resulted in human casualties. Finally, no proper safeguards were

in place, nor were privacy abuses properly assessed before the implementation of the technologies. This meant that no meaningful consent was given and no safeguards were implemented to protect the human rights of the local population. The accountability vacuum can most clearly be seen in the 2018 UN Personal Data Protection and Privacy Principles, where the principles described in the document are explicitly stated to be without prejudice to the privileges and immunities of the UN.

Finally, the third research question derives from the first two and investigates the UN's principles and commitments concerning the protection of human rights and the safe use of technologies in relation to the practical implementation of technology in the field. The third hypothesis argued that there is an identifiable gap between the UN's rhetorical human rights commitments and its actual field practice regarding surveillance governance. Regarding this final hypothesis, there is a real and tangible disconnect between UN human rights commitments and what was happening on the ground in both MONUSCO and MINUSMA.

Even though some of the relevant policies and practices were adopted much later in the mandates, the UN and its peacekeepers were guided by the Charter of the United Nations and other commitments, particularly those reflected in the mission mandates themselves. The missions were therefore bound by principles such as do no harm, protection of the mandate and, especially, protection of civilians. However, in practice, the inaction of peacekeepers in many instances in both MONUSCO and MINUSMA stood in complete opposition to core UN principles and the mandates. The same can be seen in the information sharing case in MINUSMA, which violated these principles and international humanitarian law. On the other hand, the do no harm principle was repeatedly violated through the careless handling of local populations' privacy and data.

Taken together, the findings from MONUSCO and MINUSMA support the three hypotheses, while the limited number of cases suggest that the findings cannot capture the full range of experiences across UN peace operations. The thesis proves that the tension between pursuit of greater effectiveness and human rights safeguards, when it comes to technological deployment in UN peace operations, is tangible and usually tilts towards the former, when faced with outside factors. The thesis therefore demonstrates the importance of considering both the operational

benefits and the broader political, institutional, accountability and human rights implications of PeaceTech in peace operations.

Looking ahead, while taking into account proven hypotheses, it is possible to assume that the trend of using technology will continue, becoming more frequent. However, it is also possible to assume that technology will still not be fully harmonized with existing human rights standards, that this gap will only deepen in the future, in line with the trend of increasing global inequalities. Therefore, it is possible to assume that such negligent use of technology will produce unforeseen consequences on a large scale, without the certainty that they will be followed by adequate remedies.

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