Applying Data for Peacekeeping:

Challenges and opportunities

14 November 2018
Conference Report

PAX

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Introduction

Peacekeeping relies on structural, actionable and timely information to be effective. The challenges lie in collecting and collating relevant information, applying information for effective actions and measuring performance.

This two-day conference, which took place on 14 and 15 November in The Hague, brought together peacekeepers from UNMISS and MINUSMA, policy makers and experts from UN HQ and the Dutch Ministries of Foreign Affairs and Defense, and researchers from CIVIC, Bellingcat, Airwars, Every Casualty, SIPRI, and ETH Zurich, among others, to discuss current challenges to the application of data for peacekeeping. The aim was to link innovations in data collection and analysis with the need for structural information for peacekeepers to improve peacekeeping in practice. The event was organized by the Protection of Civilians (PoC) department of PAX as part of its Strategic Partnership with the Netherlands Ministry of Foreign Affairs.

Key note: Peacekeeping data and predictive peacekeeping[1]

The key note for the event on 14 November was delivered by Mr Allard Duursma, senior researcher at ETH Zurich specialized in the application of data in peacekeeping. Mr Duursma discussed peacekeeping data and predictive peacekeeping by addressing three central questions: Where do we come from? Where are we currently? And where could we be going?

The Uppsala Conflict Data Program (UCDP) was the first to systematically collect conflict and peacekeeping data. In 2005, Joint Mission Analysis Centres (JMACs) have been established, whose mandate is to produce mission-wide integrated analyses for the senior management of peacekeeping missions. In recent years, UN peacekeeping missions have become increasingly data-driven, moving from Word documents to geo-tagged event and security datasets in Excel. Most innovations in data for peacekeeping have been **ad-hoc and mission specific**, such as the All Sources Information Fusion Unit (ASIFU) in Mali.

What is notable in the variety of currently applied data tools is that they capture different incidents in their reporting, even though they focus on the same area. A comparison between JMAC and data from the Armed Conflict Location & Event Data Project (ACLED) in Darfur for example reflects a **reporting difference** on armed clashes.

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[1] This section summarizes the key note presentation as well as the plenary discussion that followed.
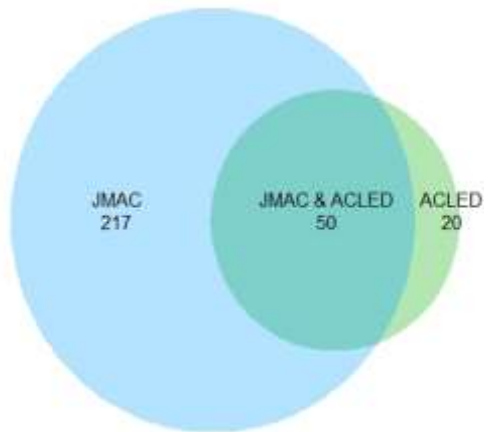
Figure 1 Venn diagram of armed clashes included in the JMAC and ACLED databases (Duursma 2017)

Such variations can be explained by the different levels of access of the reporting organizations. [2]

A recent innovation that aims to function mission-wide is the **SAGE Incident and Events Database**. SAGE has been developed by the UN to allow the collection of data from different missions in a comprehensive and structured way and to facilitate the storage of such data in a central place. It facilitates capturing data on the type of event/incident, the number of victims, ethnicity, and affiliation of perpetrators, and it includes geolocations. Input of data occurs at field office level with corroboration happening at higher levels.

Data collected using SAGE could be used to **explain and predict** the occurrence, escalation, duration, termination, and possible spread of different types of armed violence. SAGE could also be applied to detect **spatial correlation**, for instance between or between the obstruction and intimidation of peacekeepers and civilian targets in that area. If peacekeepers are prevented from going where they need to go this could be an **early warning sign** for subsequent violence. **Machine learning** can also help in detecting meaningful patterns in data.

Caveats in using data for peacekeeping include the **quality of data** (''garbage in, garbage out''), and the frame of reference that is used by peacekeeping personnel, as each person categorizes data according to their own frame of reference.

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[2] See: Duursma, A. (2017) Counting Deaths While Keeping Peace: An Assessment of the JMAC's Field Information and Analysis Capacity in Darfur, International Peacekeeping, 24:5, 823-847. https://www.tandfonline.com/eprint/MGtkqbSgVXVyvGBXFwv9/full

> *An example of the impact of **diverging frames of reference** comes from Rwanda, where on 8 April 1994, two days after the plane with Rwandan president Habyarimana was shot down, the Head of UNAMIR and the UNAMIR Force commander assessed the situation entirely differently.*
>
> *While the Head of UNAMIR assessed: "The security situation in Rwanda is somewhat worsening, but this development is mainly linked to fighting between government forces and the RPF in the northern part of Rwanda",*
>
> *The Force Commander thought he saw: "The Appearance of a very well planned, organized, deliberate and conducted campaign of terror initiated principally by the Presidential Guard since the morning after the death of the Head of State has completely reoriented the situation in Kigali."*

Another major caveat can be referred to as ''Big brains, little hands'', or the **disconnect between early warning and early action,** e.g. a large intelligence capacity but little operational capacity to respond to intelligence. Participants discussed the need for strong early warning systems and argued that obtaining the right data is not enough in itself, it needs to be **acted** upon. **Local knowledge**, for example assembled through Community Early Warning Systems, can serve as a good predictor for violence against civilians. There are however instances known where knowledge was available on upcoming clashes but missions were unable to act upon it for a variety of reasons, including a lack of deployment of troops, concerns about footprint, logistical issues, safety issues etc. Though sometimes perceived as a holy grail, early warning information frequently does not reach those who can act upon it, limiting mission effectiveness. The link between early warning and early action should be enhanced.

Early warning assessments have great potential for peacekeeping data, if they transition to more sophisticated models and are linked to appropriate early action.

Other challenges of applying data for peacekeeping include the complexity of conflict processes that "typically encompass an unwieldy set of actors interacting in surprising and, by definition, rule-breaking ways" (Cederman and Weidmann 2017: 475), **level 2 chaos**[3] and **ethical considerations**, including and the risk of reidentification.

Collecting data in a fragile context can have **unintended consequences, such as increasing vulnerability of the population**.

Participants see potential for **collaboration between different data actors**, particularly between the UN and external actors such as academia. While the UN possesses data but lacks analysis capacity to predict violent incidents, academics often have strong analytical skills but no access to the data.

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[3] Level 2 chaos refers to the phenomenon that chaos reacts to predictions about it, e.g. when predictions themselves change the outcome of the chaos

Facilitated Breakout Sessions

BREAKOUT ON DATA MANAGEMENT SYSTEMS

SAGE is a database that facilitate the collection of data on incidents, events and activities of UN peacekeeping. SAGE started in 2015 at mission headquarter level and is currently being rolled out into the field.

Within the Joint Operations Centre (JOC) reports from each component are compiled into a Mission-level summary. On mission level, each component records data using different tools and platforms, both structured and unstructured. SAGE responds to the need for **comprehensive and uniformly-structured data** in peacekeeping and to the presence of multiple systems at mission level.

One of the requirements for SAGE was that it had to be a simple intuitive web-based system for all peacekeeping missions. To store data in a short and comprehensively structured way SAGE focuses not only the long text-based data in reports (as previously) but also on **quantitative data storage**. The systems allows multiple mission components to add and share data on incidents, events, activities and related casualty/damage numbers. SAGE is currently implemented in 10 peacekeeping missions and 2 special political missions, with more to come.

Despite its huge potential, there are still **challenges** with the system at mission level. Peacekeeping staff needs specific training on the technical and reporting part of SAGE. **Current lack of funding** creates weakness in the system. Breakout participants consider accurate reporting in SAGE as a serious challenge. It is vital that all users know how to categorize information and attention needs to be paid to the spelling of locations as misspelling can lead to **false data** or other mistakes. Mission leadership and training on reporting and analysis are therefore key.

To successfully utilize SAGE a **change of mindset** is needed. Information that would normally be comprised in a report now has to be put into the categories of SAGE and centrally approved so as to avoid duplication and double work. Participants agree that data collection and central data storage is crucial. The **dissemination** and '**flow**' of information is also discussed. Currently, information gathered by missions is entered into the system and it is unclear for some participants what happens with it afterwards and how it informs planning and decision-making. The ultimate aim of data collection is to acquire a common picture, e.g. where do patrols happen and where are incidents happening (and do the two correspond and if so, how?).The **fusion** of the two capacities -data collection and data analysis skills- is therefore vital.

Participants mention that a **lack of resources** can lead to the inability of a mission to execute certain activities and/or to respond to threats. With SAGE it is possible to measure the impact of stopping certain activities which **provides insight** into the link between activities and incidents.

Regarding the accessibility of the information from SAGE and the **prospects for external parties** such as NATO or NGOs it is mentioned that at the current stage, SAGE is a UN internal system. There is however a trend towards **collaboration with independent experts** and the UN seems to realize it can and should not stay in a cocoon. At the moment, missions also do not share data with HQ as this is firewalled in the UN peacekeeping network. The (real or perceived) sensitivity of data also prevents information sharing within and outside UN peacekeeping. All military activities are for example considered sensitive. There is a need to explore possibilities for making information less granular and decrease sensitivity to make it accessible to a **broader audience** within the peacekeeping field, for example to facilitate analysis by other actors.

Another concerns regarding sharing data with others is of political nature. Missions may fear that the data can be used against them. It is mentioned that the UN is **risk avert** and might be averse to sharing sensitive information.

BREAKOUT ON INTEGRATED DATA

Protection of Civilians (PoC) is used to refer to many things. 80% of PoC operations' activities consist of **patrolling**. However, patrols are hardly monitored and there is limited information on where they went, what they did and the impact on civilian security. The identification of an objective is a first step towards more effective patrolling. Providing patrols with a **GPS tracking device** could also help overcome this issue. GPS data could be used for analysis of the interaction between patrols and violence against civilians. GPS may reduce the workload and can increase accountability for Troop Contributing Countries (TCCs).

UNMISS currently does not have a mechanism that enables data sharing and analysis. A mission wide database to enhance Early Warning would be an opportunity. Much data is gathered but comprehensive analysis lacks, despite clear early warning indicators. There is potential for **critical early warning**, for **scenario building**, and for the application of **open source intelligence**.

Participants mention that words like Human Intelligence may be very **sensitive** to host governments. Participants therefore recommend to rephrase this so that host governments do not consider respondents/informants as spies. A lot of work of Civil Affairs Officers can be can be seen as intelligence work, which also leads to operational challenges.

A major problem is the fact that different mission components and organizations are working together with **different goals**. There is an opportunity of integration at that level as mission components are often not aware of the other components' reasons to gather data. Data is gathered through different systems, with different goals, and by a myriad of actors. A lot of this data is non coded, so this bulk of data is not comparable and cannot be linked.

Data can be sensitive and not everyone has **access to SAGE**. This can be an issue. For military, **triangulation** is key to military staff. Intel is a strict system. Intelligence need to understand that there is more in the world. That is not part of the civilian part. Needs to be combined. An **integrated approach** is needed instead of giving priority to one's own office.

It is mentioned that it is important to inform data collectors on what happened with the data, so they know why the data collection is useful and what decisions are based on it.

BREAKOUT ON THREAT ANALYSIS

Threat based models[4] can and should shape the information needs of peacekeeping missions. It is the responsibility of **mission leadership** to have high-level protection strategies in place that rely on threat-analysis.

Missions need specific **data on armed groups**: including the strength of the group, the locations where they operate, their tactics, their stated goals, and past history of committing violations. Vulnerable and at risk communities need to be identified and the probability of armed groups to engage in violence needs to be analyzed. It is key that missions have the ability to **identify trends**, which means data has to be stored to facilitate analysis over time. **Joint assessment** is vital and information should therefore come from military, police, and civilian components of a mission and be analyzed in a **comprehensive manner**.

Without threat-based models as major component of decision-making, missions:

- are vulnerable to political manipulation
- launch fragmented and inefficient responses to threats
- fail to recognize emerging trends in violence and delay rerouting staff and resources to key areas of violence
- become stretched too thin and compromise impact

Specialized analysis sections such as JMACs generate good early-warning information but this information is only available to a limited number of staff, usually to the strategic leadership but not to the field leaders and 'the ground'. Information sent into JMAC goes 'up' while the ground does not receive any of it back. Another challenge is that other sections find **it difficult to trust the information** from JMAC without knowing the quality and number of sources. Military commanders therefore frequently set up their own information systems. The result is a **lack of information on the ground** for both troops and decisionmakers. If JMAC cannot be used as a tool at the operational and tactical levels, missions need **field capacity** to handle the data. **Staff dedicated to analysis** of the collected and available data in field locations could help solve the problem.

Protection matrixes are recommended in policy but in practice they are not always used due to a lack of capacity or willingness. Staff rotations are another challenge.

The following three elements need to be combined for a solid threat analysis:
- **Intent** – what is the motivation of a perpetrator
- **Behaviors** – strategies and tactics (what has the perpetrator done?)
- **Capabilities** – (what can the perpetrator do?)

Situational awareness varies between different actors. We need the willingness and ability to share information with each other. For operational commanders it is crucial to receive the right information on time in order to make a proper decision so risks for the population can be reduced. Participants discuss the opportunity of establishing a **Fusion Cell** that brings civilian and military information together. This could take the form of a center outside of the missions where people with different experiences, military but also academics can pool and share information, with a **push and pull element.** Data can be analyzed and pushed back to the mission or HQ but also pulled from the center

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[4] For more on threat based models and threat analysis see f.i. CIVIC (2018) Data-driven Protection. Linking Threat Analysis to Planning In UN Peacekeeping Operations. https://civiliansinconflict.org/wp-content/uploads/2018/11/CIVIC_PeaceKeeping_PRINT_DigitalNov27.pdf

when requested by missions. Due to rotation of staffing and lack of time and capacity, this cannot be done within missions but to analyze the data you do not have to be on the ground. A similar system was **used by NATO** in the past.

There is an opportunity to break down the culture of not sharing data and promote **'responsibility to share'** information with those who need it. Participants feel that accountability and a proper accountability system for inaction is lacking. At the moment, taking action and responding to threats (or early warning) is more risky than not reacting.

Effect based patrolling is regarded as vital by the participants. Numerical data on patrols is not relevant as long as effectiveness of these patrols is not considered.

BREAKOUT ON HUMAN INTELLIGENCE AND COMMUNITY-DRIVEN DATA

The breakout session focused on the data collection methods of two organizations, PAX, focusing specifically on the Human Security Survey, and Elva.

The first pitch introduces the Human Security Surveys (HSS) conducted by PAX in Iraq and South Sudan.[5] The purpose of the HSS is to capture evidence-based civilian **security experiences**, to measure influences of conflict on daily life of civilians, and to shed light on **civilian perceptions** of the conflict and expectations for the future. In addition, the HSS generates and facilitates **constructive dialogue** and elevates the voice of civilians in conversations with stakeholders who have an influence.

There are several challenges with data collection and surveys in conflict contexts. The context can make recurring surveys difficult for example. In Kirkuk for example, PAX was able to conduct one round of surveys in the spring of 2017. Dramatic changes in the political situation and the Kurdish independence prevented a second round of surveys as permissions to conduct research were impossible to get. Moreover, acquiring accurate data about **sensitive subjects,** such as gender based violence, is a challenge.

Elva helps peacebuilding and stabilization organizations with data collection in fragile contexts. Their so-called ''ground-truth'' data enables a better understanding of **drivers of conflict**, it enables organizations to **detect potential extremist influence** earlier, and it can play a role in risk assessment and early warning for peacekeepers and security providers and therefore inform interventions to strengthen local security. Elva collects data through 1) key informant interviews, 2) networks of community residents that address local community safety challenges, 3) household surveys, and 4) focus group discussions. Besides offering this data, Elva provides peacebuilding organizations with analytical reports including actionable recommendations, allowing them to swiftly address challenges to local communities' safety and wellbeing.

Participants also mention **risks to local communities** regarding data collection. When data collectors are present or peacekeepers patrol, violent groups may leave the area only to return when the 'outsiders' are gone to harass people and threaten or attack people who have been in touch with the peacekeepers. Some participants wonder why respondents would participate in data collection activities, considering the risk they run. Participants agree that it is vital for data collection initiatives to clearly **communicate** the purpose of research and make sure this is understood by respondents who can then make a weighted decision to participate or not.

Participants also discuss accounting for **bias** in different types of community-driven data. Depending on the data collection tool, it is crucial to cross-check information with open source data and key informants. A challenge is that information to cross-check is sometimes absent, particularly in remote areas ''off the media map''. Perception surveys are per definition **subjective.** It is important to incorporate this understanding in enumerator trainings and discuss it.

Besides the collection of data there is the issue of **trust** between NGOs and peacekeeping missions. NGOs may have access to certain areas to collect data but may lack access to the right people within peacekeeping missions to share the data with. Peacekeepers could benefit from data gathered by NGOs on actors in an area, as well as from information on conflict dynamics. If the mission is aware that people affiliated to a violent extremist group have shown up in an area, strategic operations can be planned for. If the mission knows that a town is under threat in a week, this can inform tactical mission decisions. **Trust has to go both ways** for this to happen. Without a **clear information sharing system**, some information inevitably goes to waste, potentially with serious consequences for civilians.

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[5] For more on the HSS see: https://protectionofcivilians.org/projects/hss-iraq/

Lack of consensus on what information is sensitive and what can be shared poses a serious obstacle to data sharing between NGOs and peacekeeping missions. Participants mention that it would help to be explicit about what information can be shared and what not.

Opportunities in data for peacekeeping

The three topics below were chosen from a list of opportunities identified by the expert participants in the morning breakout sessions.

SAGE

Challenges

There is currently **not one comprehensive data system** within peacekeeping missions that collects, analyses and disseminates information from and for all mission components. To determine what to collect, how to analyze and whom to disseminate to is a challenge, as are finding the right levels of granularity and the need for specific levels of triangulation. Mission elements such as Force and Human Rights seek different information and generally do not share data across missions. Some TCCs do not want their geographic position known and will not share this and information is not shared (even when encrypted and sent over secure line) as this would give other countries a comparative advantage. Information too often is seen as **leverage**.

Opportunities

SAGE provides an opportunity to apply such system across all UN missions collecting incidents in mission area and actions of the mission. SAGE provides the ability to **extract analysis for specific purposes** (feeds into other presentation tools) and provides a facility for information to go up and down a mission structure. Particularly Force relies on properly analyzed information (intel) to operate effectively or in some cases at all. The categorization of incidents is done by the missions themselves to create flexibility in context and appropriate the methodology for the mission context.

Requirements per actor

Analysts of all mission categories need to be **trained** pre-deployment in using SAGE and in-mission training should keep **effective application of SAGE updated**. **A 'champion' or 'ambassador' is needed** within a mission to popularize the application of SAGE. Multi-level analysis of SAGE data can happen in third-party software. It requires all mission actors to disseminate information and share analysis.

- Include SAGE in pre-deployment training for mission staff, particularly for intel staff
- Member states can avail **funds** for SAGE to be rolled out and implemented by all UN missions since it currently is not funded through the secretariat
- Forge an **integrated analysis team** within missions to enable UN field missions to disseminate data through SAGE, serving all mission components

Push and pull fusion cell in mission

Challenges

One key challenge to disseminate information or intel is that as soon as military staff analyses information to create intel the intel will be classified for military use exclusively, whereas generally the Human Rights section will have **different informational demands** than the Force component and willingness to share between the two has historically been low. Lessons from NATO cannot be directly applied in a UN context. Intelligence gathering, analysis and dissemination is more complex in UN missions than in NATO missions which traditionally focus on the relatively straightforward objective of defeating an enemy. Additionally, UN troops hardly train together pre-deployment while this is commonplace for NATO troops.

Dissemination of analysis and conclusions is challenging as most **streams of information in missions are stove piped**. UN Peacekeeping missions were never intended as 'data shops' and staff is not trained in structured approaches to collect, store, pool and share data. This is further strained by different cultures and languages typically found in UN missions limiting the ability for mission leadership to make coherent decisions.

Opportunities

A fusion cell analyzing and disseminating information/intel would facilitate all mission components sharing data and receiving evidence-based decisions from the mission leadership based on the analysis from the fusion cell. **Systematic training** can increase usability of fusion cell while 'champions' are needed within the mission to enhance ownership of the fusion cell. Dissemination is usually the least developed component and warrants future investments with an eye on sustainability to make sure that not all capacity will leave when one country leaves the mission.

Requirements per actor

The push and pull element in the fusion cell is there to **manage information effectively** across the fused mission components. All mission components need to be explicit about what level of granularity of information is applied and whether the intel then is intended for the tactical, operational or strategic level.

- ♦ TCCs should **consider providing sustainable investments** in the ability of peacekeeping missions to build information fusion cells by contributing to mission owned capacity, rather than by building one off separate capacities that may falter as soon as the TCC leaves.
- ♦ Pre deployment and in-mission training should focus **more attention to the dissemination of data (intel)** after it was gathered and analyzed, which could be enhanced by having a 'champion' or 'ambassador' for removing stovepipe constructions and enhancing dissemination of information.

Data sharing between peacekeeping operations and external actors

Challenges

Sharing data with peacekeeping missions by outsiders is often challenging as it is not clear what **informational needs** are there and how to serve them with JMAC unable to share data back, which in turn decreasing the willingness of external actors to share information. Expectations of what a mission can achieve with additional data is commonly overestimated by external actors and should be made explicit by the mission to pro-actively manage expectations. External actors could focus their energies by **understanding the difference between operational and strategic levels**.

Opportunities

External partners could increase their joint impact on mission effectiveness by **forming coalitions**, rather than engaging missions individually, chipping away at the capacity of the mission to respond coherently. UN HQ in NYC could facilitate forming coalitions by **organizing dialogue between researchers and peacekeeping missions** and could help forge more constructive interactions. Research initiatives may be more interested when they would be enabled to pursue their own research questions besides enabling mission staff to formulate questions and feedback mechanisms.

Requirements per actor

Peacekeeping missions could **enhance the relationship between decision-making and informational requirements** while communicating this evidence-based decision making in more transparent manner

within the mission. This would enable external partners to contribute structurally and would make more likely deep investments in the relationship with peacekeeping missions.

- ♦ Competition for funds and attention/political power needs to be overcome within the peacekeeping mission and within alliances of external partners to actually be able to **connect the 'demand' and 'supply' side of data for peacekeeping**.
- ♦ TCCs should enable UN HQ to play a facilitating role in connecting external partners to peacekeeping missions by adding necessary staff and making sure in-mission training to create mission specific capacity building for partnerships.

Annex I. Agenda

14 November	
09:00 – 09:30	Registration and coffee
09:30 – 10:00	Word of welcome *Mr. Hans Rouw, Program Lead Protection of Civilians, PAX*
10:00 – 10:45	Kick-off on Challenges and Opportunities with Q&A *Mr. Allard Duursma, Senior Researcher, Center for Security Studies, ETH Zurich*
10:45 – 11:00	Coffee
11:00 – 12:50	Breakout sessions facilitated by PAX 1. Data for a threat-based approach in PKOs 2. Human intelligence in PKOs 3. Data management systems for PKOs 4. Integrated data for PKOs
12:50 – 13:00	Plenary presentation of opportunities from each breakout session
13:00 – 14:00	Lunch
14:00 – 14:30	Learning from success and failure of applying data in PKOs *Mr. Pål Munck, Commander Senior Grade, Norwegian Defence University College* *Mr. Nick Waters, Open Source Analyst, Bellingcat*
14:30 – 14:40	Selection of four key opportunities from morning sessions
14:40 – 15:00	Coffee break
15:00 – 16:00	Facilitated breakout sessions on key opportunities selected during morning sessions
16:00 – 16:45	Expert panel reflecting on future steps

Annex II. Abbreviations

ACLED	Armed Conflict Location & Event Data Project
ASIFU	All Sources Information Fusion Unit
A4P	Action for Peacekeeping Initiative
HSS	Human Security Survey
JMAC	Joint Mission Analysis Centre
JOC	Joint Operations Centre
PKO	Peacekeeping Operation
PoC	Protection of Civilians
TCC	Troop Contributing Country