WHITE PAPER

Technology and Medical Capacities to Enhance UN Peacekeeping

International Peace Institute[1]

This white paper is an independent input to the next United Nations Peacekeeping Ministerial-level Meeting on 7-8 December 2021 in Seoul, Republic of Korea.

The Secretary-General has put forward A4P+ as a new implementation strategy for A4P. In this context, the objective of the 2021 Ministerial is to strengthen UN peacekeeping, including by improving the performance and impact of UN operations; closing capability gaps through concrete pledges; facilitating new partnerships and strengthening existing ones; and promoting systemic changes that will improve operations.

This white paper aims to help member states plan for and prepare to make concrete, meaningful and impactful pledges in the areas of technology and medical capacity building at the 2021 Ministerial.[2] This white paper provides examples of what is currently in use and of current needs; these demands will continue to emerge and evolve. The paper does not represent the views of the Republic of Korea or any of the ministerial co-hosts.

Today, the majority of UN peacekeeping missions are deployed in complex, high risk environments that have compelled the UN to better integrate technology into its field operations, in order to improve situational awareness; enhance camp and convoy security; provide stable internet and integrated communication networks; strengthen conflict monitoring and analysis; promote energy efficiency and reduce environmental pollution; and provide training and capacity building in these areas and other areas.

The 2021 ministerial will take place amidst the Covid-19 pandemic, which has exacerbated many of the challenges faced by UN peacekeeping missions in implementing their mandates, from ensuring the safety and security of personnel to protecting civilians. UN peacekeeping missions, and troop and police contributing countries, are adapting to the risks and operational disruptions posed by the pandemic. Covid-19 has spurred the rapid adoption of available technology for day-to-day communication, remote work, and other routine tasks. The pandemic has also underscored the critical role of the UN's medical infrastructure, and the importance of greater self-sufficiency at a time when the national health infrastructure of many of our partners and host countries is under stress.

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[1] This paper was draft by Jake Sherman, IPI Senior Director of Programs. The author would like to acknowledge the extensive input provided by the UN Secretariat to ensure that the paper reflects current and emerging priorities.

[2] To help inform member states' pledges, IPI has also commissioned papers on the role of UN peacekeeping in sustaining peace (by Richard Gowan, ICG, and Daniel Forti, IPI), improving the performance and impact of UN peacekeeping operations (by Alison Giffen, CIVIC), and training and capacity building (by Arthur Boutellis, IPI). These papers are intended to complement Ministerial-related documents circulated to member states by the United Nations Department of Peace Operations, including the Concept Note and Pledging Guide.

The white paper is divided in two parts: The first section of the paper addresses support to technology and innovation in UN peacekeeping in the areas of i) safety and security, ii) conflict monitoring, analysis, and forecasting, iii) technology training and capacity building; iv) "ecotech" to improve the energy efficiency and environment footprint of missions, and v) understanding and preparing for trends in the use of technology by adversaries.

The second section covers UN medical capacity building, including i) training and preparedness, ii) improving women's healthcare for UN personnel; iii) medical planning capacity, and iv) technology-supported healthcare; and v) strengthening mental health capacity in UN missions.

Both sections examine the current state of play and recent trends, and identify priorities and recommendations for how member states together with the UN can move towards more impactful partnerships on technology and medical capacity building.

I. Supporting Technology and Innovation in UN Peacekeeping

1. Current state of play and recent trends

Technological solutions support UN peacekeeping operations in implementing their mandates in complex environments, including by helping them to adapt to changing conflict dynamics, anticipate and mitigate security risks to personnel and civilians, and take advantage of increased efficiencies. As UN peace operations usually operate over enormous distances, digital technologies can contribute to better communication and closer cooperation as it connects each corner in the area of operation. At the same time, the rapidly evolving technological landscape in host societies and globally, and the use of technologies by a range of political and security actors, contributes to the complexity of peacekeeping environments and the risks faced by peacekeepers.

The UN, as the Secretary-General reported in 2020, "has already benefited from rapid advances in solutions such as unarmed, unmanned aerial vehicles to detect threats and identify targets; threat detection systems that help protect forces and the civilian population; integrated peacekeeping-intelligence solutions that enhance safety and security of peacekeepers, protection of civilians, and situational awareness; and collaboration platforms that promote information as strategic mission assets. New challenges and opportunities in the areas of cyber defense, information fusion and big data, and technology for force protection are emerging."[3]

The 2015 report of the Expert Panel on Technology and Innovation in UN Peacekeeping initiated a process of integrating technology and innovative solutions into UN field missions in a more systemic manner[4]; conclusions echoed by the High-level Panel on Peace Operations.[5] These efforts were reinforced by the 2017 "Santos Cruz" report, which underscored the **urgency of providing troops with basic technological capabilities** to improve situational awareness, night

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[3] United Nations, "Overview of the financing of the United Nations peacekeeping operations: budget performance for the period from 1 July 2018 to 30 June 2019 and budget for the period from 1 July 2020 to 30 June 2021," A/74/736, para 61, https://undocs.org/A/74/736
[4] United Nations, "Final Report of the Expert Panel on Technology and Innovation in Peacekeeping," https://peacekeeping.un.org/sites/default/files/performance-peacekeeping_expert-panel-on-technology-and-innovation_report_2015.pdf
[5] United Nations, "Report of the High-level Independent Panel on Peace Operations on uniting our strengths for peace: politics, partnership and people," http://www.un.org/en/ga/search/view_doc.asp?symbol=S/2015/446

operation capability, camp and convey security, and command and control as means to improve the security of UN peacekeepers.[6]

The Secretary-General's management reforms established the **Office of Information and Communication Technology** (OICT), which consolidated ICT functions for UN headquarters and field missions that were previously split between two departments. In response to the rapidly growing role of digital technology, for good and ill, Secretary-General Antonio Guterres has led several system-wide initiatives, including the Data Strategy, the Strategy on New Technologies and the 2020 Roadmap on Digital Cooperation.[7] These initiatives provide a framework for how peacekeeping should approach these issues.

The UN is currently in the process of developing a **Strategy for the Digital Transformation of UN Peacekeeping**, which seeks to "to create a conducive environment for the integration of innovative technology in peacekeeping in support of mandate implementation"[8] over the coming years, building on ongoing initiatives. To advance the use of technology across Action for Peacekeeping (A4P), the strategy will guide ongoing digital technology initiatives, and is focused on four goals: (i) driving innovation to effectively implement mandates, including improved safety and security and analysis; 2) maximizing the potential of current and new technology, including through training, capacity building and improved access; 3) better understanding threats to civilians, political processes, and peacekeepers, including improved situational awareness and tools to address mis/disinformation and hate speech; and 4) ensuring responsible use of technology through the development of principles and guidelines. Implementation of the digital strategy will require partnership with member states, including funding to manage the transformation process, to capture evolving needs of missions, to match those needs with technological solutions and member state support, as well as stay abreast of evolving technological trends.

One of the primary means of matching member state support for technology solutions with UN priorities, especially at the field level, is the **Partnership for Technology in Peacekeeping project**, established in 2014. Through the project, the UN has partnered with member states to host five international symposia to identify innovative solutions to identified challenges facing peacekeeping. Member states are engaged in partnerships with the UN to provide technology solutions to address the current and emerging needs of missions, from small-scale high-impact projects based on member state financial support, to longer-term strategic cooperation in which member states have worked in partnership with the UN to provide specific capacities and expertise. Examples of initiatives include the C4ISR Academy (previously the UN Signals Academy), the UN Open GIS initiative, as well as projects like the development of rapidly deployable modular command centers and of an advanced threat detection system. Solutions need not be expensive or complex, fulfilling gaps in basic technology like perimeter cameras and

[6] United Nations, "Improving Security of United Nations Peacekeepers,"
https://peacekeeping.un.org/sites/default/files/improving_security_of_united_nations_peacekeepers_report.pdf
[7] United Nations Data Strategy of the Secretary-General for Action by Everyone, Everywhere,
https://www.un.org/en/content/datastrategy/images/pdf/UN_SG_Data-Strategy.pdf ; United Nations, Secretary-General's
Strategy on New Technologies, https://www.un.org/en/newtechnologies/images/pdf/SGs-Strategy-on-New-Technologies.pdf; United Nations,
Road map for digital cooperation: implementation of the recommendations of the High-level Panel on Digital Cooperation, A/74/281 (May 2020),
https://documents-dds-ny.un.org/doc/UNDOC/GEN/N20/102/51/PDF/N2010251.pdf?OpenElement
[8] Communication provided by UN DPO.

lighting, emergency communication, and night vision capabilities.[9] To address the emerging digital gap among T/PCCs, a mix of T/PCC- provided assets and those procured by the UN is needed.

More can be done to fully take advantage of the opportunities created by the integration of technology into peacekeeping: to improve consistency in how data is collected, managed, stored and accessed, to address gaps in connectivity and capability across T/PCCs, to ensure interoperability, sustainability and accessibility, and to manage the risks and vulnerabilities that increased reliance on data and related software and hardware entails, including privacy and compliance with human rights principles.

Recent UN efforts to integrate technology in support of peacekeeping and current trends are examined below for the following areas, which the UN Department of Peace Operations has identified as priorities: i) safety and security, ii) conflict monitoring, analysis, and forecasting, iii) technology training and capacity building; iv) "ecotech" to improve the energy efficiency and environment footprint of missions, and v) understanding and preparing for trends in the use of technology by adversaries.

a. Safety and security (A4P theme: safety and security)

Peacekeepers face significant security risks in contemporary peacekeeping environments. The integration of technology into peacekeeping missions, especially in high-risk contexts, has improved situational awareness, enhanced early warning, and improved survivability following incidents.

In response to increasing attacks on peacekeepers and related casualties, the 2017 Santos Cruz report observed that, "Knowing know who is who, where and when will make it possible to prevent attacks and identify attackers." The report argued that, "A lack of tactical peacekeeping-intelligence, including due to an over-emphasis on high-tech peacekeeping-intelligence collection methods with little tactical value, prevents leadership and personnel from detecting, avoiding, and countering threats."[10]

Under the Partnership for Technology in Peacekeeping project, several pilot projects were established in United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) and United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA) to provide comprehensive sensor packages, including radar, camera, and infrared for camp security, and to improve overhead protection of UN peacekeeping bases throughout Mali.

Long range sensors and cameras are being used to provide early warning of incoming artillery, rockets and mortars during day and night, giving advance notice to UN personnel and enabling them to take adequate protective measures to reduce loss of life and injury. Building on this

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[9] The Santos Cruz report called for the United Nations to "review and initiate efforts to rapidly equip troops with basic technology for improving security…Appropriate vehicles, special rifles for snipers, special ammunition, night vision capability to operate during the night, and laser aim, among other forms of technology, are needed."

[10] Santos Cruz Report

technology, a pilot is underway in UN Support Office in Somalia (UNSOS) to use artificial intelligence to provide real-time analysis from multiple sensors, including video feeds, to improve the accuracy of information and alerts.

Situational awareness has been improved through the use of **tethered aerostats and endurance micro unmanned aircraft systems**. Equipped with day and night cameras, these systems have been deployed in MINUSMA and MINUSCA to enhance force protection, contribute to peacekeeping-intelligence, as well as protection of civilians. They have proven effective in hazardous, remote environments.[11]

While such capabilities have been introduced in some bases, they are less likely to be present in smaller, more remote or temporary bases. The Office of Peacekeeping Strategic Partnership (OPSP) has noted that "[i]n the absence of adequate monitoring and surveillance technologies, uniformed personnel may be overly relied upon for camp protection," which can limit their availability for patrols and other operational tasks related to mandate implementation.[12]

The use of **tactical and medium-altitude long-endurance drones** are being used to provide situational awareness in several missions, including MINUSMA, MINUSCA and the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO), through military letters of assist and memoranda of understanding, as well as under commercial contract. Smaller, more affordable UAS are increasingly being used to support IED disposal teams, provide perimeter security for camps and facilities, for surveillance, including to protect civilians, for convoy protection, patrols, evacuation, and 3D imaging.[13] The UN has developed a regulatory framework to improve the generation, procurement and management of UAS capabilities, including incorporation of these systems into the new aviation manual, a forthcoming manual on military aviation units, and updating aviation standards to cover UAS.[14]

The adopting of digital technologies has improved the safety and security of convoys, providing the ability to plan and track movements, including using GIS and other data sources to look at routes ahead of time and in tandem with **reliable, secure communications**, provide near real-time threat updates.

Improvised explosive devices pose an acute and evolving threat to peacekeepers. **Specialized counter-IED technology, equipment and related training,** including for surveillance, forensics, disruption, mitigation and safe disposal, enable peacekeeping mission to mitigate this threat. In addition to mine-protected vehicles and body armor, examples, include the use of unmanned ground vehicles to locate and disarm IEDs, electronic counter-measures, and ground radar and UAS able to detect signs of IEDs. Yet, while such technology is necessary to better prepare peacekeeping missions, it is not sufficient to entirely eliminate the risks from IEDs. These capabilities must be complemented by pre-deployment awareness and mitigation training, including to identify indications of IEDs along routes, to vary routes, and tailor medical

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[11] A/74/736, para 65
[12] Note to USGs DPO and DOS – Systemic Issues Paper III, on file with the author.
[13] A/74/736 para 68
[14] A/74/736 para 71

training.[15] Some UN member states already address the threat of IEDs as pre-deployment training for other TCCs. In-mission training is also required for those TCCs that acquire such equipment to meet SURs without the ability to properly use, maintain and report it. The UN Mine Action Service's holistic threat mitigation framework has led to a significant reduction in casualties since 2016 despite an increase in incidents. UNMAS's **SMART IED Threat Mitigation Technology Roadmap (SMiTMiTR)** aims to improve information sharing on effective IED threat responses for the entire UN system by sharing open access, unclassified information, "connect[ing] users in need of technological solutions with current research and available technologies."[16] Further streamlining such training and technologies into peace operations would promote a common understanding of the risks of IEDs and the use of suitable technology to prevent and mitigate those risks.

At the 2021 Seoul ministerial meeting, member states could support the UN in **matching technological solutions** to challenges faced by field missions in the following areas:

- As early warning systems to protect camps move from member state-provided services under Letters of Assist to commercial contracts, member state support is still necessary to **provide military, police or civilian technical expertise to operate and service these systems**, including for protection technologies, secure network and camp security, and geospatial information services (GIS).
- Additionally, member states with appropriate capacities could partner with the UN in the **identification and development of artificial intelligence capabilities** to analyze multiple streams of information about potential threats in real time.
- To ensure the responsible use of data, member states could support the UN in the development of **safeguards to ensure data confidentiality and privacy**, including through sharing of best practices and provision of technical support.
- Member states should also consider pledges of **basic enabling technology**, including **night vision systems**, to address equipment gaps in deploying contingents and ensure that UN peacekeeping missions are able to maintain an operational advantage, both for their own security and the protection of civilians.

b. *Conflict monitoring, analysis and forecasting (A4P themes: protection of civilians and sustaining peace)*

In response to hostile operating environments characterized by attacks on both civilians and peacekeepers, UN peacekeeping missions must be able to collect and analyze various sources of information to enhance understanding of their operating environment, and inform decisions on overall mission strategy and day to day operations, often in real-time. The **Unite Aware** technology provides a secure, standardized platform to integrate diverse information sources across mission civilian, police and military components. Piloted in MINUSCA in 2019, Unite Aware can facilitate the sharing of information throughout the mission, and delivery of analysis,

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[15] Lisa Sharland (2015) Counter-IED Technology in UN Peacekeeping: Expanding Capability and Mitigating Risks, International Peacekeeping, 22:5, 587-602.
[16] https://unmas.shorthandstories.com/-smart-ied-threat-mitigation-technology-roadmap----smitmitr--/index.html

reporting and visualization to support timely decision-making. The phased rollout of United Aware to other peacekeeping missions is being planned.

The "**SAGE" platform**, in use since 2013, enables peacekeeping missions to track and provide data-visualization of incidents. Military, police and civilian components can use the web-based database to log incidents, events and activities. Over time, the system could be used by mission leadership to identify trends and indicators for early warning.[17]

Nonetheless, digital tools face several challenges that hinder their effectiveness. Data often remains fragmented: different mission components operate different databases that are not linked into a single system accessible to the mission as whole. At times, these different systems are not interoperable. They also lack consistent guidelines for how data is managed, stored and accessed. Data collection can be inconsistent and unreliable, undermining the quality of the output. Such data needs to disaggregated to provide for accurate understandings of threats based on gender, age, ethnicity, and other markers. Peacekeepers face challenges shifting through the growing volume of information collected. Data collection also raises unresolved ethical concerns about what kinds of information should be collected and under what circumstances. Overcoming these challenges requires developing a culture of "differentiated sharing," and reorienting the use of data from informing specific activities to improve overall impact.

Addressing misinformation, disinformation, and hate speech are increasingly important in mission environments, given their potential to trigger threats to the safety and security of peacekeepers, to erode mission credibility or legitimacy, and to provoke widespread violence. In Mali, fake tweets attributed to MINUSMA claimed a new prime minister had been named after the May 2021 coup in Mali.[18] False rumors have likewise accused the mission of working with violent extremist groups. Elsewhere, peacekeepers have been falsely accused – at times maliciously – of shooting at protesters, complicity with non-state armed groups in attacks on civilians, and spreading Covid-19. In response to these incidents, missions have effectively used differentiated communication channels – radio, Twitter, Whatsapp, etc. – to issue timely, transparency, factual information to target audiences, including in local languages.

Improved peacekeeping mission capacity is also being developed to **monitor key stakeholder sentiment** in areas where the UN is deployed, including to counter hate speech or incitement to violence through mining social media and radio transmissions in local languages. The UN Secretary-General's **Strategy and Action Plan on Hate Speech** "identifies the need to use technology to understand the relationship between the misuse of social media for spreading hate speech and the factors that drive individuals to violence."[19] UN headquarters has led efforts to support missions with monitoring and assessment of misinformation, disinformation and hate speech, including through the provision of training, though such efforts remain ad hoc.

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[17] Duursma, A. and Karlsrud, J., 2019. Predictive Peacekeeping: Strengthening Predictive Analysis in UN Peace Operations. *Stability: International Journal of Security and Development*, 8(1), p.1. DOI: http://doi.org/10.5334/sta.663
[18] https://benbere.org/dossiers-benbere/benbereverif/benbereverif-faux-tweet-nest-pas-minusma/
[19] Eleonore Pauwels, "Artificial Intelligence and Data Capture Technologies in Violence and Conflict Prevention", Global Center on Cooperative Security, September 2020. According to Pauwels, "The combination of emotion analysis, natural language processing (NLP), and speech and voice recognition technology allows for the mining of content within traditional and social media. These data streams comprising conversations, thoughts, and behaviors can help map local attitudes toward conflict and analyze emerging tensions, alliances, and divisions. They can also identify leaders and movements in fractured societies."

Effectively countering such narratives, however, requires analytic tools to understand where such communication is coming from, and where the levers are (e.g., who's seeking to influence who for what ends). An analytic tool being piloted in MINUSMA enables the mission to **"mine" local radio transmissions** in near real-time to provide insight into public sentiment across a range of issues relevant to implementation of the mission's mandate.[20] Such tools can help missions inform senior leadership designs about priorities and approaches, design and tailor their strategic communication, and give early warning of potential security risks. However, identifying the sources, recipients and means of disseminating such messaging is increasingly difficult, due to the use of encrypted platforms and channels, while "deep fakes" are becoming more easy to produce and distinguish from reality.

In the context of the 2021 UN Peacekeeping Ministerial, member states could support the effective use of technology for conflict monitoring and analysis by:

- Supporting the expansion of the Unite Aware platform to other field operations, including through **secondment of uniformed staff officers working on situational awareness**, **planning staff** that can support the integration of technology-supported information into day-to-day operations, and support for **pre-deployment training courses** on Unite Aware.

- Financially supporting the expansion of the UN's ability to **detect, analyze and respond to potential disinformation and hate speech**, including by providing guidance and advice on technology tools, or funding the training for or providing personnel in the field of data analysis.

c. Technology training and capacity building (A4P themes: performance, protection of civilians, safety and security)

Training peacekeepers in the use and maintenance of technology are critical factors for the stable utilization of technology in field missions. Appropriate pre-deployment and in-mission training programs are necessary to ensure that peacekeepers have the competency to effectively use and benefit from basic and more advanced technology, to minimize maintenance requirements, to ensure continuity when personnel rotate. However, the UN still requires a more systematic approach to determine which personnel require which skills, and who should provide the training. Such training needs to complemented by knowledge sharing and learning platforms across missions to build awareness and comfort levels with technological tools.

The **UN Signals Academy**, a deliverable of the Partnership for Technology in Peacekeeping, was established in 2015 to address gaps in military signals and information & communications technology (ICT) capabilities of T/PCCs. The Signals Academy has since focused on providing specialized training to uniformed personnel; in 2021, the focus will be on strengthening capacity on **command, control, communications, computers, intelligence, surveillance, and reconnaissance** (C4ISR) and camp security technology, and has been renamed the UN C4ISR

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[20] A/74/736, para 61

Academy. The academy is introducing online training courses, including in French, on PKISR, micro-drone operations, Unite Aware and radio-frequency spectrum management. A fully equipped Mission Operations Center Simulation Training Environment is being built at the Signal Academy facility in Entebbe to provide immersive training and exercises for mission uniformed operations center staff. Under the Partnership for Technology in Peacekeeping, a project to introduce rapidly deployable **Modular Command Centers** provides a **reliable, fully integrated communication network** for command and control in environments without permanent infrastructure. The MCC connects different systems in use by different TCCs and UN entities, across radios, smartphones, and computers.[21]

Member states should consider the following pledges at the 2021 UN Peacekeeping Ministerial:

- To improve uniformed and non-uniformed personnel's knowledge about how to use technology deployed in UN peacekeeping missions, member states could make available **trainers** on basic ICT systems, data analysis, cyber security, peacekeeping-intelligence/surveillance/reconnaissance (PKISR), and use of unmanned aerial systems (UAS).
- Expertise is also required for the development of a series of **online training courses**, including in French, on ISR, use of micro-drones and UAS, camp security/early warning technology, and Unite Aware. Member state contributions can also support the development and sustainment of a **simulated Missions Operation Center** at the Regional Service Center in Entebbe to provide hands-on training for serving mission personnel in frontline operation centers. In general, the focus should shift towards online training as has been developed during the Covid-19 pandemic, as it is a cost effective, inclusive way of training.
- Member states could also consider **sustaining financial support for the UN C4ISR Academy.**

d. Eco-tech (A4P themes: performance and conduct)

Peace operations are responsible for nearly 54 percent of the UN system's greenhouse gas emissions.[22] The UN's **Environment Strategy** (2017-2023) sets out the vision for environmental management in peace operations, including energy, water and wastewater, solid waste, wider impact and the introduction of an environmental management system.[23] Phase I, completed in June 2020, focused on establishing mission-level baseline data on risk and performance, which has enabled reporting against identified key performance indicators.[24]

As part of the A4P Declaration of Shared Commitments, member states agreed to undertake "sound environmental management by implementing the United Nations Environmental Policy

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[21] United Nations, https://operationalsupport.un.org/en/partnership-initiatives
[22] Victoria Holt and Alex Hopkins, with David Mozersky and Sherwin Das, "Transitioning to Renewable Energy in United Nations Field Missions," Stimson Center and Energy Peace Partners, 2019. https://www.stimson.org/wp-content/uploads/2020/02/Powering-Peace-Interim-Report_0.pdf,
[23] DFS Environment Strategy, November 2017, https://peacekeeping.un.org/sites/default/files/171116_dfs_exec_summary_environment_0.pdf
[24] A/74/786, pp. 159-165.

for UN field missions" and "support environmentally-responsible solutions to our operations and mandate delivery."[25] The C34 has also encouraged "greater use of renewable resources in order to achieve more efficient use of energy and water, reduce waste production and improve health, safety and security of local communities and the United Nations personnel."[26] Use of alternative energy, including photovoltaic cells, will enable missions to reduce reliance on diesel generators, improving the environment footprint of missions, while reducing reliance on high-risk convoys to remote locations.

Technology is enabling UN peacekeeping missions to address their environmental impact, including through platforms like the Field Remote Infrastructure Management (FIRM) system, which deploys sensors to **predict equipment maintenance needs** and to **monitor and reduce the consumption of water, energy and fuel**. FIRM also enables early identification of risks in wastewater. The Secretary-General has stated, "there are plans to automate, to the extent possible, data collected, including to support the mission-wide environmental action plans and consolidate data sources to support in-depth analysis to inform decision making on environmental mainstreaming across all mission operations."[27] With extrabudgetary support from Member States, the UN Logistics Base is adapting the FIRM system into a "**UN Smart Camp**" programme of work, which "enables the connection of various infrastructure devices, sensors and systems through the Internet of things, optimizing the use of existing wireless infrastructure and creating more efficient and secure working environments for peacekeepers."[28]

The 2017 Contingent-Owned Equipment negotiations resulted in new reimbursement rates for the use of **more energy-efficient generator**s – though "there has yet to be a single case reported of a TCC or PCC bringing this type of hybrid solar-diesel generator to a field mission and applying for this new reimbursement."[29] **Shifting power generation** away from the current reliance on diesel to a greater share of renewable energy is cost-competitive, due to significant reductions in solar and wind power technology, would reduce emissions, mitigate risks associated with illegal taxation of fuel and attacks on supply lines, as well as provide entry points for peacebuilding.[30] Pilot activities to **capture and store renewable energy** in MINUSMA have the potential to reduce missions' dependence on diesel generators as an electrical power source, resulting in reduced fuel consumption, lower carbon emissions, and less reliance on potentially dangerous supply lines to transport fuel, generators, and spare parts.[31] **Triangular partnerships** between the UN, member states and the private sector, research organizations, and philanthropic sector could "accelerate renewable-energy development, innovation and investments, and … help identify new models and financing solutions that fit the unique challenges of field missions."[32]

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[25] United Nations, "Action for Peacekeeping Declaration of Shared Commitments on UN Peacekeeping Operations," https://peacekeeping.un.org/sites/default/files/a4p-declaration-en.pdf
[26] United Nations, "Implementation of the recommendations of the Special Committee on Peacekeeping Operations," A/73/480, November 2018, https://digitallibrary.un.org/record/1654451?ln=en
[27] A/74/736, para 61
[28] A/74/786, ,para. 76.
[29] Holt and Hopkins, pg. 46
[30] Holt and Hopkins, p. 35
[31] A/74/736, para 61
[32] Victoria Holt and Alex Hopkins, with David Mozersky and Sherwin Das, "Transitioning to Renewable Energy in United Nations Field Missions," Stimson Center and Energy Peace Partners, 2019. https://www.stimson.org/wp-content/uploads/2020/02/Powering-Peace-Interim-Report_0.pdf, p. 10.

Troop and police contributing countries should consider the following pledges at the 2021 UN Peacekeeping Ministerial:

- To **scale up of the "Smart Camp" program**, member states could provide expertise and financial contributions in facility support and management, and provision of stable, environmentally friendly energy sources.
- **Prioritize the use of renewable energy technology** for contingents (e.g., through "hybrid generators, solar, wind or hybrid mini-grids, or by connecting to and supporting the local grids of host nations"[33]), **support the deployment of such technology by other T/PCCs** (including through subsidizing deployment of such technology), and identify locations and opportunities to transition diesel-powered generators to renewable-energy systems.[34]

e. *Understanding trends in the use of technology by adversaries (A4P themes: protection, safety and security)*

Violent actors are rapidly adopting the use of a wide range of available technology, including social media, micro-drones, and cyberattacks. Technology is being used by conflict actors to recruit adherents, spread disinformation, conduct surveillance, undermine public confidence in legitimate authority, capture data, and sabotage critical infrastructure. In the near future, **artificial intelligence, predictive analytics, geospatial location, cyber capabilities, and automated weapon systems will pose new and additional risks for UN peacekeeping** missions. Such technology could also make it more difficult to determine responsibility and accountability for violations of international law. In several areas of emerging technology, international governance and regulatory frameworks are weak, nascent, or absent.

Both UN headquarters and missions need to stay abreast of the evolving use of technology by adversaries to identify emerging threats and opportunities. At present, such efforts are ad hoc. The UN Secretariat is examining the possible impacts of digital technology, including "the increasing use of social media by conflict actors, on the conflict environments of peace operations, and ways in which missions should adapt to better respond, including through the adoption and integration of digital technologies into their operations." [35] UN peacekeeping missions require the analytic competency and capacity "to understand the different environments involved and the technical, normative, operational, and tactical issues that come into play across those environments… it means broadening their scope of partners while also filling a massive cross-disciplinary analytical void to enable the kind of early warning and conflict analysis required to inform preventive action in the kinds of conflicts emerging today."[36]

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[33] Holt and Hopkins, p. x
[34] Holt and Hopkins, p. 12
[35] A/74/533, para. 116.
[36] Camino Kavanagh and Paul Cornish, "Cyber Operations and Inter-State Competition and Conflict: There Persisting Value of Preventive Diplomacy," EU Cyber Direct, September 2020.

Some member states may be in the position to provide expertise to help the UN anticipate, assess the risk of, and prepare for new and future trends in the use of technology by potential adversaries and spoilers, much of this information may be subject to classification, with sensitivities about what can be shared with the UN and how.

- Member states could support the development of the UN's capacity to monitor developments in the use of new technologies by **sharing threat assessments**, as well as by supporting the establishment of a **dedicated capacity, for example in the Assessment Team in the Office of Military Affairs (OMA)**, to identify trends or patterns in the use of technology by conflict parties, and advise missions on preparedness.

II. <u>Supporting UN Medical Capacity Building</u>

Improving the speed and quality of medical care for all personnel is a priority for the United Nations. Preventing and treating sickness, injury, and endemic diseases has always necessitated adequate medical care as an element of UN peacekeeping. Both the HIPPO and Santos Cruz reports identified gaps in medical support due to the changing nature of peacekeeping. Deployment in high risk and often remote environments, where peacekeepers may be directly targeted, has spurred significant improvements in UN medical support, including ensuring the competency of first responders, and more rapid CASEVAC and triage to stabilize causalities. The Santos Cruz report and UN Action Plan, as well as the Declaration of Shared Commitments all acknowledge the contribution of medical support to the safety and security of peacekeepers.

The Covid-19 pandemic has underscored the critical role of the UN's medical infrastructure, and the importance of greater self-sufficiency at a time when the national health infrastructure of many partner and host countries is under stress. In response to the significant public health challenges posed by the Covid-19 pandemic for the UN, troop and police contributing countries, and host countries and their communities, peacekeeping missions have adopted measures to carry out priority tasks, to mitigate the risk of transmission among peacekeepers and to host communities, and to support local preparedness, prevention and response.[37] The Department of Operational Support has worked to ensure missions are adequately supplied with personnel protective gear, Covid-19 testing kits, respiratory ventilators, and other supplies to ensure that peacekeepers have access to care, and strengthened medical evacuation capacities. These measures have helped contain and mitigate the spread of the virus among personnel serving in UN missions. Beyond their immediate mandated tasks, peacekeepers have also distributed emergency medical supplies, including to former combatants, and in some instances, have also helped host states to manage the health dimension of the pandemic.

1. **Current state of play and recent trends**

To improve medical response capabilities in peacekeeping missions, the UN has been **improving medical standards** and ensuring that deployed capabilities, including field medical facilities,

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[37] UN Department of Peace Operations, "Impact of Covid-19 on UN Peacekeeping," https://peacekeeping.un.org/en/impact-of-covid-19-un-peacekeeping

meet these standards. In order to ensure that UN medical personnel have the necessary skills, all medical personnel deployed in UN peacekeeping missions are credentialed by the Department of Operational Support. DOS has also developed and implemented new health care quality and patient safety standards, manuals, and training for member states. The department has also initiated health risk assessments of missions to better tailor health support plans to operating environments. Additionally, full-scale casualty evacuation stress tests have been conducted in MINUSCA, MINUSMA, MONUSCO and UNMISS to identify and rectify weaknesses in the medical chain of care. The stress tests identified four areas for strengthening: improving first aid training, improving casualty evacuation procedures, increasing aeromedical evacuation teams, and increasing the number of mobile surgical facilities, all of which were updated in the 2020 casualty evacuation policy.

The creation of the Department of Operational Support (DOS) Division of Healthcare Management and Occupational Safety and Health **consolidated medical policymaking and standard-setting functions with medical logistics for peace operations**, which were previously split between two departments. At Headquarters, additional medical planning capacity is needed to support the development of medical support aspects of mission concepts of operation and support plans, the planning and execution of medical logistics and procurement (including in response to Covid-19), and to coordinate and/or provide medical advice on projects to support troop and police contributor capacity – from pre-deployment and in-mission training materials, to development and implementation of technology-supported health services.

In the area of **medical training**, to improve immediate life-saving response, the UN has developed a **buddy first aid course** (BFAC) and held **master trainer courses** (i.e., to certify those who will deliver train-the-trainer courses). Certified master trainers are then able to provide training-of-trainer courses in their countries of origin. The UN also organized its first **field medical assistant course** (FMAC) in late 2019 under the triangular partnership programme. While on-site medical training courses were canceled during 2020 due to Covid-19, new remote and hybrid-delivery courses are planned for 2021. The courses provide skills intended to improve immediate life-saving responses after an incident and to stabilize patients for CASEVAC. The OPSP has noted that "the tremendous progress being made on trauma care can be buttressed further," by ensuring that T/PCCs equip their personnel with individual first aid kits of sufficient quality, continue to improve first aid training to provide life-saving measures, launch alert messages, and marking helicopter landing sites.[38]

The UN developed policy on standards for health care quality and patient safety in January 2020, and has held training sessions for prospective hospital commanders from TCCs on a new manual for healthcare quality and patient safety standards. In tandem, the UN has developed a hospital performance tool to monitor compliance with standards for healthcare quality and patient safety, which should ensure consistent and high-quality delivery of healthcare across all peacekeeping healthcare facilities.[39]

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[38] Note to USGs DPO and DOS – Systemic Issues Paper III, on file with author.
[39] A/75/786, para. 133.

To improve the quality of healthcare available to female uniformed and civilian personnel in UN peace operations, medical personnel in mission healthcare facilities require skills in gender-sensitive diagnosis, treatment and overall care of patients. Currently, the healthcare offered in missions does not always meet **women's health needs**. Diagnosis and treatments can different between men and women; sex-based biological factors can influence women's exposure to health risks, experience of ill health, access to health services, and health outcomes.

The prevalence of stress, anxiety disorders, trauma and post-traumatic stress disorder among UN personnel is receiving increased attention.[40] The UN established a **mental health and well-being** strategy in 2018 for civilian personnel, and has also introduced guidance to inform staff about mental health challenges. Nonetheless, further support is required to reduce stigma and promote more supportive work environments. According to recent analysis, "Counseling capacities remain limited, human resource rules and procedures are not always tailored to the needs of individuals in the field, and efforts to uphold the UN's duty of care have yet to trickle down to all levels of management."[41] Moreover, uniformed personnel are not covered under the existing strategy. Initial work is underway on PTSD. To extend mental health support to all peacekeepers, the UN is prioritizing development of a **mental health strategy for uniformed personnel**, covering wellness, prevention and mitigation during predeployment, deployment, and post-deployment.

To prevent and mitigate accidents and occupational hazards, including disease, illness, and harmful exposure, **occupational health and safety capacities** have also been strengthened. These risks have generally not received equal attention resources as those involving malicious or violent acts, despite the reality that occupational safety risks and health hazards are responsible for three times as many fatalities as malicious and violent acts, and ten times as many injuries and illnesses.[42] Consequently, occupational safety measures "have a far greater impact" on the reduction of fatalities and injury.[43] These measures include the provision of occupational safety and health advice for specific health and safety concerns in mission, and a new consolidated occupational health and safety incident reporting system, which is being rolled out in three trial missions. The data collected by the system "will be used to prioritize development of prevention-based workplace safety policies and standards for missions and allow senior managers to better manage the safety risks of operations."[44]

The collection and analysis of various categories of **electronic healthcare data** has the potential to dramatically improve the timely and appropriate treatment of illness and injury, as well to determine trends and develop strategies for prevention. As uniformed personnel do not currently have an electronic medical record system, which prevents the system from being effectively extended to them, a "light" electronic medical record system with less infrastructure and fewer training requirements is being developed.[45]

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[40] Namie Di Razza, "Mental Health in UN Peace Operations: Addressing Stress, Trauma, and PTSD among Field Personnel," International Peace Institute, December 2020.

[41] Ibid.

[42] Between 2000-2018, illness and accident were responsible for 1,550 fatalities, while malicious acts were responsible for 432.

[43] A/74/533, para. 71

[44] A/74/736, para 141

[45] A/75/786/, para 135

The United Nations has also initiated planning for **a telehealth system** to increase access to quality health care in peace operations, regardless of location. Such a system "allows long-distance patient and clinician contact care, advice, reminders, education, intervention, monitoring and remote admissions."[46] The use of telecommunications to deliver health-related services has the potential to improve general wellness, reduce casualties and improve survivability. Some UN member states have more than 25 years of experience on that matter, which could be channeled and shared with the UN through a group of friends or similar.

To enhance the provision of medical services in peacekeeping, the UN is developing a strategy and concept for a technology-based telemedicine system that would enable (i) field mission medical personnel to seek on-demand expert medical advice (including pre/post-surgery consultations, women's health, and psychological consultation) from a network of internationally-based healthcare providers; and (ii) enable frontline first responders and other medical personnel in remote locations, including level I+ facilities, to obtain "reach back" support from mission level II and III facilities.

2. Priorities and recommendations for UN medical capacity building

Although the UN currently has adequate commitments of UN medical units from troop contributing countries, it lacks support in finance, training, technology, and specific healthcare specializations. At the 2021 UN peacekeeping ministerial, member states, in addition to further developing medical support capacities to strengthen operational capabilities in general, could provide support in the following areas:

a. *Preventing and mitigating Covid-19 (A4P theme: safety and security)*

- To help mitigate the risk of Covid-19 transmission within peacekeeping missions and to host communities, member states are encouraged to provide supplies of **personnel protective gear** (masks and gloves), **Covid-19 testing kits,** and other supplies to ensure that peacekeepers have access to care. Member states should also consider pledges to strengthen medical evacuation capacities, including through the deployment of additional helicopters capable of casualty evacuations. In alignment with the Recommendations of the Group of Friends on Covid-19 Vaccination for Uniformed Personnel, all uniformed peacekeeping personnel should be vaccinated in-theater and prior to deployment.

b. *Training for medics and hospital units (A4P theme: safety and security)*

- Member states could support the **continuation of the field medic assistant training course**, through financial support and provision of experienced medical personnel as trainers. The course has been temporarily halted due to Covid-19 and related travel restrictions, though the UN is also exploring developing online training for some aspects of the course.

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[46] A/74/736, para 67

- To address gaps in training along the casualty evacuation chain, member states could also support the development of **pre-deployment training for level II and III hospital units**, including preparation to work in often remote, mobile operating environments, and to prevent and treat endemic diseases common to mission areas, such as malaria. Additional **in-mission training** may also be required to ensure that medical personnel are familiar in the equipment available in mission.

- Member states can also support the UN through its **Triangular Partnership Project in the area of medical support**, building on the success in other areas (e.g., training in engineering and signals). Through the light coordination mechanism, the UN could also assist in matching capacity building for TCCs deploying medical units. The UK collaboration with Vietnam on medical capacity under a two-year "advise, assist, and mentor" package is a best practice that could be replicated by other T/PCCs.[47]

c. *Mental health awareness and training (A4P theme: safety and security)*

- Member states could consider **seconding military psychiatrists or psychologists** to support the development and implementation of a UN mental health and well-being strategy for unformed personnel. Member states can promote improved mental health training and capacity building for T/PCCs, including supporting the development of a mental health module for the UN's comprehensive pre-deployment training (e.g., how to prevent, identify, and cope with stress, trauma, and other mental health issues). Member states could also support the development of a pocket card on symptoms and support structures.

d. *Improving medical support planning (A4P themes: safety and security, performance)*

- Member states should consider contributing **experienced medical support planning personnel** to bolster existing UN capacities, including through secondment to the Office of Military Affairs to work closely with the DOS Division of Healthcare Management and Occupational Safety and Health. As noted, such expertise would assist in the development of medical support aspects of mission concepts of operation and support plans, the planning and execution of medical logistics and procurement, including for Covid-19-related needs, and to coordinate and/or provide medical advice on projects to support T/PCC training and capacity-building. Medical planning capacity is also needed to support the development and implementation of technology-supported health services. Alternatively, virtual conferences/workshops tackling concrete aspects in medical support planning could help share national experiences with the UN.

e. *Technology-supported medical services (A4P theme: safety and security)*

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[47] The UK provided a two-year "advise, assist and mentor" package to Vietnam to prepare for their first deployment of a level II hospital. Additional support was provided by the United States in the form of equipment and by Australia in the form of language training and transport to UNMISS. Arthur Boutellis and Michael Beary, "Sharing the Burden: Lessons from the European Return to Multidimensional Peacekeeping," International Peace Institute, January 2020, p. 24, https://www.ipinst.org/2020/01/lessons-from-the-european-return-to-multidimensional-peacekeeping

- To address the rise in peacekeeper fatalities, member states could support the development of a **casualty tracking system** that would reduce mortality and morbidity in UN field missions by ensuring that personnel receive more timely and appropriate medical care following casualty events. The system would provide real-time information on who has been injured, where, and how severely, as well enabling first responders to access patient ID details, including blood group and allergies, in order to quickly identify what kind of medical facilities each patient needs and how urgently. During a mass casualty incident, it would also provide data on who is well and safe.

- Member states could provide financial support for implementation of an **electronic clinical adverse event reporting system.** The system would monitor untoward medical occurrences or reactions associated with the use of pharmaceuticals – one of the leading causes of death and disability globally, and would improve patient safety at all peacekeeping facilities by replacing the current paper-based reporting system. The system would also provide a means of aggregating and analyzing patient safety data to compare patient safety data, examine roles of system and human factors in patient safety, identify trends, and develop priorities and safety solutions.

- Member states can support, through extrabudgetary funding, the establishment of a **public health surveillance system** for UN peace operations. Covid-19 has underscored the importance of early detection of disease outbreaks through regular monitoring, in order to enable appropriate and timely response to protect UN personnel and host populations. Such a system would routinely collect, analyze and interpret standardized, de-identified, aggregated data and, in the long run, develop a system of mandatory reporting of notifiable diseases/health risks to enable early detection of disease, trends of illness and infection, and prevention and control programs. Over time, the system could be expanded to all UN duty stations.

- Member states could support the establishment of a confidential **electronic health records for patients** of TCC level 3 medical facilities**.** The system would improve overall healthcare management for uniformed personnel, and faster medevac and repatriation. It will enable remote consultations with specialists including obstetricians and gynaecologists where these specialties are not available locally, thus improving immediate care to women in the field. Following proof of concept, the system would eventually be rolled out to other TCC medical facilities.