

Predict . Prevent . Protect

28-31 May 2019 The Ritz-Carlton, Nur-Sultan, Kazakhstan











Department of Operational Support United Nations

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Independence Memorial. Nur-Sultan, Kazakhstan



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Welcome Note





Under-Secretary-General Department of Operational Support

United Nations

Welcome to the 5th International Partnership for Technology in Peacekeeping Symposium. I am sincerely grateful to our host, our newest partner in the Partnership initiative, the Republic of Kazakhstan.

The mandates that drive our operations are increasingly complex given the integrated and multi-dimensional aspects of both peacekeeping and peacebuilding. At the same time we operate, often, in unpredictable and hostile environments, with daily threats to United Nations civilian and military personnel.

Technology is a key driver of our efforts to become more efficient and effective in meeting these challenges. It is an effective vehicle for innovative and new solutions in support of field mission mandate implementation, the support of which is a key objective of the Department of Operational Support.

Given the transformative power of technology and the tactical importance of information and communication networks globally, this week's discussions promise exciting opportunities for all of us.

New information communication technologies, such as artificial intelligence and 3D printing, can be used for peaceful or for military purposes. Innovations intended for civilian applications, such as synthetic biology or facial recognition software, can also be repurposed for harmful outcomes. All these developments impact the role of the UN in conducting peacekeeping operations. Implementing an effective field-focused innovation and technology structure now will leverage effective technologies in support of peacekeeping operations, while developing an innovative culture as the foundation for supporting future operations.

I thank all of you for your willingness to partner with us. This initiative promises exciting and new opportunities to solve our collective problems.

Thank you for joining us. I wish you all an enjoyable and productive week.





Under-Secretary-General Department for Peace Operations

United Nations

My warmest welcome to the participants and guests of this exciting Symposium on the Partnership for Technology in Peacekeeping. I want to express my gratitude to the authorities of Kazakhstan for hosting this important event.

The Secretary-General's Action for Peacekeeping (A4P) initiative, launched in March 2018, underlines that partnerships are a key solution to the multitude of challenges that we face in our peacekeeping missions today, such as increasing threats, complex mandates, stalled political processes. This symposium is precisely an example of the type of partnership that is needed to ensure that peacekeeping can most efficiently address the challenges it faces in the field. New technologies can and will play an increasingly important role in making our missions more effective, efficient, nimble, innovative and flexible. As set out in the A4P Declaration of Shared Commitments, which has been endorsed by 151 governments and partner organizations so far, we require the strong, collective action from all peacekeeping stakeholders. We need your support to be able to make UN peacekeeping fit for the future. I look forward to engaging with you on these important issues during this symposium. I want to take the opportunity to thank you all for joining us this week in Nur-Sultan, Kazakhstan, and for your commitment to this partnership and to United Nations peacekeeping.





Major-General Nurlan Yermekbayev

Minister of Defence

Republic of Kazakhstan

Dear Participants,

It is our great honour to welcome you all, our distinguished guests to Nur-Sultan for the 5th International Symposium on Partnership for Technology in Peacekeeping. Kazakhstan is privileged to host this symposium together with the UN Department of Operational Support and the UN Department of Peace Operations, to both of whom we express our appreciation for this very productive collaboration.

With a deep sense of commitment to the UN and the ideals of multilateralism that Kazakhstan stands for, it is only natural that our country has stepped forward to bring Member States together to deliberate on one of the most important pillars of the UN, peace and security, and especially peacekeeping, its most important tool. We are proud that Central Asia for the first time is hosting this symposium, in the true spirit and principle of regional representation.

Kazakhstan has been participating in a range of UN peacekeeping missions for ten years now, starting with United Nations missions in Nepal (in 2009), Cote d'Ivoire (2015-2016), on referendum in Western Sahara (since 2014), and most recently, in UNIFIL in Lebanon (since 2018).

Though a new and young troop contributing country, we will expand our own contributions towards strengthening UN Peacekeeping through innovative approaches and building partnerships. Kazakhstan joins others in the larger effort to modernize peacekeeping for greater responsiveness, efficiency, accountability and relevance. So holding this symposium in Nur-Sultan is a clear demonstration of our commitment.

The theme of this year's symposium - "Partnership for Technology in Peacekeeping: Predict. Prevent. Protect" - is most relevant because the current challenges demand new innovations and strategies. There have been many efforts to improve UN peacekeeping with specific recommendations, and corresponding reforms and changes; but the death toll continues to remain high. Hence the discussions on how peacekeeping technology can be harnessed to acquire in-depth data analysis, gather information, counter IEDs, and promote eco-responsibility and telehealth are very timely.

Fortunately, a new wave of technology is driving rapid global change, creating platforms for multilateral cooperation, not only in sustainable development but also just as dramatically in peace and conflict, international security, and global governance.

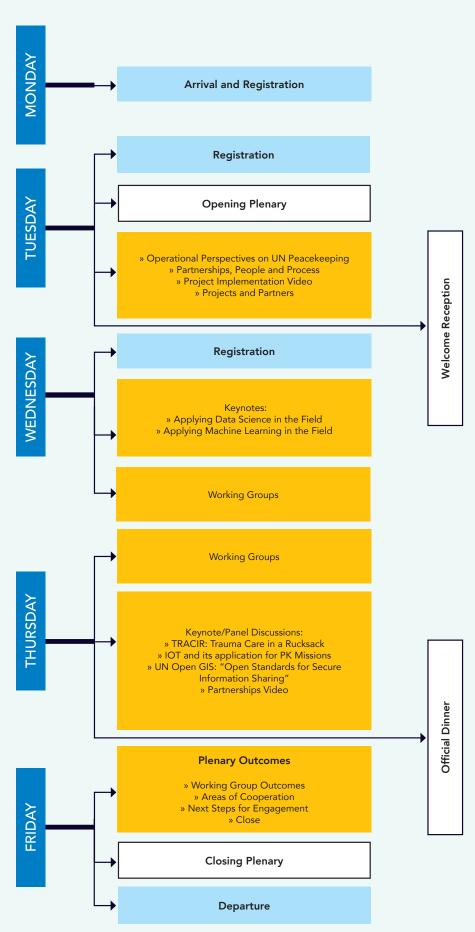
This symposium will address how these technologies, innovations and new developments can best be mobilized, where, how and under what circumstances, together with the mechanisms, resources and capacity building that are called for.

Our event, with its participants will come forward with guideposts for the future, and thus it promises to be most thought provoking and marks a quantum leap forward in new frontiers in peacekeeping to which we are all deeply committed.

I wish you productive discussions and fruitful outcomes!



Agenda at a Glance



Working Group Topics

We have five in-depth topics and panel discussions that will provide you with the opportunity to dive in. We've divided each topic into two working group sessions that cover important areas that you, as technical professionals, will focus on.

Build your agenda based on your specific needs and areas of interest.

Focus on the strategic insight that supports the development or implementation of an
actionable plan.

Sponsor or engage in a project and/or initiative.

 Walk away with actionable ideas for the topics, projects and initiatives that you are most interested in.

Interact with colleagues from other member states and UN staff.

- Moderated discussions are for exchanging ideas and best practices with your peers with a focus on the reality and challenges in peacekeeping today.
- Working group sessions and coffee breaks offer small scale and interactive opportunities to drill down on specific topics.

Big Data Analysis in Peace Operations

Global trends in advanced analytics, predictive modelling, statistical algorithms and what-if analysis powered by high-performance analytics systems will be included in the discussions. This working group will present planned initiatives to utilize big data analysis and data science methods in support of peace operations.

Emerging Technologies and Eco-Responsibility

Peacekeeping environments provide a unique opportunity to test and pilot innovative initiatives. This working group will look at some of the more frontier solutions and will identify various environmental protection opportunities including leveraging the Internet of Things (IOT) to monitor utilization and consumption of valuable resources.

Enhancing Military-Peacekeeping Intelligence Practices Utilizing Technology

Military-Peacekeeping Intelligence provides critical information to allow decision makers to take appropriate actions. Technology plays a part. This working group will review technology options in support of Military-Peacekeeping Intelligence including tools and training.

Improvised Explosive Devices (IED) and the Relationship to Other Asymmetric Threats

Improvised Explosive Devices (IED) pose a grave threat to many peace operations. The threat evolves as armed elements adjust to the counter measures implemented. This topic aims to discuss current developments in IED threat management and mitigation.

Telehealth in Peace Operations

Telehealth encompasses the use of a broad range of technologies to support and promote clinical health care and patient and professional health-related education in challenging and remote locations. Technologies, such as videoconferencing, store-and-forward imaging, streaming media, and terrestrial and wireless communications. Having the best possible medical care available to UN deployments and practical options to support the delivery of technology supported medical services will be reviewed by this working group.

Opening Remarks

Tuesday







Mr. Atul Khare

Under-Secretary-General Department of Operational Support

United Nations

Mr. Atul Khare has served the United Nations in various capacities. He served as Chief of Staff and Deputy Special Representative of the Secretary-General with the United Nations Mission of Support to East Timor (UNMISET) from June 2002 until its completion in May 2005. In December 2006, Mr. Khare was appointed as the Special Representative to the Secretary-General and Head of the United Nations Integrated Mission in Timor-Leste (UNMIT), serving until December 2009.

Mr. Jean-Pierre Lacroix

Under-Secretary-General Department for Peace Operations

United Nations

Mr. Jean-Pierre Lacroix is the Under-Secretary-General for Peacekeeping Operations. Mr. Lacroix brings to the position over 25 years of political and diplomatic experience, with a focus on multilateral organizations, and United Nations activities and programmes. Mr. Lacroix served from 2014 to 2017 as Director for United Nations, International Organizations, Human Rights and Francophonie at the French Ministry of Foreign Affairs. His previous appointments include Ambassador of France to Sweden, Chief of Protocol of France, Deputy Permanent Representative at the Permanent Mission of France to the United Nations in New York, Deputy Chief of Mission at the French Embassy in Prague and First Secretary then Second Counsellor at the French Embassy in Washington.

Major-General Nurlan Yermekbayev

Minister of Defence

Republic of Kazakhstan

Major-General Nurlan Yermekbayev was born in 1963 in Shymkent city. He graduated with honors from the Military Institute of the Ministry of Defense of the USSR in 1986, Kazakh State Academy of Architecture and Civil Engineering in 1996. In 2001-2014 Nurlan Yermekbayev headed the Embassies of the Republic of Kazakhstan in China, Vietnam, North Korea and Singapore. In 2016-2018 - Minister for Religious and Civil Society Affairs of the Republic of Kazakhstan. He worked twice as Assistant to the President - Secretary of the Security Council of the Republic of Kazakhstan from 2014 to 2016 and from April to August 2018. On August 7, 2018, he was appointed as Minister of Defence of the Republic of Kazakhstan.





Thursday



Major-General Timur Dandybayev

Deputy Minister of Defence

Republic of Kazakhstan

Born June 2 1969, in the village of Kirov, Kaskelensky district, Alma-Ata region. In 1990 Major General Dandybayev graduated from the Volsk Higher Military School of Logistics. In 2001, he graduated from the University of Humanities, named after D. Kunaev, with a specialty in jurisprudence and in 2006 from the Royal College of Defense Studies (London, UK) and in 2013 he graduated from higher academic courses at the National Defense University with a specialty in military security for the state.

Mr. Anthony O'Mullane

Director, Operations Support Division, Office of Information and Communications Technology

United Nations

Mr. Anthony O'Mullane has worked for the United Nations for 25 years in ICT, 21 years of which were with United Nations Peacekeeping Operations, beginning in 1994 in the Balkans, where he was deployed in Croatia, Bosnia and Kosovo. In subsequent years he has served in UN missions in Sierra Leone, Pakistan/India, Afghanistan and Lebanon before moving to the New York Headquarters in 2014 to work for the Chief Information Technology Officer (CITO) of the United Nations and was involved in the latter part of the development of the organization's ICT strategy as Director, Global Operations Division.

Yerzhan Ashikbayev

Deputy Minister of Foreign Affairs

Republic of Kazakhstan

Yerzhan Ashikbayev was born on June 16 1974 in Almaty, Kazakhstan. In 1998, he graduated from the Al-Farabi Kazakh State National University with BA degree in International Relations. In 2012, he graduated with master's degree in Public Administration from the John F. Kennedy School of Government at Harvard University as the "Bolashak" Scholar. Yerzhan Ashikbayev started his career at the Ministry of Foreign Affairs of the Republic of Kazakhstan in 1998 as a desk officer at the Asia, Middle East and Africa Division of the Fourth Department. From 1999 to 2001, he held consecutive positions of Attaché, Third and Second Secretary at the Department for International Economic Cooperation.



Tuesday

11:15 11:45 13:30

Operational Perspective on UN Peacekeeping



Lieutenant General Carlos Loitey

Military Adviser and Assistant-Secretary-General

United Nations

LtGen Loitey graduated from the Military Academy of Uruguay as an infantry Lieutenant on the 21 December 1977. As a junior officer, he served in the 3rd, 9th and 14th Infantry Battalions as a platoon and company commander and as a free-fall paratrooper and jump master. In 1993, he attended the Command and Staff Course at the Uruguayan Staff College in Montevideo and subsequently the Armed Forces War College, and he has extensive command and staff experience. As a Major, he was Deputy Commander of the 14th Infantry Parachute Battalion in Toledo and, in 1999, as a Lieutenant Colonel he commanded the 15th Mechanized Infantry Battalion. As a Colonel, he commanded the 1st Infantry Brigade from 2006-2009, and as a Major General he commanded the 2nd Army Division which, was stationed on the border with Argentina.

A Technology Strategy for the United Nations



Ms. Atefeh Riazl

Chief Information Technology Officer and Assistant-Secretary-General

Office of Information and Communications Technology, United Nations

On 9 May 2013, Secretary-General Ban Kimoon appointed Ms. Atefeh Riazi, a United States national born in Iran, as Chief Information Technology Officer, Assistant Secretary-General, Office of Information and Communications Technology, Department of Management.Ms. Riazi brings with her wide-ranging experience in the public and private sector, with a focus on leading complex organizational change involving large departments in challenging environments to deliver vital business transformation through the use of innovation and technology. She started her professional career with the Metropolitan Transit Authority of New York City.

Technology - Enabling mandates - Supporting the Peacekeeper



Mr. Simon Mulongo

Deputy Special Representative for African Union Commission Chairperson (DSRCC) and Deputy Head of African Union Mission to Somalia (AMISOM)

United Nations

Mr. Simon Mulongo is the Deputy Special Representative for African Union Commission Chairperson (DSRCC) and Deputy Head of African Union Mission to Somalia (AMISOM). He leads the substantive units of the mission and is one of the key players in the Somali Transitional Plan (STP). The STP stipulates gradual handover of security responsibilities from AMISOM to Somalia security forces as dictated by the United Nations Security Council Resolutions and eventual exit. Mr. Mulongo is a national security professional with wide experience in defence and security assignments in the Great Lakes Region and the Greater Horn of Africa.

14:00 15:30

Peace Operations in an Asymmetric Environment - Responding to evolving and innovative threat patterns



Mr. Seamus McMenamin

Operations Planning Officer with the United Nations Mine Action Service (UNMAS) at the United Nations Interim Force in Lebanon (UNIFIL)

United Nations

Seamus McMenamin has over 20 years experience as a military officer, C-IED expert and United Nations staff member. 'Shay' holds an honors degree in safety and risk management, a post graduate diploma in ordnance mechanical engineering as well as qualifications in project management and chemical biological radiological and nuclear threats. With extensive experience as a high threat Improvised Explosive Device Disposal operator, Shay brings his knowledge and leadership to the United Nations in support of Peace Operations. Shay has served in a diverse range of theaters in the Middle East and Africa including South Sudan, Somalia and Lebanon, both in military and civilian roles.

Every Patient, Everywhere - the potential reach and impact of UN telehealth



Dr. Jillann Farmer

Director, Division of Healthcare Management and Occupational Safety and Health, Department of Operational Support

United Nations

Dr. Jillann Farmer is the Director of the Division of Healthcare Management and Occupational Safety and Health (DHMOSH) for the United Nations, based at the headquarters in New York. Prior to this, she was the Medical Director of the Patient Safety Centre in Queensland Health, and the inaugural Director of the Clinician Performance Support Service. Jillann worked for the Medical Board of Queensland, building the Health Assessment and Monitoring Program for management of registrants with illnesses that impact their ability to practice. She also lead a program of national reforms that address the way Medicare Australia interacted with Practitioners whose practice had been identified as significantly different to peers.

Partnerships, People and Processes



Mr. Eduardo Artigas

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Chief Business Relationship Management Section, Regional Service Management Service

Office of Information and Communications Technology, United Nations

Mr. Eduardo Artigas is the Chief Business Relationship Management Section, Regional Service Management Section of the Office of Information and Communications Technology. With more than 28 years of Peacekeeping experience, 15 of them in the field, Mr. Artigas worked in Missions in Middle East, Southeast Asia, Africa and Central America. Previously Chief ICT in UNTSO (Jerusalem), UNLB (Italy) and MINUSTAH (Haiti). Before joining UN, he was the technical Director of the Uruguayan Radio State Network. His current focus is on new technologies in support of Peacekeeping Operations.

Wednesday

9:05 10:00 10:45

Applying Data Science in an Operational Field Environment



Mr. Alejandro (Alex) Jaimes
Senior Vice President of A.I. and Data
Science

Dataminr, United States

Mr. Alejandro (Alex) Jaimes is SVP of Al &

Data Science at Dataminr. Alex is a scientist, keynote speaker, and engineering executive with 15+ years of international experience in research (Columbia U., KAIST) and product impact at scale (Nauto, DigitalOcean, Yahoo, Telefónica, IDIAP-EPFL, Fuji Xerox, IBM, Siemens, and AT&T Bell Labs) in the USA, Japan, Chile, Switzerland, Spain, and South Korea. He has published and presented 100+ technical papers in journals and to top-tier conferences which, focus on diverse topics in Al. Alex has been featured widely in the press (MIT Tech review, CNBC, Vice, TechCrunch, Yahoo! Finance, etc.). He has given 50+ invited talks all over the world, including talks at several O'Reilly conferences (AI,

Strata, Velocity), the Deep Learning Sum-

mit (Re-Work), Tech Open Air, and Stan-

ford, Cornell and Columbia Universities.

Sentiment Analysis and Hate Speech Technologies



Dr. Paula Hidalgo-Sanchis

Manager, United Nations Global Pulse
Lab Kampala

United Nations

Dr. Paula Hidalgo-Sanchis works as Manager of Pulse Lab Kampala, a Lab under the United Nations Global Pulse network. She has worked as humanitarian and international development practitioner for over 18 years based in Africa, Asia and America. With working experience as Manager of Innovation Initiatives, Social Policy Advisor for Governments and Analyst with the UN and a private Foundation Paula is passionate about promoting innovations for human development. Paula has worked supporting peace and security in several countries including Afghanistan, Somalia and DPRK. She holds a P.h.D. in Geography and Master's degree on international assistance.

CubeSats – Application for solving pressing challenges in Peacekeeping



Mr. Amirkhan Temirbayev

Director of Science and Technology

Al-Farabi Kazakh National University

Born on April 27 1986. 1991-2003, attend-

ed schools with physical and mathemat-

Kazakh National University

ical bias. In 2003, applied to the Faculty of Physics of the al-Farabi KazNU. In 2007, graduated with honors from the Faculty of Physics and in the same year he became a master's degree student. Doctoral thesis of A.A. Temirbayev "Synchronization in the system of radio-technical generators with global and non-linear communication" was defended in October 2012 by the specialty "6D060400-Physics". In the dissertation thesis A.A. Temirbayev, for the first time, experimentally discovered self-organized quasi-periodic dynamics in a real physical system. For the first time, a non-linear connection between generators was experimentally studied. From October

2012 to January 2015 he worked as the

head of the KazNU laboratory of engineer-

ing profile.

Thursday

11:15 11:45 13:30

Connecting the future: 6G Flagship Project



Dr. Medhi Bennis

Associate Professor at the Center for Wireless Communications

University of Oulu, Finland

Dr. Medhi Bennis is an Associate Professor at the Centre for Wireless Communications, University of Oulu, and an Academy of Finland Research Fellow. His main research interests are in radio resource management, heterogeneous networks, game theory and machine learning in 5G networks and beyond. Medhi has co-authored one book and published more than 200 research papers in international conferences, and journals. He was the recipient of the 2015 Fred W. Ellersick Prize from the IEEE Communications Society, the 2016 Best Tutorial Prize, the 2017 EUR-ASIP Best paper Award and the 2017 Oulu University research award.

Intro to the Working Groups: Structure, Goals, and Outcomes



Mr. Stefan Lemm

Head of Military Operations Unit, Operations Support Division, Office of Information Communications Technology

United Nations

LtCol(GS) Lemm served in the Bundeswehr for more than 31 years, and has held command positions at company and battalion level and at the ministry of defense, when taking over the Military Element of ICTD. He ensures the close cooperation between OICT/OSD and the DPO/Office of Military Affairs. His priority areas of responsibilities are peacekeeping mission support, especially supporting the efficient use of technology in peacekeeping.

TRACIR: Trauma Care in a
Rucksack. A closed loop
autonomous and robotic
controlled CPR platform utilizing
Unmanned Aerial Vehicles



Dr. Ron Poropatich

University of Pittsburgh

United States

Dr. Ronald Poropatich is the Director of the Center for Military Medicine Research, Health Sciences and Professor of Medicine in the Division of Pulmonary, Allergy, and Critical Care Medicine at the University of Pittsburgh, and also serves as a Senior Advisor for Telemedicine, University of Pittsburgh Medical Center. He served 30 years on active duty in the U.S. Army retiring in 2012 at the rank of Colonel and led the U.S. Army telemedicine program across 22 time zones. Dr. Poropatich received his medical degree from Drexel University and completed all his medical training at the Walter Reed Army Medical Center.

Panel Discussions

Thursday, 14:00

A Fireside Chat on Emerging Technologies: Leveraging Start-up Potential

Panel: Ms. Galina Ozgur, Dr. Ki-Joune Li

Moderator





Venture Scout

Aera VC , United States

Ms. Galina Ozgur is a startup mentor, advisor and technology ecosystem builder with a focus on establishing, managing and expanding startup innovation programs with a global vision. Based in New York, Galina is currently sourcing and evaluating startup dealflow on behalf of the New Zealand fund Aera VC, focusing on ventures improving society or the environment with transformative technology and business models. Galina's most recent experience includes serving as Entrepreneur in Residence with 500 Startups + Sberbank Accelerator Program in Moscow and delivering ecosystem development consulting for the World Bank in Belgrade, Serbia.



Dr. Ki-Joune Li

Department of Computer Science and Engineering

Pusan National University, Republic of

Professor Ki-Joune Li is working at the Department of Computer Science and Engineering of Pusan National University, Republic of Korea. In 1984 and 1986 he received his bachelor's and master's of science degree in computer sciences from Seoul National University, Korea. In 1992 he earned a Ph.D. in spatial databases from INSA de Lyon, France. Li has been working on GIS and spatial databases and serving as the project leader of inous (INdoor-OUtdoor Service) R&D initiative as well as serving as chair of OGC IndoorG-ML standard working group and IPIN/ISC Indoor Map Subcommittee.

Thursday, 15:00

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UNOpen GIS: Open Standards for Secure Information Sharing

Panel: Dr. Maria Antonia Brovelli, Prof. Ki-Joune Li, Mr. Pekka Sarkola, Dr. HaeKyong Kang

Moderator



Dr. Maria Antonia Brovelli
Professor of GIS and Digital Mapping
Politecnico di Milano, Italy

Degree with honors in physics, Ph.D. in geodesy and cartography. She is Professor of GIS and digital mapping at the Politecnico di Milano (PoliMI) and member of the School of Doctoral Studies in data science at "Roma La Sapienza". From 2011 to 2016 she was Vice Rector of PoliMI for the Como Campus. She is the chair of IS-PRS WG IV/4; member of ESA ACEO and of GeoForAll Advisory Board; chair of the UN Open GIS Initiative "Capacity Building WG", Deputy-Chair of the UN-GGIM Academic Network. She is leading many national and international projects and is the author of 88 scientific publications.



Mr. Pekka Sarkola
CEO, Gispo Ltd.
OSGeo, Finland

Mr. Pekka Sarkola is a distinguished expert in geospatial sciences and engineering with more than 20 years of professional experience in the field. Besides serving as Senior Advisor for geospatial intelligence, Mr. Sarkola has substantial working experience from implementing geospatial solutions for sectors such as defense and aviation. Currently, he is the CEO of Gispo Ltd., the leading open source geospatial solutions provider in Finland. Additionally, he presides over the Finnish association for open source geospatial software (OSGeo Finland).



Dr. HaeKyong Kang

Korea Research Institute for Human
Settlements, OpenGDS

UN Open GIS, Korea

Dr. HaeKyong Kang works for the Korea Research Institute for Human Settlements (KRIHS) supervised by the prime minister's office and is funded as a research fellow by the government of the Republic of Korea. She is serving as a program manager of OpenGDS R&D Group in developing open source GIS software alongside 80 researchers from nine organizations. She is responsible for the Secretariat of the UN Open GIS Initiative which aims to develop open source GIS solutions for UN operations.

Working Group Moderators

Big Data Analysis in Peace Operations



Mr. Stefan Lemm

Head Military Operations Unit, Operations Support Division of the Office of Information and Communications Technology - Lead



Mr. Micheal Giurgea

Client Support Manager, Dataminr



Dr. Paula Hidalgo-Sanchis

Manager UN PulseLab Kampala **United Nations Global Pulse**





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Emerging Technologies and Eco-Responsibility



Ms. Jacquelyn Amoko

Chief, Environmental Technical Support Unit, United Nations - Lead



Mr. Kyoung-Soo Eom

Chief Geospatial Services, Operations Support Division of the Office of Information and Communications Technology



Mr. Nicola Testa

Associate Environmental Engineer, United **Nations Global Service Center, Department** of Operational Support



Mr. Abdul Hameed Tutakhail

Chief Service Management United Nations Global Service Center, Department of **Operational Support**

Sangkeon Lee

Korea Research Institute for Human Settlements (KRIHS)

Enhancing Military Peacekeeping



Major Ellen Regeling

Assessment Officer, Office of Military Affairs – Assessment Team, United Nations, Lead



Mr. Timur Obukhov

Officer-in-Charge, Geospatial Analysis Unit, Operations Support Division of the Office of Information and Communications Technology



Wing Commander Sally Courtnadge

ISR expert, Office of Military Affairs – Assessment Team, United Nations



Chief Geospatial Analysis Unit, Operations Support Division of the Office of Information and Communications Technology

Improvised Explosive Devices (IED) and the Relationship to Other Asymmetric Threats



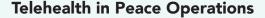
Col Jose Antonio Latorre

Deputy Chief, Policy and Doctrine Team, Office of Military Affairs, United Nations, Lead



Mr. Bryan Sand

Senior Advisor, UN Mine Action Service (UNMAS), United Nations





Dr. Jillann Farmer

Director, Division of Healthcare Management and Occupational Safety and Health, Department of Operational Support, United Nations, Lead



Dr. Mark Elcock

Retrieval Services Queensland, Australia



Mr. Daniel Best

Retrieval Services Queensland, Australia



Dr. Karen Waite

Ontario Telehealth Services, Canada

Conference Organizers



Ms. Katrina Miles

Conference Organizer and Moderator

Military Operations Unit, Operations Support Division of the Office Information and Communications Technology, United Nations



Mr. Dalibor Petrovic

Conference Media and Communications Support

Project Management Office, Operations Support Division of the Office Information and Communications Technology, United Nations



Mr. James J Smith

Conference Logistic Support

Military Operations Unit, Operations Support Division of the Office of Information and Communications Technology, United Nations



Mr. Stefan Lemm

Conference Moderator Support

Head of Military Operations Unit, Operations Support Division of the Office of Information and Communications Technology, United Nations



LtCol Olzhas Khussainov

Head of International Cooperation Department

Ministry of Defence, Republic of Kazakhstan



Col Yerulan Akylbayev

Military Advisor, Permanent Representation of the Republic of Kazakhstan to the United Nations

Ministry of Defence, Republic of Kazakhstan



LtCol Ruslan Omirzakov

Chief of Euro-Atlantic Cooperation Section, International Cooperation Department

Ministry of Defence, Republic of Kazakhstan



LtCol Daulet Abdykadyrov

Chief of Protocol Directorate, International Cooperation Department

Ministry of Defence, Republic of Kazakhstan



LtCol Valikhan Baikenov

Chief of Protocol Section, International Cooperation Department

Ministry of Defence, Republic of Kazakhstan

Maj Almas Ismagulov

Senior Desk Officer of Protocol Section, International Cooperation Department

Ministry of Defence, Republic of Kazakhstan.



Senior Desk Officer of Euro-Atlantic Cooperation Section, International Cooperation Department

Ministry of Defence, Republic of Kazakhstan



Daily Agenda

Monday, 27 May 2019

8:00 - 16:00

Arrival of Participants and Registration

08:00 - 16:00	Registration	
09:00 - 10:00	Opening Remarks:	Mr. Anthony O'Mullane, Director of Operations Support Division of the Office of Information and Communications Technology
		Mr. Atul Khare, Under-Secretary-General Department of Operational Support, United Nations
		Mr. Jean-Pierre Lacroix, Under-Secretary-General Department for Peace Operations, United Nations
		MajGen Nurlan Yermekbayev, Minister of Defence, Republic of Kazakhstan
10:00 - 11:15	Group Photo, Coffee Break, Presser	
	Introduction of Speaker:	Anthony O'Mullane, Director OSD/OICT
11:15 - 12:00	Presentations:	 "Operational Perspective on UN Peacekeeping", Lt. General H. Carlos Loitey, Military Advisor and Assistant Secretary General, Office of Military Affairs, United Nations "A Technology Strategy for the United Nations", Ms. Atefeh Riazi, Chief Information and Technology Officer and Assistant-Secretary-General, Office of
		Information and Communications Technology, United Nations
12:00 - 13:30	Lunch Break	
	Introduction of Speaker:	Anthony O'Mullane, Director OSD/OICT
13:30 - 14:00	Presentations:	"Technology - Enabling mandates - Supporting the Peacekeeper", Mr. Simon Mulongo, Deputy Special Representative for African Union Commission Chairperson (DSRCC) and Deputy Head of African Union Mission to Somalia (AMISOM)
14:00 - 14:30		"Peace Operations in an Asymmetric Environment – Responding to Evolving and innovative threat patterns", Mr. Seamus McMenamin, Operations Plaening Officer with the United Nations Mine Action Service (UNMAS) at the United Nations Interim Force in Lebanon (UNIFIL)
14:30 - 15:00	Coffee Break	

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15:00 - 16:00	Presentations:	"Every Patient, Everywhere – the potential reach and impact of UN telehealth." , Dr. Jillann Farmer, Director, Division of Healthcare Management and Occupational Safety and Health, Department of Operational Support, United Nations
		"Partnerships, People and Processes, including, Implementation Video: Modular Command Centres", Mr. Eduardo Artigas, Chief Business Relationship Management Section, Regional Service Management Service, Office of Information and Communications Technology Division, United Nations
16:00 - 17:00	Introduction:	"Projects and Partners", Mr. Stefan Lemm, Head Military Operations Unit, Operations Support Division of the Office of Information and Communications Technology, United Nations
	Presentations:	"How Partners Can Help" , Mr. Stefan Lemm, Head Military Operations Unit, Operations Support Division of the Office of Information and Communications Technology, United Nations
18:00 - 20:00	Welcome Reception:	Maj. Gen. Timur Dandybayev, Deputy Minister of Defense, Republic of Kazakhstan Ms. Katrina Miles

Wednesday, 29 May 2019		
08:00 - 16:00	Registration	
	Welcome:	Ms. Katrina Miles
09:00 - 10:30	Keynote Presentations:	"Applying Data Science in an Operational Field Environment", Mr. Alejandro (Alex) Jaimes SVP of Al & Data Science at Dataminr, USA
		"Sentiment Analysis and Hate Speech Technologies", Dr. Paula Sanchis-Hildago, Manager, United Nations Global PulseLab Kampala, United Nations
10:30 - 10:45	Coffee Break	
10:45 - 11:15	Keynote Presentations:	"CubeSats – Application for solving pressing challenges in Peacekeeping", Mr. Amirkhan Temirbayev, Director of Science and Technology Park, Al-Farabi Kazakh National University
11:15 - 11:45		"Connecting the Future: 6G Flagship Project", Dr. Medhi Bennis, Associate Professor at the Center for Wireless Communications, University of Oulu, Finland
11:45 - 12:00		"Intro to the Working Groups: Structure, Goals, Outcomes", Mr. Stefan Lemm, Head Military Operations Unit, Operations Support Division of the Office of Information and Communications Technology, United Nations
12:00 - 13:00	Lunch Break	
	Moderated Disc	ussions: Working Groups
	Defining the role of technology solutions within the context of UN Peace Operations	
Working Group Meetings by Topic		leetings by Topic
13:00 - 16:00	"Improvised Explosive Devices (IED) and the Relationship to Other Asymmetric Threats"	
		Mitigation Technology Roadmap (SMiTMiTR): Presentation and discussion on the nexus gy and equipment in a common information and knowledge hub.
	Moderators	Col Jose Antonio Latorre, Deputy Chief, Policy and Doctrine Team, OMA
		Mr. Bryan Sand, Senior Advisor, UN Mine Action Service (UNMAS)

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13:00 - 16:00

"Enhancing Military Peacekeeping Intelligence practices through Technology"

"GEOINT technologies" — Presentation and discussion on Automated Change Detection, Analytics as a Service, Near-Future New Imagery Tech, National Capabilities and Tasking Options. Can and should we change the way we do military imagery peacekeeping-intelligence in the UN?

"Managing ISR data" — Presentation and discussion on Delivering the Secure Network, Making Sense of ISR Data and Storage Solutions.

Moderators Maj Ellen Regeling, Assessment Officer, OMA/AT - Lead

Wing Commander Sally Courtnadge, ISR expert, OMA/AT

Mr. Guillaume Criloux, Chief Geospatial Analysis Unit, UN Geospatial Information

Section, Operations Support Division, OICT, United Nations

Mr. Timur Obukhov, Officer-in-Charge, Geospatial Analysis Unit, UN Geospatial Information Section, Operations Support Division, OICT, United Nations

"Big Data Analysis in Peace Operations"

Applying Existing Big Data Technologies in Support of the United Nations — Presentation and discussion on Experiences made with United Nations Entities.

Big Data and AI/ML: Data Privacy and Protection regulations and Ethics Frameworks — A presentation of existing documents and discussion requirements

Moderators Mr. Stefan Lemm, Head Military Operations Unit, OICT/OSD - Lead

Dr. Paula Hidalgo-Sanchis, Manager UN PulseLab Kampala

Planned initiatives to utilize big data analysis and data science methods in support of Peace Operations

Moderators Mr. Stefan Lemm, Head Military Operations Unit, OICT/OSD

Mr. Michael Giurgea, Client Support Manager, Dataminr Dr. Paula Hidalgo-Sanchis, Manager UN PulseLab Kampala

"Emerging Technologies and Eco-Responsibility"

Challenges of Managing the Environment — The session discusses a range of technological efforts and challenges within Peacekeeping in the area of eco-responsibility.

How SMART can a UN camp get? — Beyond tags, what innovative solutions present the best opportunities for environmental performance improvement (and wider impact)?

Moderators Ms. Jacquelyn Amoko, Chief, Environmental Technical Support Unit, UN - Lead

Mr. Kyoung-Soo Eom, Chief GIS OICT/OSD

Presentations Ms. Jacquelyn Amoko, Chief, Environmental Technical Support Unit, UN - Lead

Prof. Young-Duk PARK of Korea Advanced Institute of Science and Technology (KAIST)

Dr. Sangkeon LEE of Korea Research Institute for Human Settlements (KRIHS)

"Telehealth in Peace Operations"

Telehealth to support emergency care in Field hospitals

Moderators Dr. Jillann Farmer, Director, Division of Healthcare Management and Occupational

Safety and Health, Department of Operational Support, United Nations

Speaker Dr. Mark Elcock, Retrieval Services Queensland, Australia

Technical Feasibility of telehealth implementation in remote locations

Moderators Dr. Jillann Farmer, Medical Director, United Nations

Speaker Mr. Daniel Best, Retrieval Services Queensland, Australia

16:00 - 16:30 Coffee Break

16:30 - 17:00 Plenary: Working Group Day 1 Outcomes and Wrap-Up, Mr. Stefan Lemm, Moderator

17:00 Cultural Activities/Executive Time

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Thursday, 30 May 2019

Moderated Discussions: Working Groups

Defining the role of technology solutions within the context of UN Peace Operations

Working Group Meetings by Topic

"Improvised Explosive Devices (IED) and the Relationship to Other Asymmetric Threats"

Current and Future Threats: Moving from reaction to prevention at the UN:

Presentation on current asymmetric threats to Missions and discussion on how the UN can move "left of the bang".

Moderators Col Jose Antonio Latorre, Deputy Chief, Policy and Doctrine Team, OMA

Mr. Bryan Sand, Senior Advisor, UN Mine Action Service (UNMAS

"Enhancing Military Peacekeeping Intelligence practices through Technology"

"Knowledge and Capacity Development" — Presentation and discussion on Interactive Online Training Environments, Generating Virtual Working Spaces to Share Knowledge, Digital Soldiers and a UN ISR Wiki Environment.

"Improving Analysis" — Presentation and discussion on basic and enhanced tools for analysis (including Software), Access to and Analysis of Publicly Available Information and Quick Wins Technology for Collection and Analysis.

Moderators Ms. Ellen Regeling, Assessment Officer, OMA/AT

Ms. Sally Courtnadge, ISR expert, OMA/AT

"Big Data Analysis in Peace Operations"

09:00 - 10:30

"Artificial Intelligence and Machine Learning (AI/ML) based Image Interpretation and Analysist" — Discussion on current methods, requirements for support and existing capabilities.

Moderators Mr. Stefan Lemm, Head Military Operations Unit, OICT/OSD

Dr. Paula Hidalgo-Sanchis, Manager UN PulseLab Kampala

Mr. Kyoung-Soo Eom, Chief UN Geospatial Information Section, Operations Support

Division, OICT, United Nations

Mr. Timur Obukhov, Officer-in-Charge, Geospatial Analysis Unit, UN Geospatial Information Section, Operations Support Division, OICT, United Nations

"Emerging Technologies and Eco-Responsibility"

"Returning maximum value" — Pulling on experience to assess how to use constrained resources and skills to deliver the highest positive impact on the environment.

Moderators Mrs. Jacquelyn Amoko, Chief, Environmental Technical Support Unit, UN Global

Service Centre, Department of Operational Support, United Nations - Lead Mr. Nicola Testa, Associate Environmental Engineer, UNGSC, United Nations

"Merging the physical and digital environments" — How can enhanced analytics change our capabilities to predict, protect and prevent?

Moderators Mrs. Jacquelyn Amoko, Chief, Environmental Technical Support Unit, UN Global

Service Centre, Department of Operational Support, United Nations - Lead

Mr. Abdul Hameed Tutakhail, Chief Service Management UNGSC

Mr. Ivan Zhdanov, Lead Digital Industrial Engineer, UN Environment, Crisis

Management Branch

	"Telehealth in Peace Operations"	
09:00 - 10:30	"Telehealth as a core service delivery mode of a healthcare system – the possibilities are endless"	
	Moderators	Dr. Jillann Farmer, Medical Director, United Nations, TBA
	Presenter	Dr Karen Waite, Ontario Telehealth Services, Canada
10:30 - 10:45	Coffee Break	
10:45 - 11:30	Working Groups Continue	
11:30 - 12:00	Plenary:	Working Groups Wrap-Up, Mr. Stefan Lemm, Moderator
12:00 - 13:30	Lunch Break	
13:30 - 14:00	Introduction to Speaker:	Dr. Jillann Farmer, DOS
	Presentation:	"TRACIR: Trauma Care in a Rucksack. A closed loop autonomous and robotic controlled CPR platform utilizing Unmanned Aerial Vehicles", Dr. Ron Poropatich, University of Pittsburgh, USA
14:00 - 14:45	Panel Discussion:	"A Fireside Chat on Emerging Technologies: Leveraging Start-up Potential", Ms. Galina Ozgur, Venture Scout at Aera VC, United States
14:45 - 15:00	Coffee Break	
15:00 - 15:45	Panel Discussion:	UN Open GIS: "Open Technologies for the United Nations",
		Dr. Maria Antonia Brovelli, Professor of GIS and Digital Mapping, Politecnico di Milano, Italy
15:45 - 16:00	Partnerships Video:	Ms. Katrina Miles
19:00 - 21:00	Formal Dinner	Mr. Yerzhan Ashykbayev, Deputy Minister of Foreign Affairs, Republic of Kazakhstan

Friday, 31	May 2019	
	Panel:	Outcomes and Areas of Cooperation, Mr. Stefan Lemm, Moderator
09:00 - 10:00		Dr. Jillann Farmer, Director, Division of Healthcare Management and Occupational Safety and Health, Department of Operational Support, United Nations
		Ms. Jacquelyn Amoko, Chief, Environmental Technical Support Unit, UN - Lead
		Dr. Paula Hidalgo-Sanchis, Manager UN Pulse Lab Kampala
		Department of Operational Support, United Nations – Lead
		Mr. Kyoung-Soo Eom, Chief Geospatial Services, Operations Support Division
		Office of Information and Communications Technology, United Nations
		Col Jose Latorre, Deputy Chief, Policy and Doctrine Team, OMA - Lead
		Maj Ellen Regeling, Assessment Officer, Office of Military Affairs
		Assessment Team, United Nations - Lead
10:30 - 11:00	Presentation:	"The Role of Procurement" , Ms. Niiara Abliamitova, Procurement Officer, SecurityTeam/Procurement Division
11:00 - 11:15	Coffee Break	
11:15 - 11:45	Presentation:	Next Steps for Engagement, Mr. Eduardo Artigas
11:45 - 12:30		Host Country Staff Appreciation
		Closing Ceremony with Remarks
12:30	End of Symposium	



Working Group Description

and Moderator Biographies

Big Data Analysis

This working group will present planned initiatives to utilize big data analysis and data science methods in support of peace operations. UN Global Pulse, an initiative of the Executive Office of the Secretary-General, the Operations Support Division of the Office of Information and Communications Technology OSD/OICT) and the Office of Military Affairs are partnering to develop and provide a sentiment analysis on peace operations. The discussion will cover what is already available, what is in the pipeline, discuss new ideas, as well as standardizing, sustaining and mainstreaming these solutions. Global trends in advanced analytics, predictive modelling, statistical algorithms and what-if analysis powered by high-performance analytics systems will be included in the discussions. How can current initiatives optimize impact and what steps are needed to plan for the future? How do we approach the integration of Al/ML into satellite imagery analysis?

Moderator

Mr. Stefan Lemm

Head Military Operations Unit

Operations Support Division of the Office of Information and Communications Technology - Lead

LtCol(GS) Lemm served in the Bundeswehr for more than 31 years, and has held command positions at company and battalion level and at the ministry of defense, when taking over the Military Element of ICTD. He ensures the close cooperation between OICT/OSD and the DPO/Office of Military Affairs. His priority areas of responsibilities are peacekeeping mission support, especially supporting the efficient use of technology in peacekeeping.

Mr. Micheal Giurgea

Client Support Manager

Dataminr

Michael leads client engagement across Dataminr's international public sector relationships. Within this capacity, Michael works directly with various stakeholders and user groups throughout the United Nations. Since joining the company, Michael has worked with thousands of users who are located on six continents.

Dr. Paula Hildago-Sanchis

Manager

UN PulseLab Kampala

Paula works as Manager of Pulse Lab Kampala, a Lab under the United Nations Global Pulse network. She has worked as humanitarian and international development practitioner for over 18 years based in Africa, Asia and America. With working experience as Manager of Innovation Initiatives, Social Policy Advisor for Governments and Analyst with the UN and a private Foundation Paula is passionate about promoting innovations for human

Emerging Technologies and Eco-Responsibility

Peacekeeping environments provide a unique opportunity to test and pilot innovative initiatives. This working group will look at some of the more frontier solutions and will identify various environmental protection opportunities including leveraging the Internet of Things (IOT) to monitor utilization and consumption of valuable resources. Strategies on changing individual and group behaviour to support eco responsible operations will be analyzed. The working group will also explore initiatives that reduce the organization's impact on host country environments, including smart camps, with a focus on water exploration and usage, power generation and waste water management. The role of analytics and frontier technologies will be discussed as the UN is excited to engage with Member States on their shared experience and proven solutions.

Moderator

Ms. Jacquelyn Amoko

Chief, Environmental Technical Support Unit

United Nations - Lead

Ms. Jacquelyn Amoko heads the Environmental Technical Support Unit at the UN Global Service Centre in Brindisi, Italy. The unit leads the energy, water & wastewater and solid waste pillars of the environment strategy for field missions.

Mr. Nicola Testa

Associate Environmental Engineer, United Nations Global Service Center

Department of Operational Support, United

Nicola is an Environmental Engineer with an master's from the Institute of Environmental Engineering in Turin, Italy, during which he was for 18 months the visiting student at the EPFL, Environmental Engineering Faculty, in Lausanne, Switzerland.

Prof. Young-Duk Park

Korea Advanced Institute of Science and Technology (KAIST)

Mr. Kyoung-Soo Eom

Chief Geospatial Services, Operations Support Division

Office of Information and Communications Technology, United Nations

Mr. Kyoung-Soo Eom has been serving as Chief of UN Geospatial Information Section since 2005 at UNHQ. He has over 35 years of technical and management experience in the public and private sectors as well as military service.

Sangkeon Lee

Korea Research Institute for Human Settlements (KRIHS)

Mr. Abdul Hameed Tutakhail

Chief Service Management United Nations Global Service Center,

Department of Operational Support, United Nations

Abdul Hameed Tutakhail is the Chief of Service Management at the United Nations Global Service Center in Brindisi Italy. Prior to this he was the Chief of Technology Development and Innovation. Abdul Hameed Tutakhail brings over 10 years of experience both from the private sector having worked for industry heavyweights.

Ivan Zhdanov

Lead Digital Industrial Engineer, UN Environment

Crisis Management Branch, DOS, United Nations

Enhancing Military-Peacekeeping Intelligence Practices Utilizing Technology

Miilitary-Peacekeeping intelligence (MPKI) provides critical information to allow decision makers to take appropriate actions. The UN is developing related policy, operating processes and procedures. Technology plays a part. Preserving the integrity of military-peacekeeping intelligence information and utilizing effective and integrated tools is critical from an operational perspective. This working group will review technology options in support of Military-Peacekeeping intelligence including tools and training. GEOINT and the image analysis capacity is a growing requirement in Peacekeeping missions. Specific questions to be explored are: How can technology support MPK intelligence knowledge development? What technologies can do to improve baseline MPKI skills, e.g. e-learning, online exercises reinforcing understanding, virtual training environment? How do we assess an integrated suite of specialist and analytical tools to support military-peacekeeping intelligence, e.g. analysis tools, IRM&CM tools, GEOINT software?

Moderator

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Major Ellen Regeling

Assessment Officer, Office of Military Affairs

Assessment Team, United Nations, Lead

Since 2016 Major Ellen Regeling works as an Assessment Officer with the Assessment Team of the Office of Military Affairs within the Department of Peace Operations. Her UN field experience includes the MINUSMA mission in Mali.

Mr. Guillaume Criloux

Chief Geospatial Analysis Unit, Operations Support Division

Office of Information and Communications Technology, United Nations

Wing Commander Sally Courtnadge

ISR expert, Office of Military Affairs – Assessment Team

United Nations

Wing Commander Sally Courtnadge joined the Royal Air Force in August 2000 as an Intelligence Officer. She has served in a wide variety of appointments and has specialised as an Imagery Analyst and an Intelligence, Surveillance and Reconnaissance (ISR) manager.

Mr. Timur Obukhov

Officer-in-Charge, Geospatial Analysis Unit, Operations Support Division

Office of Information and Communications Technology, United Nations

Improvised Explosive Devices (IED) and the Relationship to Other Asymmetric Threats

Improvised Explosive Devices (IED) pose a grave threat to many peace operations. The threat evolves as armed elements adjust to the counter measures implemented. This topic aims to discuss current developments on IED threat management and mitigation. It will assess other related threats that can accompany IEDs such as indirect fire, complex attacks or unmanned aerial systems, more frequently used to prepare or support IED attacks.

The questions to be explored include: What are the best available platforms to securely share threat information. How do we enhance Mission Situational Awareness? What are the best practices regarding civilian, police and military responses and tactics?

Moderator

Col Jose Antonio Latorre

Deputy Chief, Policy and Doctrine Team, OMA, Lead

Colonel Jose A Latorre is a Spanish Army officer serving in the Office of Military Affairs as Deputy Chief of Policy and Doctrine Team. He is also the UN IED Survivability Capability Development project manager. Graduated from Spanish Military Academy as Lt of Infantry in 1992, he served in Special Forces units for 14 years.

Mr. Bryan Sand

Senior Advisor, UN Mine Action Service (UNMAS)

Bryan Sand is the senior advisor to the Director of the UN Mine Action Service, and lead of UNMAS' IED Threat Mitigation Advisory Team. He has extensive experience in EOD and IEDD.

Telehealth encompasses the use of a broad range of technologies to support and promote clinical health care and patient and professional health-related education in challenging and remote locations. Technologies utilized include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications. In addition, aircraft, drones and other means can be utilized to deliver medical related goods and services. Options for providing access to specialist 24/7 medical expertise from field locations has been previously considered. Member States are focused on having the best possible medical care available to UN deployments with practical options to support the delivery of technology supported medical services to be reviewed by this working group.

Moderator

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Dr. Jillann Farmer

Director, Division of Healthcare Management and Occupational Safety and Health

Department of Operational Support, United

Dr. Jillann Farmer is the Director of the Division of Healthcare Management and Occupational Safety and Health (DHMOSH) for the United Nations, based at the headquarters in New York. Prior to this, she was the Medical Director of the Patient Safety Centre in Queensland Health, and the inaugural Director of the Clinician Performance Support Service.

Dr Karen Waite

Ontario Telehealth Services

Canada

Karen brings over 30 years of health care experience to a diverse client base in both public and private sectors. Karen is an advocate for the use of technology in driving health system improvement.

Mr. Daniel Best

Retrieval Services

Queensland, Australia

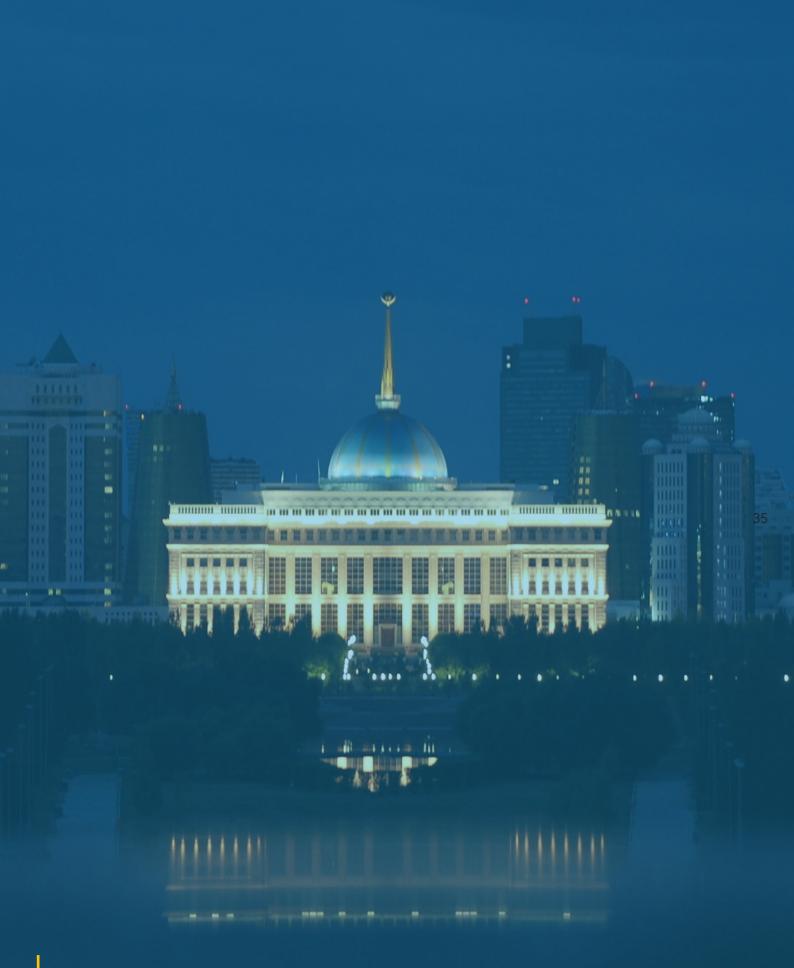
Daniel has over 13 years experience in the field of telehealth in Queensland, Australia. During this time he has worked across both government and non-government sectors where his passion has always driven him to the advancement of technology in the healthcare industry. He is currently working with Queensland Health in a leadership role to expand and refine fit-for-purpose technology to enable new telehealth models of care across the state.

Dr. Mark Elcock

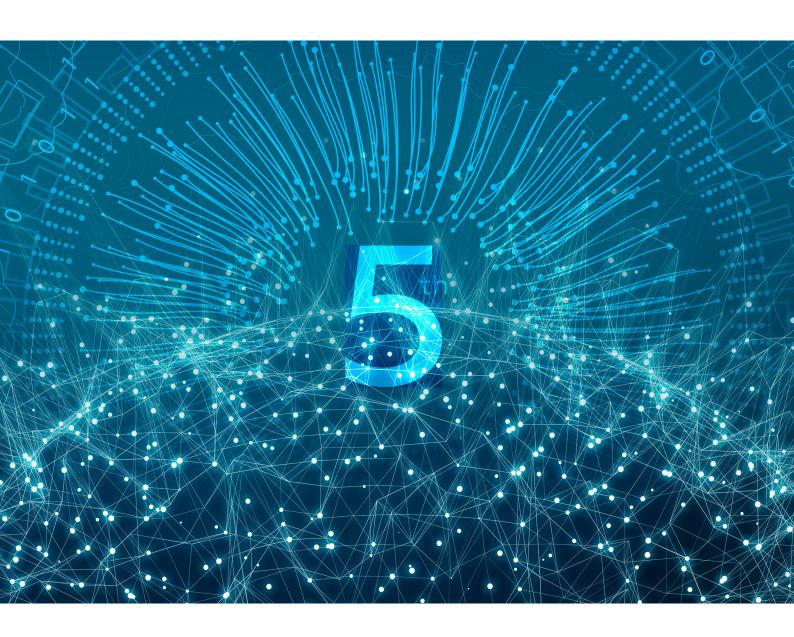
Retrieval Services

Queensland, Australia

Dr. Mark Elcock MBChB FACEM FRCEM is Executive Director, Aeromedical Retrieval and Disaster Management Branch, Queensland Department of Health and a Professor at the College of Public Health, Medical and Veterinary Sciences, James Cook University, Australia.



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