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The Use of Digital Military Technology in UN Peacekeeping Operations: Possibilities and Dilemmas✣

Kyoung-Seok Ha*

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|ABSTRACT|

The digitalization of military technology provides an opportunity to increase the effectiveness of UN peacekeeping operations. It helps to facilitate the conflict resolution process by strengthening surveillance-led operations. However, adopting digitalized military technology also poses risks that can destabilize the security environment and peace operation itself. This paper aims to examine the possibilities and challenges of using digital military technology in UN Peacekeeping Operations. Specifically, it analyzes a case of using Unmanned Aerial Vehicles (UAVs) in UN enforcement operations in DR Congo from 2013.

The case of using Drones in DR Congo reveals that adopting digital surveillance capabilities made a positive impact on the operational performance of UN peacekeeping forces. Adopting digital military technology is likely to secure the safety of UN troops and help implement the Protection of Civilians (POC) mandate. However, challenges remain in issues like Human Rights, collection and use of digital data, and using technology for a humanitarian purpose other than the UN security council mandate. Digital technologies like UAVs have many positive aspects for UN peacekeeping. However, they should be used with discretion to avoid involving another dispute over the fairness or misuse of information.

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* Senior Research Associate, Ilmin International Relations Institute, Korea University.

Ⅰ. Introduction

What are the possibilities that are unfolding as the United Nations adopts digitalized technology? Are there any side effects of using new technology? As technological innovation progressed through the Fourth Industrial Revolution, the United Nations entered a world of possibilities to maximize the efficiency of Peacekeeping Operations (PKO). The UN PKO is tasked with maintaining and building peace through multidimensional (military) activities in areas where human security is most vulnerable. Therefore, immediate efforts to strengthen the technical base and increase operational efficiency are challenges the international community faces, especially the United Nations. Missing opportunities for technological innovation means missing opportunities for peace.[1] When the United Nations neglected innovation in the past, peace activities often stagnated.

In addition to military operations involving advanced weapons and equipment, the introduction of appropriate technological innovation across peace operations, including emergency relief and reconstruction, can help preserve, maintain, and increase peace operations' efficiency in the field.[2] For peace operations to work in the age of technological innovation, the United Nations or participating countries must improve their technology and understand the increase in the technology of forces and civilians in areas devastated by conflict or disaster. Smartphones, GPS, artificial intelligence, the internet of things, and robotics are becoming increasingly available, changing the nature of disputes anywhere in

1) A. Walter Dorn, *Smart Peacekeeping: Toward Tech-Enabled UN Operations* (New York: International Peace Institute, 2016), p. 1.

2) Independent Commission on Multilateralism (ICM), *The Impact of New Technologies on Peace, Security, and Development* (New York: International Peace Institute, 2017).

the world. If countries and personnel involved in peace operations remain unprepared and ignorant of technology, the United Nations operation is likely to fall victim to spoilers of the peace process using advanced technology.

The United Nations has adopted strategies for introducing technologies and innovations for peacekeeping in line with this trend.[3] More importantly, it has shown the willingness and means to implement these innovation strategies. Furthermore, the advent of the concept of the UN Technology Contributing Countries (TechCCs) presents new possibilities to complement the traditional concepts of the Troop Contributing Countries (TCCs) and the Police Contributing Countries (PCCs). Most of the UN PKO's workforce has been filled with uniformized troops at low levels of military capacities in developing countries, which has faced limitations that it is difficult to operate efficiently. The concept of a TechCC is meaningful because it opens up the possibility of effective operations at the UN level beyond the limits of this practice. Significant momentum has arrived for countries with advanced technological capabilities, such as South Korea, to contribute to the international community by supporting cyber power and innovative equipment instead of a T/PCC.

However, while there are possibilities, there are also threats to the peaceful use of digital military technology. Technological innovation through digitalization (as with previous innovations) provides opportunities to increase the efficiency of operations and

3) For the most recent account on the digital innovation of UN Peacekeeping, please refer to: Department of Peace Operations (DPO), Department of Operational Support (DOS), and Department of Management Strategy, Policy and Compliance (DMSPC), *Strategy for the Digital Transformation of UN Peacekeeping* (New York: United Nations, September 2021); Expert Panel on Technology and Innovation in UN Peacekeeping, *Performance Peacekeeping* (New York: United Nations, 2014).

establish sustainable peace. However, at the same time, it is accompanied by significant risk factors that can destabilize the security environment and threaten peace activities themselves. Various technical, ethical, and political issues are scattered, ranging from privacy issues, hacking and abuse of military technology, ethical issues in the event of attacks by unmanned aerial vehicles, and concerns about reducing PKO personnel due to digital technology.

The main issues related to digital innovation and the UN PKO can be summarized threefold: First, what efforts has the UN made to bring digital technology into the field? Secondly, what are the achievements and limitations of introducing digital technology to the UN PKO? Third, what changes will digital technology bring to the conflict environment regarding UN PKO, and what issues must be addressed in introducing digital military technology into the conflict zone?

In this research, I argue that adopting digital surveillance capabilities positively impacted the operational performance of UN peacekeeping forces, but simultaneously it posed dilemmas to overcome. Adopting digital military technology is likely to secure the safety of UN troops and help implement the Protection of Civilians (POC) mandate. However, challenges remain in issues like Human Rights, collection and use of digital data, and using technology for a humanitarian purpose other than the UN security council mandate. Digital technologies like unmanned aerial vehicles (UAVs) have many positive aspects for UN peacekeeping. However, they should be used with discretion to avoid involving another dispute over the fairness or misuse of information.

This research is constructed as follows: First, the efforts to introduce digital technologies that the United Nations has undertaken are examined. Second, I explore the possibilities and challenges of digital innovation in UN Peacekeeping. Third, the case of using digital

technology, especially the use of UAVs (or drones) in peacekeeping operations in DR Congo, is analyzed.[4] Through this, I examine the challenges and implications of digital military technology innovation for the UN PKO, and argue about the conditions under which PKO can contribute to promoting human security through digital technology innovation.

Ⅱ. Digital Technology and PKO: Intelligence-centered Peacekeeping

1. UN's Pursuit of Technological Innovation

The United Nations PKO has been responsible for deploying international forces, police, and civilian forces in disputed areas and preventing, mitigating, and ending disputes. In the 21st century, the Protection of Civilians (POC) became an essential norm of UN peacekeeping operations, and the scope of PKO's activities expanded as part of multidimensional operations to support post-conflict peacebuilding.[5] UN Peace Operations have become a vital tool for the international community to establish peace in disputed countries and regions. In terms of technology introduction, the UN PKO is making some progress. However, the scope and size of the missions are much larger than the development of capabilities. Thus it still requires reform and innovation in many areas. It is also true that PKO operations have not developed much and rely too much on

4) DR Congo's MONUSCO was the first UN Peacekeeping operation to deploy unmanned aerial vehicles in its battlefield mission.

5) United Nations Security Council (UNSC), UN Doc. S/RES/1265 (September 17, 1999a); UN Doc. S/RES/1270 (October 22, 1999b).

developing countries' troop contributions. Peacekeepers often do not have sufficient equipment and information, which often leads to uncertain involvement in the horrors of conflict and the inability to take necessary action.[6)]

In this circumstance, the introduction of digital innovation presents new possibilities. A report in 2014, *Performance Peacekeeping*, published by the High-Level Panel on Technology and Innovation in UN Peacekeeping, states that innovation can significantly help protect civilians and implement the security council mandate.[7)] Therefore, one of the key UN challenges in conflict management is to build the most appropriate technology equipment and systems for PKO. Of course, wide-ranging skill levels among countries around the world, skill gaps among deployed forces, and technical combinations with the UN Headquarters and the fields are potential destabilizers.[8)]

Since the high-level panel's report on innovation was published in 2014, the United Nations has paid more attention than ever to PKO operations by introducing new technologies. In 2019, Department of Peacekeeping Operations (DPKO) and the Department of Field Support (DFS), later integrated into the Department of Peace Operations (DPO), began to seek to implement the recommendations earnestly, and advanced countries came forward to help. In particular, former U.S. President Obama declared that the U.S. would seek to help improve the UN's technological capacity and become a leading TechCC instead of sending many troops to the field.[9)]

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6) United Nations, *Evaluation of the Implementation and Results of Protection of Civilians Mandates in United Nations Peacekeeping Operations: Report of the Office of Internal Oversight Services*, UN Doc. A/68/787 (March 7, 2014).

7) Expert Panel on Technology and Innovation in UN Peacekeeping (2014).

8) Dorn (2016), pp. 3-5.

9) Barack Obama, *Remarks at UN Peacekeeping Summit* (New York: UN Headquarters, 2015).

The United Nations continued to hold high-level talks on PKO's technology partnership, and in 2018, UN Secretary-General António Guterres announced the *Strategy on New Technologies*.[10] The United Nations also appointed Melinda Gates and Jack Ma, co-chairman of the High-Level Panel on Digital Cooperation, which published a report in June 2019 on the theme of *The Age of Digital Interdependence*, exploring and responding to the impact of digital technology on improving human security.[11]

In what ways is the introduction of such an UN-seeking technological innovation agenda applicable to peacekeeping sites, especially in terms of military operations? The glimpse of the answer could be found in the UN DPO's recent report, *Strategy for the Digital Transformation of UN Peacekeeping*, published in September 2021. The report suggests essential steps towards "enhancing the safety and security of peacekeepers and enabling more effective mandate implementation through the use of digital technologies."[12] Based on the report's publication, a consensus seems to have been formed between the UN headquarters and major Security Council countries that the introduction of digital technology has become an essential era for UN peacekeeping. In this context, the following section examines the importance of intelligence-led peacekeeping operations and the direction in which digital technology has contributed to them.

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10) United Nations Secretary General, *Strategy on New Technologies* (New York: United Nations, 2018).

11) High-level Panel on Digital Cooperation, *The Age of Digital Interdependence* (New York: United Nations, 2019).

12) UN DPO, DOS, and DMSPC (2021), p. 5.

2. Digital Technology and Intelligence-led PKO

Just as the digital technology revolution has brought enormous changes to humankind, the scope of digital technology to strengthen PKO capabilities is limitless. In particular, using technology for intelligence acquisition, such as introducing surveillance systems from space (satellite), air, ground to ground, and underground, and inserting digital devices into troops' wearing equipment through digital peacekeeping, opens new horizons for PKO.[13] Still, in most fields, UN-led surveillance is often done with the help of handheld telescopes. Acquisition of surveillance and intelligence in general military operations and PKO operations has a significant impact on their success or failure. Thus, it is expected to be highly efficient if digital technology is introduced to underequipped PKO mission sites as a tool for surveillance and information acquisition.

The importance of information acquisition for UN Peacekeeping has been emphasized since before the introduction of digital technology. In particular, since 2006, DPKO has mandated the establishment of a Joint Mission Analysis Cell (JMAC) for information processing and analysis on field missions. The introduction of JMAC begins with the failure of Haiti's UN mission (MINUSTAH) to obtain information on the eradication of gangs in 2005. Following the installation of JMAC for information acquisition, the successful implementation of enforcement operations in 2006-7 was followed by the introduction of JMAC to peacekeeping operations.[14] JMAC gathered operational and tactical intelligence about all kinds of threats faced by the mission, including non-traditional threats such

13) Dorn (2016), pp. 5-14.

14) Kyoung-Seok Ha, "The Use of Force by UN Peacekeepers: Gang-clearing Operations by MINUSTAH in Haiti (in Korean)," *Peacekeeping Operation Journal*, Vol. 21 (2020a), pp. 29-50.

as gangs. Based on the intelligence, JMAC was responsible for providing strategic analysis to civilian-military leaders in MINUSTAH, which contributed critically to the operation's success.

If digital technology is integrated during intelligence-led peacekeeping operations, it can create a significant synergy effect. Technologies that facilitate monitoring and observation, such as unmanned aerial vehicles (UAVs), video surveillance systems, motion detectors, and satellite imagery, can be used. In particular, peacekeeping forces are often placed under asymmetric threat where their positions are fully exposed to the enemy. The use of digital technology enables them to identify threat factors and conduct effective operations proactively.[15)]

More specifically, the need for digitized intelligence in peacekeeping can be summarized threefold. First, a common and simultaneous awareness of the operational process. In other words, when intelligence is shared through digital technology, a coherent and real-time operational understanding of mission areas and situations is possible. Second, an early warning of imminent threats. Third, sufficient information to identify threats and opportunities. Accurate situational awareness is essential not only for PKO's self-defense purposes but also for implementing the Security Council mandate, particularly for the protection of civilians (POC) mandate.[16)]

Above all, digital technology allows more systematic capture and processing of large amounts of data to make decisions based on solid evidence. Data can help fill intelligence gaps in the operational

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15) For a detailed account on the virtue of drones in peacekeeping missions, please refer to: Caroline Kennedy and James I. Rogers, "Virtuous Drones?" *The International Journal of Human Rights*, Vol. 19, No. 2 (2015), pp. 211-227.

16) Annika S. Hansen, "Digital Technologies in Peace Operations," *about: intel - European Voices on Surveillance*, March 16, 2020, https://aboutintel.eu/technologies-peace-operations/ (Accessed April 18, 2022)

environment and identify patterns associated with conflict dynamics. Suppose intelligence from various sources, ranging from artificial intelligence (AI) to unmanned aerial vehicles (UAV/drone) and open-source data, and technical solutions to manage information in PKO missions are utilized. Then, effective operational planning and implementation will be possible with minimal damage to troops and civilians.

The use of digital technology has been applied sporadically and in various forms to each UN peacekeeping mission over the past few years, and in particular, to the activities of the DR Congo's United Nations Stabilization Mission (MONUSCO) in 2013. MONUSCO was the first PKO mission to introduce UAVs and utilize digital equipment, demonstrating the possibility of systematic use of digital technology during peacekeeping operations. MONUSCO used high-resolution cameras to film rebels' ambushes on civilians, armed helicopters equipped with night vision, rockets, and machine guns which provided a solid deterrent to rebel attacks. With the successful use of UAVs and armed helicopters in DR Congo, UAVs and night vision equipment were also used for peacekeeping missions in the Central African Republic (CAR) and Mali. For example, the Dutch unit in Mali successfully used unmanned aerial vehicles and Apache helicopters combined with high-resolution cameras to collect intelligence.[17)]

As such, digital systems and equipment have made significant contributions to customized operational design optimized for conflict environments. In addition to the equipment mentioned above for collecting information, digital technologies can increase the efficiency of peacekeeping operations, ranging from unit

17) A. Walter Dorn, "Combat Air Power in the Congo, 2003-," in A. Walter Dorn (ed.), *Air Power in UN Operations: Wings for Peace* (Farnham, UK: Ashgate Publishing, 2014), pp. 241-253.

operations to establishing procurement and communication systems. However, it is also true that these digital technology mechanisms and tools have structural and political constraints.

Ⅲ. Challenges in Adopting Digital Technology in Peacekeeping

1. Political and Economic Aspects

Whenever discussions on the introduction of digital technology expanded in earnest, some countries of the UN Special Commission on Peacekeeping (C-34) expressed serious opposition to intelligence gathering using digital technology, especially NAM (Non-Alignment Movement) and Russia among 144 member states.[18] The use of digital technology in PKO has been seen by Western countries, including the EU, as a means of increasing the efficiency of peace operations and increasing the viability of its troops.[19] In contrast, NAM and Russia saw technological innovation as a tool for intervening in state sovereignty by the Western countries. Russia, in particular, demanded that the UN Secretariat should obtain UN Security Council approval before deploying UAVs in DR Congo. Such demands have faced resistance from the United States, EU, and the CANZ Group (Canada, Australia, and New Zealand) to avoid unnecessary and inefficient procedures.[20]

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18) Typical example can be found in the following C-34 report: United Nations, *Report of the Special Committee on Peacekeeping Operations, 2010 Substantive Session (22 February-19 March 2010)*, UN Doc. A/64/19 (March 24, 2010), para. 43.

19) United Nations, *Report of the Special Committee on Peacekeeping Operations, 2015 Substantive Session (17 February-13 March 2015)*, UN Doc. A/69/19 (March 17, 2015), paras. 46-47.

20) Dorn (2016), p. 24.

Meanwhile, developing countries, which currently provide about three-quarters of UN Peacekeeping troops, have expressed concerns that the introduction of digital technology could reduce their troops, resulting in less compensation from the UN. However, when supply does not meet overall demands, digital technology would enable peacekeeping troops to be assigned more effectively rather than reducing the total number of peacekeepers. Of course, the introduction of digital technology will reduce specific tasks, but the resulting surplus workforce can be put into more productive work. The UN PKO is chronically understaffed and rarely reaches the Security Council's staffing limits.[21] Eventually, the introduction of digital technology can be expected to boost and strengthen the capability of the UN in managing conflicts. Digital technology will increase productivity without reducing overall employment.

Also, similar to concerns about troop contributions, some countries are concerned that unmanned aircraft may replace human-crewed aircraft. In particular, there are voices of concern from Russia that the use of their helicopters will be reduced. At the UN General Assembly's fifth committee regarding PKO procurement, it seemed very hard for Russia to make concessions on their defense weapons market.[22] However, this also seems to be a false fear. UAVs are likely to complement the operations of human-crewed aircraft. They can contribute to effective peacekeeping operations by gathering solid intelligence and supporting combat missions combined with traditional aircraft.

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21) Lisa Hultman, Jacob Kathman, and Megan Shannon, "Beyond Keeping Peace: United Nations Effectiveness in the Midst of Fighting," *The American Political Science Review*, Vol. 108, No. 4 (November 2014), pp. 737-753.

22) The author's interview with former deputy permanent representative (ambassador) of the Republic of Korea to the United Nations (April 1, 2021).

There are also concerned voices that the introduction of digital technology by the United Nations will deepen the digital divide between developed and developing countries. However, as human-machine interfaces become user-friendly, developing countries will increasingly adopt these new technologies. Considering the structure of the digital ecosystem,[23] which benefits developing countries by sharing technology know-how with advanced countries through the United Nations, the introduction of digital technology can be a rather welcome change for developing countries.

Still, the UN PKO has faced criticism that it consists of multinational forces which are significantly less interoperable among combat forces.[24] Failure to communicate during a military operation against rebels could have fatal consequences. For example, MONUSCO's Force Intervention Brigade (FIB) was composed of three countries (Malawi, South Africa, and Tanzania) that could not communicate with each other. Similarly, communication from aircraft to ground forces is usually impossible unless troops and aircraft forces are from the same country. Clear communication is essential for close air support when troops are under attack, which is directly related to survival. This limitation can also be expected to be overcome by the introduction of digital technology. The UN is trying to strengthen its ICT capabilities by establishing a signal academy headquartered in Entebbe, Uganda, to provide pre-deployment training for troops from T/PCCs.

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23) John Karlsrud, "Peacekeeping 4.0: Harnessing the Potential of Big Data, Social Media, and Cyber-technology," in Jan-Frederik Kremer and Benedikt Müller (ed.), *Cyberspace and International Relations: Theory, Prospects and Challenges* (Berlin: Springer, 2013), pp. 141-160.

24) Mats Berdal, "What Are the Limits to the Use of Force in UN Peacekeeping?" in Cedric de Coning and Mateja Peter (ed.), *United Nations Peace Operations in a Changing Global Order* (London: Palgrave Macmillan, 2019), pp. 133-152.

2. Human Rights and Information Protection Aspects

The constraints mentioned above were primarily political and technical issues. On the other hand, the more fundamental challenge of introducing digital technology is Human Rights issues, especially the acquisition of private information and its possibility of exploitation. As information and communications technology (ICT) and digitalization are widely introduced in all fields of human society, systematic discussions on the linkage between advanced technology and Human Rights have become very important. Although digitalization is generally recognized as a neutral process, it is not neutral from the perspective of the person to whom it is applied. Human decision-making has shaped the development of digitalization; thus, it inherently contains vulnerability.[25]

The UN is also facing challenges derived from such vulnerability. Especially in the case of UAVs deployed during UN peace operations in conflict zones, digital sensors become more sensitive because they can obtain a massive amount of information about the behavior patterns of residents in those areas. Humanitarian aid groups are among the most outspoken critics of surveillance UAVs during peace operations. They fear that digital surveillance technology breaks the boundaries between military forces and humanitarian actors in conflicts.[26] Humanitarian organizations need to be fair and neutral at all times, and only when recognized neutrally by all parties of

25) Emilio Mordini, "Considering the Human Implications of New and Emerging Technologies in the Area of Human Security," *Science and Engineering Ethics*, Vol. 20, No. 3 (2014), pp. 617-638; Mirva Salminen, and Kamrul Hossain, "Digitalisation and Human Security Dimensions in Cybersecurity: an appraisal for the European High North," *Polar Record*, Vol. 54, No. 275 (2018), pp. 108-118.

26) Ortrun Merkle, "Arming the Peacekeepers: Dilemmas of New Military Technology," *International Day of UN Peacekeepers series*, United Nations University-MERIT (May 17, 2016), https://www.merit.unu.edu/arming-the-peacekeepers-dilemmas-of-new-military-technology/ (Accessed April 5, 2022).

conflict, can they operate in the conflict zones. Humanitarian aid organizations have been engaged in goods transportation and relief activities under the protection of UN PKOs. However, some NGOs believe that the introduction of UAVs by UN PKO may threaten their impartiality.

Similarly, the parties are concerned that the United Nations could uncover their vulnerabilities through digital wiretapping devices or UAVs and detect atrocities committed by their troops or corruption in government personnel.[27] Of course, the United Nations has not been involved in intelligence activities. However, countries want to confirm that the information secured by the UN is used only to implement the Security Council mandate under strict supervision. In response, the UN strictly prohibits the acquisition of information from neighboring countries without the consent of the Special Representative for the Secretary-General (SRSG) in the operation of the UAV. Other issues like mobile phone eavesdropping for the POC purpose, cybersecurity preventing hacking of collected data, and malfunctioning military devices due to technical errors remain as critical challenges.

Therefore, when the UN adopts digital technology, the main challenge is choosing the most 'appropriate' technology to secure impartiality rather than choosing the most advanced technology. It should be noted that the latest and most expensive technologies in the digital equipment market may not have been verified in terms of Human Rights.

27) Dorn (2016), pp. 24-26.

Ⅳ. A Case of Using UAVs in DR Congo (MONUSCO)

1. Conflicts in Kivu and the Force Intervention Brigade (FIB)

The eastern border of DR Congo has been dogged by violence and instability since the late 1990s. Although it seemed to find stability due to international intervention and peace agreements, the situation worsened in May 2012 with the emergence of a new powerful rebel M23 in North Kivu. The 2009 Kivu conflict ended with a peace agreement between the DR Congo government and the RDC successor, CNDP (Congres National pour la Defense du Peuple). Some of the remaining CNDP forces formed a force named M23 (23 March Movement) to occupy North Kivu's mountainous region (the border with Rwanda), committed murder and rape, and engaged DR Congo government forces.[28)]

The DR Congo government could not overpower the rebels but did not intend to compromise with them. Eventually, in November 2012, M23 succeeded in capturing Goma, the capital of northern Kivu (which is the central city of eastern DR Congo). MONUSCO responded militarily to the rebels amid the collapse of Congolese government forces, but the UN peacekeeping forces could not stop the M23 from advancing.[29)] During this period, about 140,000 people were displaced, and numerous Human Rights violations were committed, including the massacre and rape of civilians by rebels. The international community has criticized the UN PKO, and the need for a new UN-level response is emerging.

In March 2013, UN Security Council adopted Resolution 2098 to

28) Jason Stearns, *From CNDP to M23: The Evolution of an Armed Movement in Eastern Congo* (London: Rift Valley Institute, 2012), p. 45.

29) United Nations Security Council, UN Doc. S/2013/119 (February 27, 2013a).

create the Force Intervention Brigade (FIB), a powerful offensive force of up to 19,815 men deployed in the eastern part of DR Congo for the first year.[30] The resolution stated that all armed groups were considered a threat but emphasized the M23, FDLR, and ADF as greater threats. In conducting offensive operations to subdue these militants, either unilaterally or in alliance with the DR Congo Government Forces (FARDC), it was mandatory to move "in a robust, highly mobile and versatile manner and in strict compliance with international law."[31]

The FIB consisted of three infantry battalions, artillery companies, special forces, and reconnaissance companies, and the FIB was deployed relatively quickly. In October 2013, when all FIB forces reached their peak, 21,485 soldiers and 3,994 civilians were deployed.[32] The FIB deployed more than 2,000 troops to the north of Goma alone, along with military equipment such as Mi-24P attack helicopters, artillery, and mortars. The assistance from attack helicopters has helped conduct military operations in mountainous areas. In particular, the MONUSCO was the first to deploy a high-tech UAV to conduct reconnaissance operations on rebels remaining in the mountainous areas.[33]

The acquisition of intelligence using UAVs and the overwhelming firepower of FIB and FARDC resulted in the rebels losing control of major cities within a few months. Afterward, the M23 was virtually dismantled and many rebels fled across the border to Uganda and

30) United Nations Security Council, UN Doc. S/RES/2098 (March 28, 2013b).

31) UNSC (2013b), p. 12.

32) United Nations Security Council, *Report of the Secretary-General on the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo*, UN Doc. S/2013/757 (December 17, 2013c).

33) John Karlsrud and Frederik Rosén, "The MONUSCO Unmanned Aerial Vehicles: Opportunities and Challenges," *Conflict Trends,* Vol. 2014, No. 4 (2014).

Rwanda.[34] The FIB, which carried out successful military operations with the FARDC, quickly led to the decisive defeat of one of the most powerful rebel groups in the history of the DR Congo conflict. And the peace enforcement operation by the UN PKO has eliminated one of the major threats to the safety of civilians in the Kivu region.

In addition to military operations, the FIB had the authority to use UAVs to monitor the implementation of DR Congo's arms embargo. UNSC Resolution 2098 states that UAVs can support the "seize, collect and dispose of arms or related materials" for Disarmament, Demobilization and Reintegration (DDR).[35] It was the first documented use of UAVs in the UN PKO's official mission. The UN resolution, which formalizes the use of UAVs, has been maintained during the renewal of MONUSCO's mandate and continues to date in 2021.

One thing to note is that the UAV technology used by MONUSCO was only allowed for "unarmed" purposes. MONUSCO received five Falco UAVs from an Italian company called Leonardo (formerly Selex ES), which had a durability of up to 14 hours and were used only for surveillance purposes under a Security Council mandate.[36] However, while Falco was able to transport up to 70 kg of cargo for target strikes, the UN continued to emphasize the nature of the unarmed aviation system to dispel concerns about non-monitoring utilization and reduce negative implications.[37]

34) *BBC NEWS,* "DR Congo's M23 rebel chief Sultani Makenga 'surrenders'," November 7, 2013, https://www.bbc.com/news/world-africa-24849814 (Accessed March 14, 2022)

35) UNSC (2013b), p. 12.

36) Airforce Technology, "Falco Tactical Unmanned Aerial Vehicle (UAV)," September 29, 2009, https://www.airforce-technology.com/projects/falco-uav/ (Accessed May 3, 2022)

37) UNSC (2013b).

2. Using UAVs and Its Controversies

MONUSCO's decision to mobilize UAVs for peacekeeping missions was a result of growing concerns over insurgents and humanitarian crises in the eastern part of DR Congo. There was no protection for civilians at the time, execution and mass rape by rebels were common, and outside actors supported the rebels.[38] Due to chronic infrastructure shortages, the collapse of government governance, the emergence of rebels with outside support, and the very rugged terrain, MONUSCO faced several serious challenges. Then, the UAVs became the solution to these problems.

The UAVs were sophisticated enough to monitor mountainous areas night and day and fly at different elevations depending on the environment. UAVs provided strong deterrence by flying as "low as needed, frequently seen or heard by residents."[39] This has been sent to the rebels as a message that their positions have already been identified and that they should now surrender. This led to noticeable progress in disarmament and demobilization. In early 2014, the widespread perception that the situation is significantly changing led to an apparent increase in M23 rebel departures, which correlates with the use of UAVs. In addition, from May 2014 to January 2015, FDLR's 438 members voluntarily surrendered to UN and Congolese forces, and by July 2015, an additional 415 members were neutralized.[40]

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38) Korea Institute for Defense Analysis, *Conflict in DR Congo (in Korean)* (Seoul: Korea Institute of Defense Analyses, 2014).

39) Siobhan O'Grady, "How a U.N. Drone Crashed in Congo and Was Promptly Forgotten," *Foreign Policy*, September 22, 2015.

40) Sophie Pilgrime, "Are UN drones the future of peacekeeping?" *France 24*, April 9, 2015.

<Figure 1> Head of UN PKO Hervé Ladsous to inspect UAVs deployed to MONUSCO

* Source: MONUSCO/Sylvain Liechti, 2013

In addition to direct deterrence against rebels, the UAV detected illegal checkpoints and mining, investigated destroyed villages, and helped identify rebel positions and weapons. In FIB's attack operations, UAVs provided real-time situational awareness.[41] UAVs sent images to mobile terminals owned by soldiers on the ground during operations, which helped FIB observe the M23 rebels' movements and avoid ambush attacks.

The deployment of the FIB equipped with UAVs have greatly helped MONUSCO's campaign to neutralize various rebel groups that pose a major threat to eastern DRC. Then, it is essential to consider whether the same performance of using UAV could apply to other peacekeeping missions. Three issues to consider based on lessons from the DR Congo case: (a) utilizing UAVs for military

41) Hervé Ladsous, *Briefing to the Security Council on the Use of Unmanned Aerial Systems in the Democratic Republic of the Congo* (New York: United Nations, 2014).

purposes, (b) mixing military and humanitarian use, and (c) using data. In addition to these three, the cost of acquisition of expensive high-tech UAVs is also an important consideration.[42] However, the cost burden of UAVs has limited application to other technologies or equipment, so it was excluded from this discussion.

The first issue is the use of digital equipment for military purposes. Since 1999, the UN Security Council has granted all multidimensional peacekeeping missions a Chapter 7-based mandate of the use of force.[43] The international community needs to agree on whether UAVs in enforcement operations are legal and appropriate under the Security Council mandate, which has left open the possibility of armed use in the name of the POC. The UN PKO made a successful case of mandate implementation through the use of force in Cote d'Ivoire in 2011.[44] At that time, however, attack helicopters were the most advanced equipment, and there was no discussion on digital technologies such as UAVs. Therefore, in the absence of experience and consensus on the military use of UAVs, it is necessary to discuss whether they can be deployed into offensive operations for civilian protection.

Secondly, it is a blurred mix of military and humanitarian uses. UAVs may or may not be armed depending on the assigned mandate. MONUSCO's UAV operated completely unarmed but carried out offensive operations with the FIB. However, it has been used for humanitarian purposes beyond the scope of the original Security Council mandate. For example, when a passenger ship sank in Lake

42) Andrews (2017), pp. 1-10.

43) Lise Morjé Howard and Anjali Kaushlesh Dayal, "The Use of Force in UN Peacekeeping," *International Organization*, Vol. 72, No. 1 (2018), pp. 71-103.

44) Kyoung-Seok Ha, "Enforcing Peace in Cote d'Ivoire: The Role of UN Peacekeeping (UNOCI) in Conflict Resolution (in Korean)," *Journal of the Korean Association of African Studies*, Vol. 61 (2020b), pp. 271-298.

Kivu in 2015, MONUSCO's UAV was deployed for rescue operations, and in 2014 drones were provided to support NGOs with humanitarian projects.[45] This may be accepted for a good purpose at first glance. However, the use of digital equipment inconsistent with its original mandate may harm the perception of the UN's impartiality, causing distrust with the parties to the dispute or neighboring countries. To avoid this negative impact, UN DPO needs to establish strict standards for the utilization rules of unmanned digital equipment like drones and robots.

The third is the use of accumulated data. All UAVs have the durability to perform surveillance activities in the air for hours with cameras and sensors. Furthermore, massive amounts of data are stored and analyzed. It is a similar property to digital equipment for surveillance and sensitivity purposes. However, the very existence of collected data is a sensitive subject for a sovereign state. It is bound to provoke a debate about who can manage and own the information collected. In addition, there is a possibility that greater responsibility will be passed on to the UN PKO, and it will face harsh criticism if insurgent raids or ambushes occur despite the massive collection of information using digital devices. This is a subject that must be considered by the UN when utilizing digital devices for data collection in hostile environments.

V. Conclusion

Gone are the days of traditional PKOs, when peacekeepers patrolled buffer zones between the two parties to the conflict. Instead, the

45) O'Grady (2015).

reality is that the state or rebel forces are intertwined with various actors, and UN peacekeepers are facing much more complex and multidimensional tasks. Under this reality, integrating digital technology into peacekeeping is a critical challenge for the UN PKO's capacity building and implementing the Security Council mandate of robust peacekeeping. With the development and dissemination of digital technology, the UN PKO has entered an era in which it can be exposed to adversaries using new technologies if it does not accept innovation quickly.

A case of using UAVs in DR Congo shows that the introduction of digital surveillance equipment is a valuable investment for successful operations and has further upgraded peacekeeper capability. If this is used more actively by PKO in the future, it is likely to help maintain the safety of troops and implement the mandate to protect civilians in dangerous conflicts. However, as we have seen before, before the active introduction of digital technology, the United Nations should fully consider each of the interests and Human Rights-related issues held by various actors. In particular, the use of digital data, military use, and transition to humanitarian purposes will need to be consulted with interested parties to avoid being embroiled in fairness disputes or misuse of information. Digital technologies such as UAVs have many positive aspects for UN peacekeeping but must be implemented effectively and carefully.

Furthermore, to manage and deal with digital technology in PKO, a new system and training process are needed to understand and apply technological innovation well within the UN system. To seize the momentum, transforming the structure that can be systematically embodied in the management of peacekeeping missions is necessary. A good example is found in the innovation department installed in UNICEF. UNICEF Innovation Department employs tech-savvy professionals

from Silicon Valley to study innovative skills like blockchain and digital mapping to support its relief missions. The department chief reports directly to the head of UNICEF.[46)]

If technological innovation begins to be applied properly to conflict zones after sufficient consultation processes, the UN Peacekeeping operations equipped with digital military technologies will be more effective in implementing its mandate: conflict settlement and protecting civilians.

46) Author's interview with Dr. Do-Hyung Kim, a Software Engineer at UNICEF Innovation Department (January 2020).

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디지털 기술 혁신과 유엔 PKO: 가능성과 딜레마

하경석 | 고려대 일민국제관계연구원 선임연구원

디지털화(digitalization)를 통한 군사 기술의 혁신은 유엔 평화유지활동(PKO) 작전 수행의 효율성을 높이고 지속가능한 평화를 수립하기 위한 기회를 제공한다. 그러나 동시에 보안 환경을 불안정하게 할 수 있고 평화활동 자체에 위협을 줄 수 있는 상당한 위험 요인을 동반한다. 개인정보 보호문제, 해킹 및 남용을 통한 군사기술의 악용 가능성부터 무인항공기(UAV: Unmanned Aerial Vehicle)를 통한 공격 시 윤리적 이슈 그리고 디지털 기술의 도입으로 인한 군사 효율성의 증진이 가져올 PKO 인력 축소에 대한 병력공여국(특히 개발도상국)의 우려까지 다양한 기술적, 윤리적, 정치적 문제가 산재하고 있다.

이에 본 연구에서는 디지털 기술혁신이 국제사회의 평화활동, 특히 유엔의 평화유지활동(PKO)에 갖는 가능성과 쟁점에 대해 살펴보고, 디지털 기술을 PKO 작전에 실제 활용한 DR콩고 MONUSCO의 무인항공기(드론) 활용사례를 분석한다. 유엔 안전보장이사회는 DR콩고 동부 지역의 반군을 효과적으로 무력화하기 위해 전투 목적의 무력개입여단(FIB)을 전개하면서 무인항공기를 투입하였다. 무인항공기는 반군이 쉽사리 공격하지 못하게 하는 억지력을 제공하고 적의 거점 등 주요정보를 확보하는 데 기여하였으나, 동시에, 디지털 장비의 군사적 활용, 군사적-인도적 목적의 혼합적 운영, 축적된 데이터의 활용과 관련한 중요한 쟁점을 제기하였다. 본고에서는 유엔의 무인항공기 운영 사례 분석을 통해, 디지털 군사기술 혁신이 유엔의 PKO에 갖는 도전 과제와 의미는 무엇인지 살펴보고, 디지털 기술혁신이 작전수행과 평화안보 증진에 실질적으로 기여할 수 있는 조건에 대해 논증한다.

주제어: 유엔PKO, 군사기술, 디지털화, 무인항공기, DR콩고

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