

Technology & Innovation in UN Peace Operations

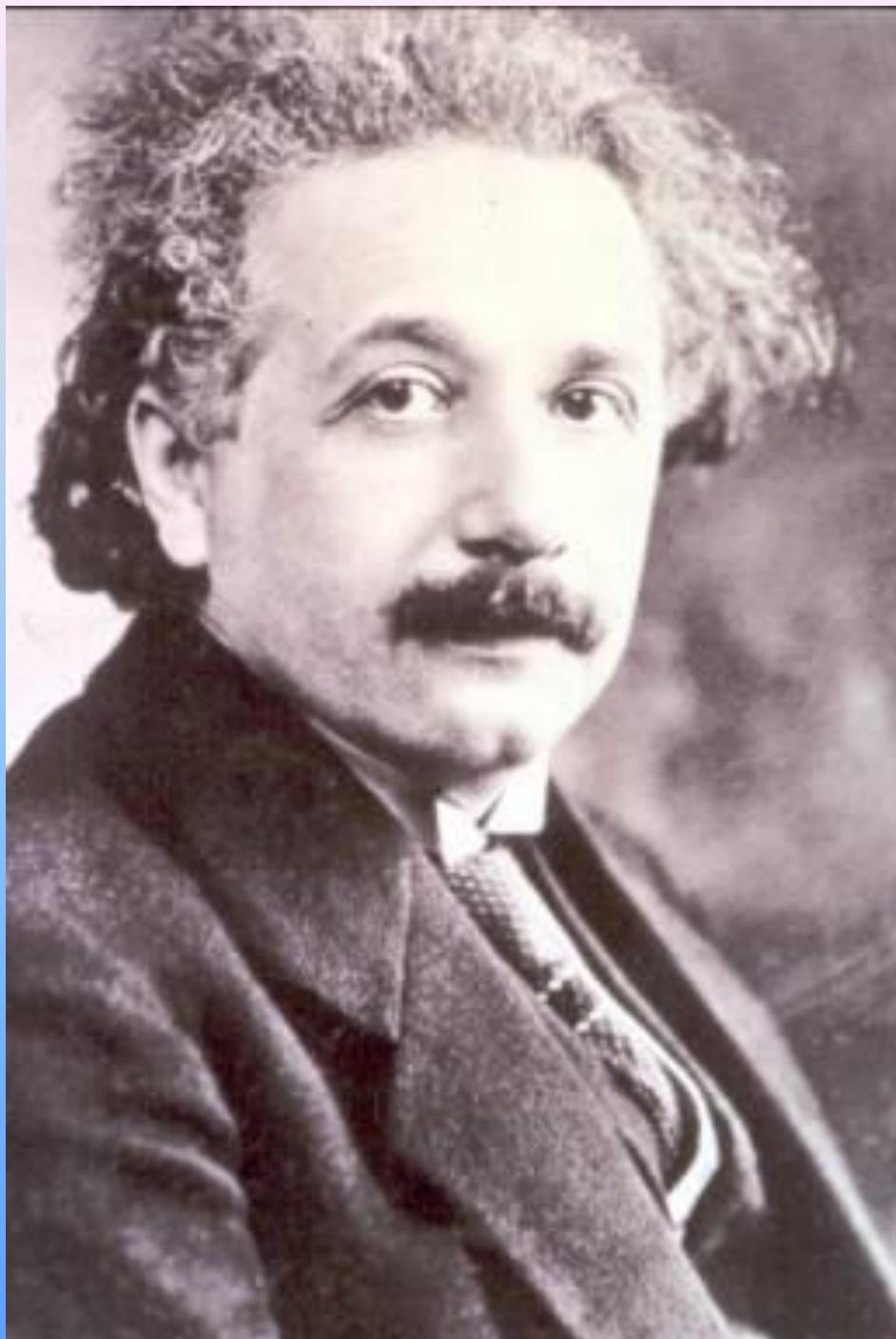
Field Technology Conference

6 April 2017



Dr. Walter Dorn
Canadian Forces College &
Royal Military College of Canada





UN Peace Operations



Humanity's concern for humanity

- Save lives and prevent suffering
- UN: collective eyes and ears, legs and arms
- Conflict resolution and post-conflict healing

SC Mandates

- **Security**
 - Border security
 - Ceasefire monitoring/implementation
 - Disarmament, demobilization, and reintegration (DDR)
 - Mine action
 - Protection of civilians (POC), women and children
 - Protection of mission personnel
 - Sanctions monitoring/enforcement (incl. arms embargo)
 - Security support
 - Offensive operations
- **Reconciliation and peace processes**
- **Nation/state-building**
 - Development
 - Elections support
 - Natural resources monitoring
 - Political process
 - Security sector reform (SSR)
 - State authority and governance capacity
 - Preservation of culture
 - Transition to local ownership & leadership
- **Rule of law**
 - Bring war crimes perpetrators to justice
 - Correctional reform/strengthening
 - Justice reform/strengthening
 - Police reform/strengthening
 - Promote rule of law (general)
- **Human Rights**
 - Investigate and prosecute violations
 - Monitor and report on human rights compliance
 - Protect and promote human rights
 - Support human rights groups
 - Women's and Children's rights
- **Humanitarian assistance**
 - Coordinate and support
 - Create secure conditions for humanitarian access
 - Displaced persons and refugees
- **Other (cross-cutting)**
 - Public outreach
 - Support other operations & organizations, incl. regional organizations

Mandates: monitoring and more

- Cease-fires
- Peace agreements
- Protected areas and persons (POC)
- Elections
- Human rights
- Sanctions
- Armed groups and spoilers (early warning)
- Resource exploitation
- Safety & security of UN personnel (dilemma)

“A MONITORING GAP”

Traditional peacekeeping

- The Human Eye ...
sometimes aided by
binoculars



Problems of Unaided Monitoring

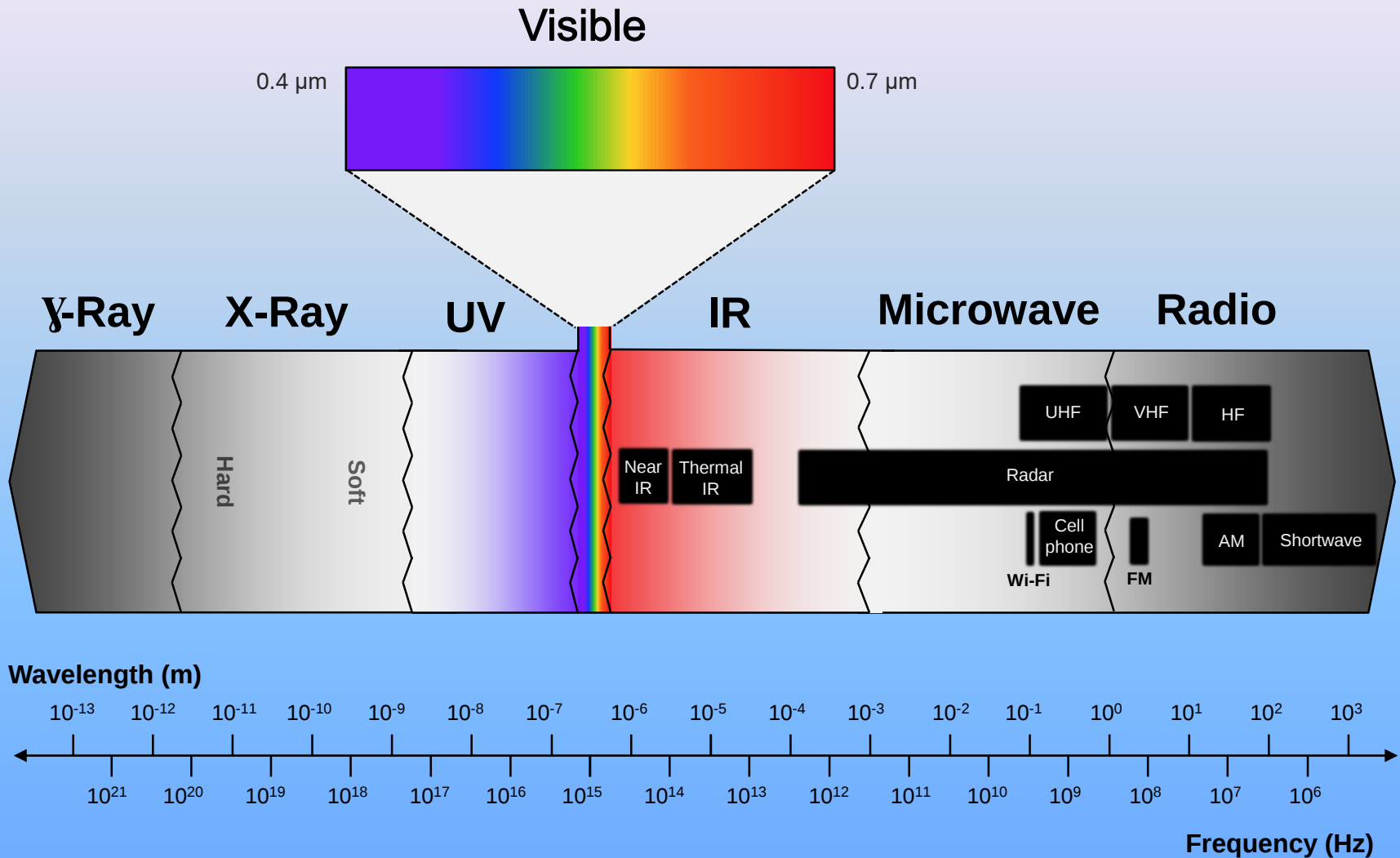
Limited capabilities ...

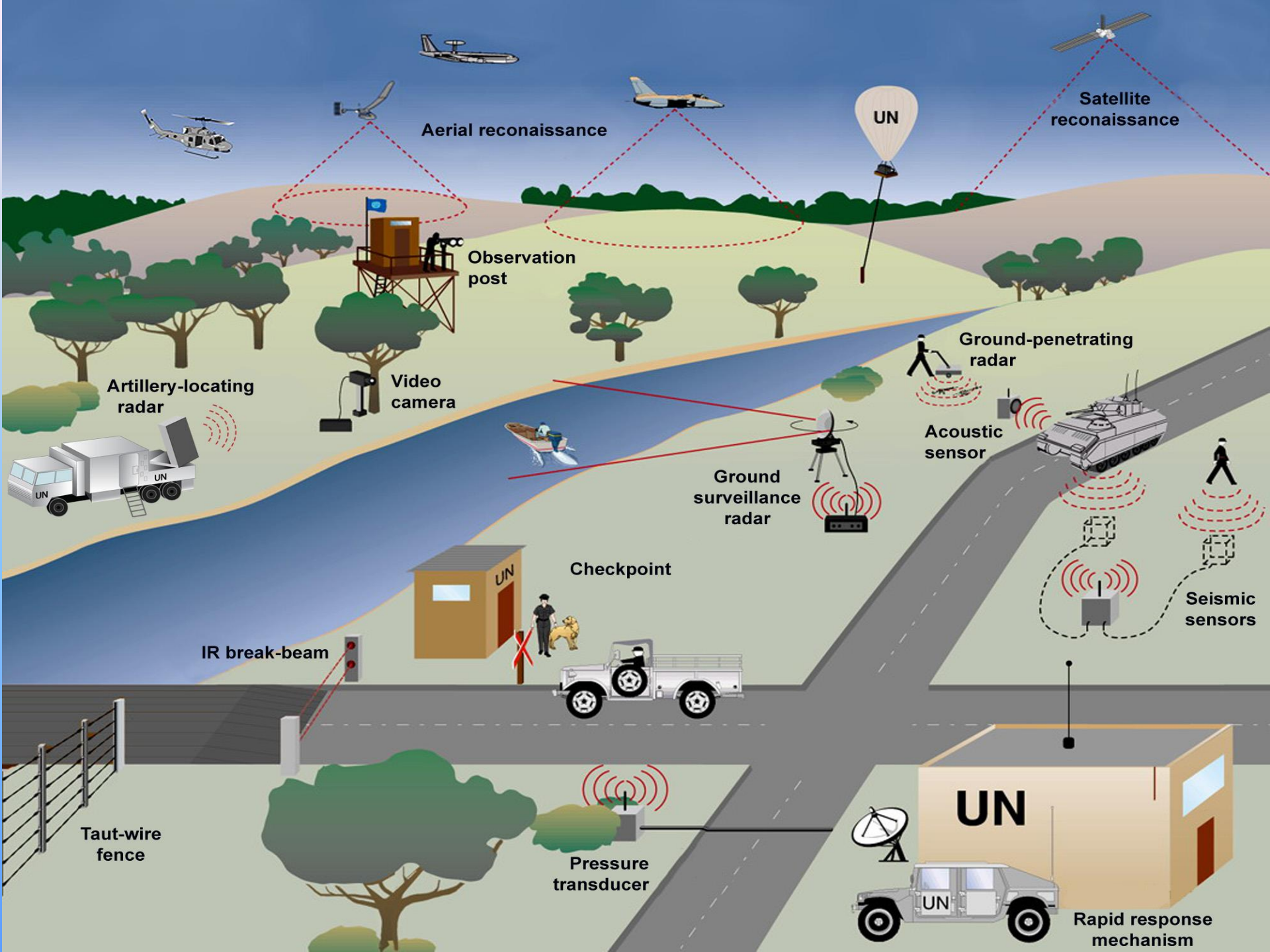
- over large areas
- at night
- for underground detection
- in remote/difficult terrain
- information recording, analyzing, sharing and storage

Monitoring Technology

- Increases *range* and *accuracy* of observation
- Permits *continuous* monitoring
- Increases *effectiveness* (including *cost-effectiveness* in some cases)
- Decreases *intrusiveness*
- Enhances *safety* of staff in field
- Provides *recordings/evidence*

ELECTROMAGNETIC SPECTRUM





KEEPING WATCH

Monitoring, Technology & Innovation
in UN Peace Operations



A. Walter Dorn

Foreword by Gen. The Hon. Romeo A. Dallaire OBC



PERFORMANCE PEACEKEEPING

FINAL REPORT

OF THE EXPERT PANEL ON TECHNOLOGY AND INNOVATION IN UN PEACEKEEPING



FACTSHEET:

DPKO/DFS 2015-16

IMPLEMENTATION STRATEGY
FOR THE RECOMMENDATIONS
OF THE EXPERT PANEL ON
TECHNOLOGY AND INNOVATION
IN UN PEACEKEEPING



Training and Capacity-building: To integrate new technologies in peacekeeping operations, all personnel must have access to training in the operation and maintenance of new systems and tools deployed throughout missions to meet emerging requirements and implement innovative solutions. The Strategy foresees the development of exercises, new specialised training materials, and partnerships with Member States to train and equip units to higher standards of technological capacity.

First UN UAV – December 2013



*Falco UAV from Selex ES (Italy) under contract to UN
Goma, DRC*

C.A.R. 2015



Commercial Trends

Amazing!

- Better, cheaper, smaller
- Converging (one device / many functions)
 - Smartphone: phone, messaging, GIS, internet, touchscreen, innovative apps; Two cameras/video, GPS (satellite)
 - Sensors: accelerometer, gyroscope, magnetometer (compass), multiple radios, barometer
- Versatile
 - Adaptable (time, space)
- Commercialized
 - Military to widespread civilian (COTS)
 - Even toys!

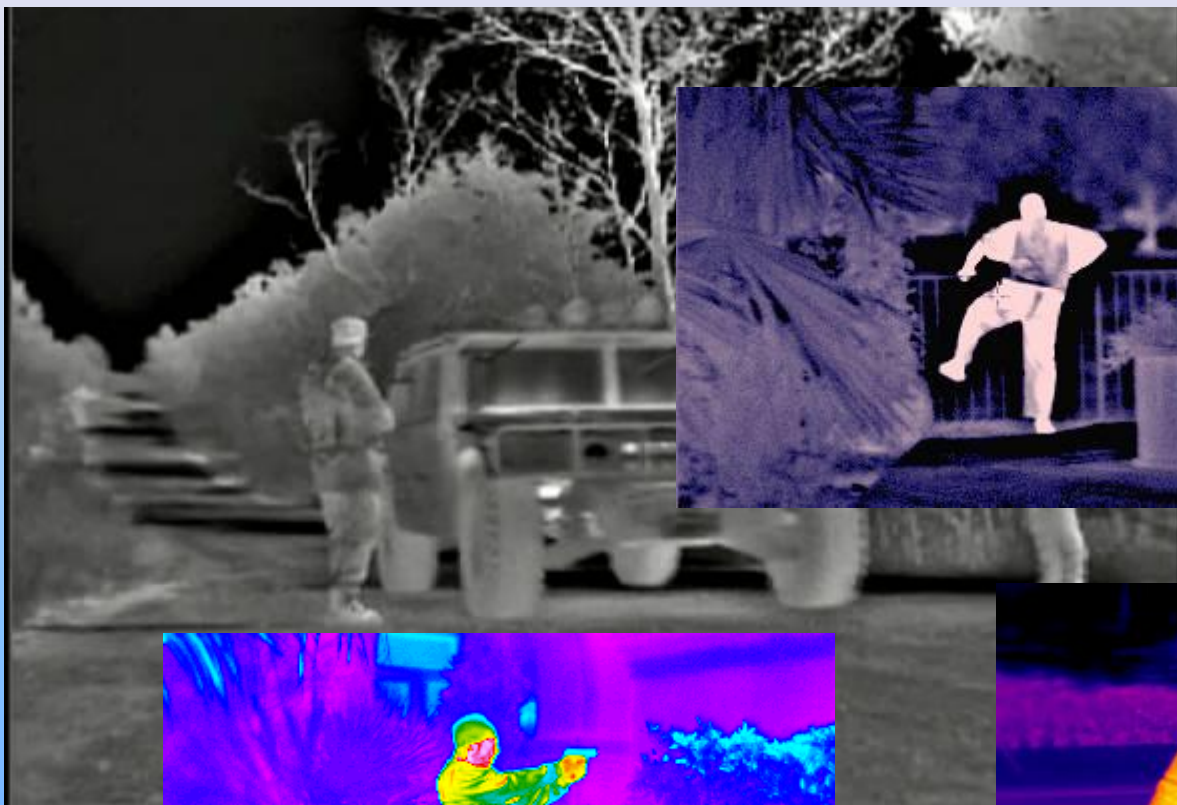
Acoustic monitors



- HD camera
 - Remote control
 - Motion sensor
 - Night vision
- Two audio channels
- Air Quality
- Temperature & Humidity
- Remote viewing
 - Vibration alert
- Price: \$150

Night vision





Participatory Peacekeeping

- Cell phone revolution
- Social media & crowdsourcing
 - Info gathering & dissemination
- Crisis mapping
- “Protection through Connection”
- “Coalition of the Connected”

Ceasefire/peace monitoring: A layered approach

“Coalition of the connected”

“Protection through connection”

**Int.
observers**

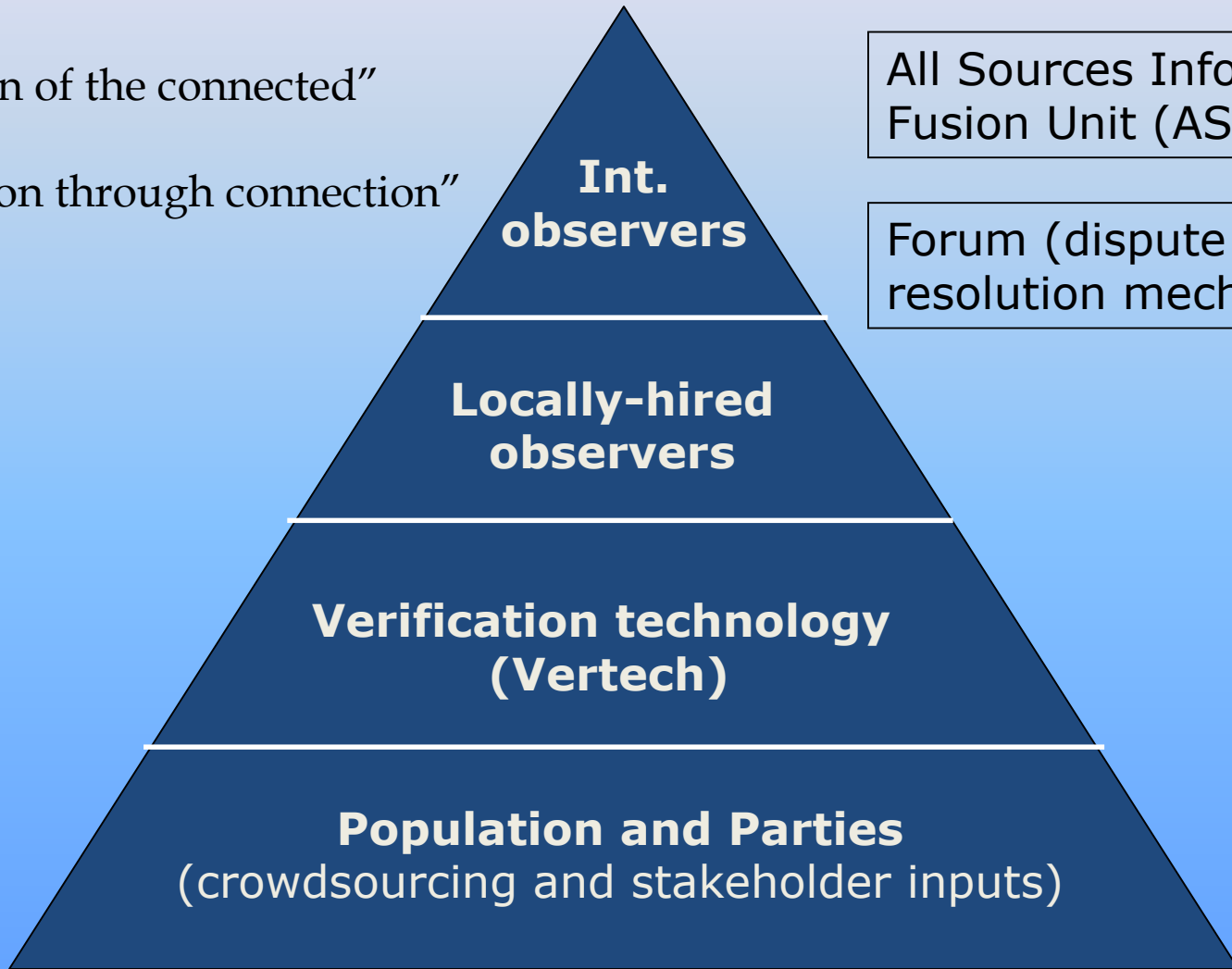
All Sources Information
Fusion Unit (ASIFU)

Forum (dispute
resolution mechanism)

**Locally-hired
observers**

**Verification technology
(Vertech)**

Population and Parties
(crowdsourcing and stakeholder inputs)



Cooperative Monitoring: Webcams



- Hundreds of free feeds
- Cheap to setup, free to view
- Some remotely controlled by viewer
- Sound and maps available

Smart Peacekeeping: Toward Tech-Enabled UN Operations

PROVIDING FOR PEACEKEEPING NO. 13

A. WALTER DORN



Cooperative monitoring using inputs from the conflicting parties is also possible, where the levels of data sharing with the parties, from raw data to selected results, can be adjusted to meet the interests of peace. The United Nations can serve as an information gatekeeper for peace, building confidence while countering fear and scaremongering. This can allow the United Nations to turn the vicious spiral of conflict, which is based on misinformation and disinformation, into a virtuous cycle of conflict resolution based on validated information. Indeed, the UN's power to protect depends on its power to connect. In an age when peace operations are mandated for the protection of civilians, it is essential to connect with them. Population-centric operations give peace a better chance, continuing even after the peacekeepers have left. The United Nations can help turn the fog of war into the clarity of peace, enabled by new technology.

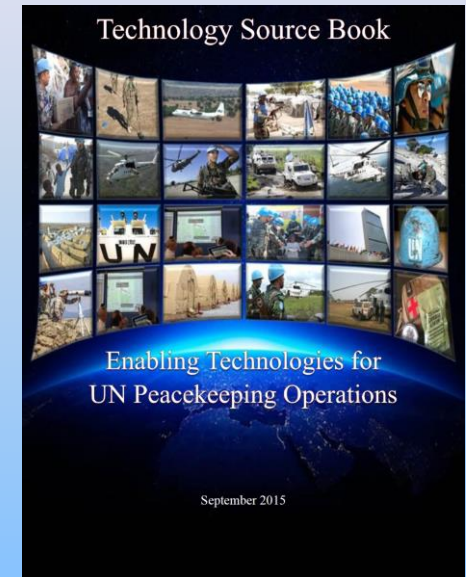
www.ipinst.org/2016/07/smart-peacekeeping-tech-enabled

The Technology Contributing Country (TechCC)

For decades, UN peacekeeping has made use of forces from Member States that contribute troops, formed police units and other expertise—individual police officers, military observers and staff officers—for operations on the ground. But while TCCs and PCCs provide manpower and, where possible, the essential equipment these units use to operate in national settings, at times, they lack important essentials and very often they lack the technologies discussed in this report. Examples include tactical UAVs, ground sensors, command and control systems, explosive detection, data analytics, advanced medical equipment and other technologies. Where TCCs and PCCs do have such capabilities, frequently the distribution of the technology is limited as is the expertise to use or maintain the equipment.

Moreover, many countries are dissuaded from offering up troops or police for ground missions. Their reasons are varied, but the panel believes that these same countries can still contribute to the operational effectiveness of missions by making available technology, expertise, or training for those units that do deploy.

Technology Contributing Countries, or TechCCs, should be identified and engaged in much the same way that T/PCCs are today. DPKO and its components should work closely with DFS to identify those technologies, capabilities, and support necessary to develop a Statement of Unit Requirements (SUR) and approach Member States to obtain commitments. Technology can be obtained via “wet” (maintenance, training and all other necessary support included), “damp” (partial support only), or “dry” (equipment only) engagements, much as with certain other support capabilities. Individual Member States could agree to provide these packages, or TechCC Consortia could be formed by several Member States to assemble the right mix of equipment and maintenance as well configure appropriate support and maintenance facilities staffed by trained personnel.



- US will help the UN “by identifying state-of-the-art technology.” Pres. Obama, September 28, 2015
- US will “become a leading ‘technology contributing country’ to UN peace operations by assisting the UN, regional organizations, TCCs, and PCCs to integrate technologies into missions in critical areas such as basing and logistics, force protection, and information-led operations” Factsheet, The White House, September 28, 2015

Pdf:

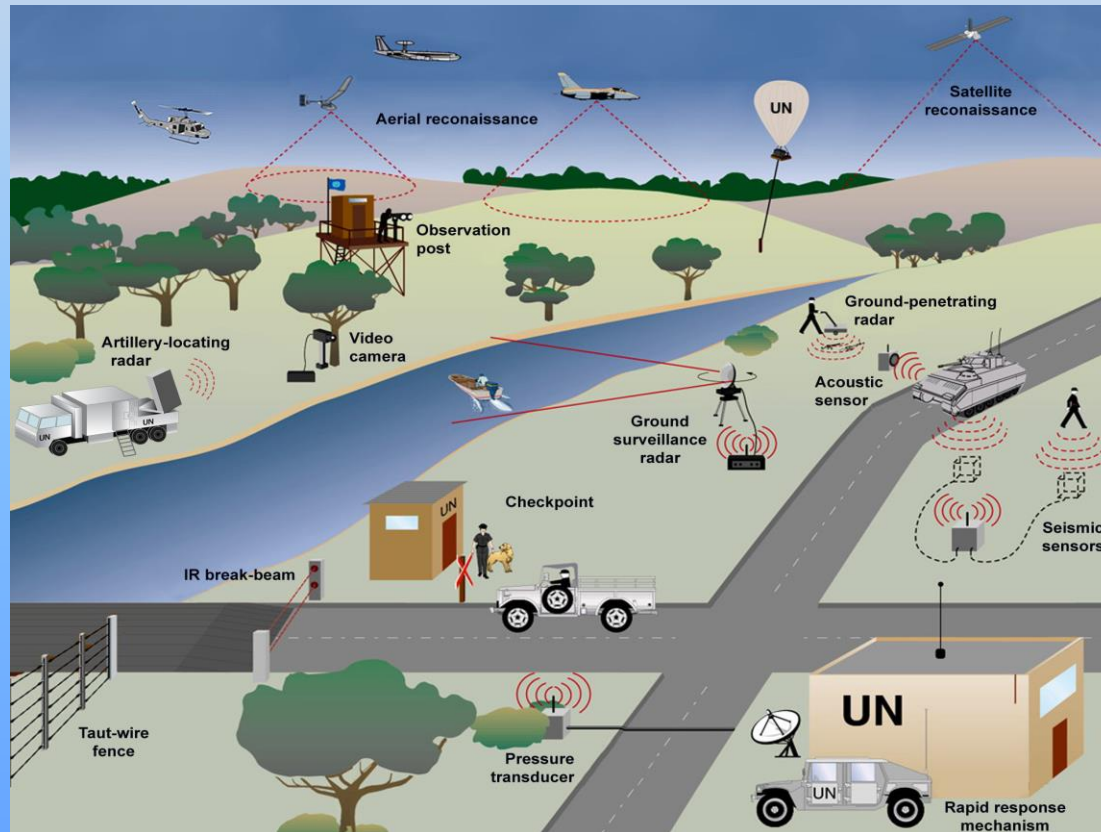
http://walterdorn.net/pdf/Technology-Source-Book-UN-PKO_DoD_v39.pdf

Technology

Conclusions

1. No technological fix ... but technology can be of immense value in monitoring, preventing and mitigating conflict.
2. Technical monitoring can increase the safety and security of peacekeepers as well as the effectiveness of the mission.

3. UN lacks the equipment, resources, preparation/training needed for effective and efficient use of modern monitoring technology



4. UN is capable of incorporating advanced technologies

- Communications and information technology
- GIS progress
 - Commercial satellite imagery
- Aerial recce in DRC, CAR, Mali ...

5. COTS is advancing fast ... to the rescue

- Convergence
 - Technologies
- Miniaturization
- Innovation
- Robustness
- Cheaper
- Smartphones
- Many peacekeeping applications

6. UN is making progress

- Panel on Technology and Innovation in UN Peacekeeping
- Strategy
- Technology contributing countries (TechCC)
- Partnerships
 - Synergies
- ICTD Projects



- Connectivity is a key to peace
 - ICT central role
- Experience
- “Who do we call?”
 - The spoiler-busters: monitoring tech
 - ICT professionals
 - “Tech is us”

TIP Tech

- 300 technologies mentioned
- Categorized later as 13 types:
 - *Communications & IT*
 - *Energy/Environment*
 - *Engineering*
 - *Information collection (incl. monitoring)*
 - *Information management*
 - *Medical/Health/Well-Being*
 - *Non-lethal weapons*
 - *Positioning/Tracking/GIS*
 - *Protection*
 - *Shelter*
 - *Training*
 - *Transportation*
 - *Water*

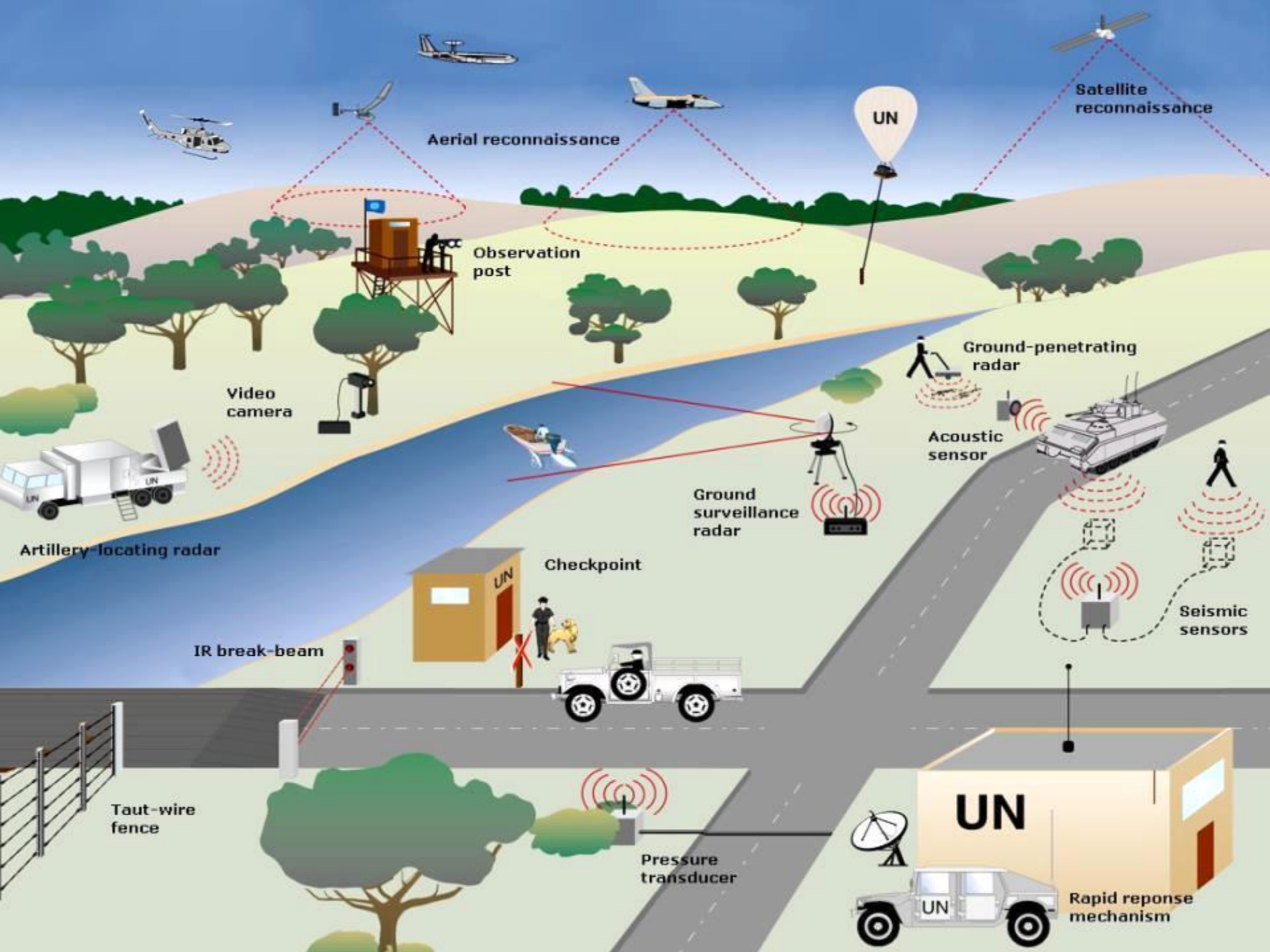
Blue Sky Ideas

- Peacekeeping gaming
- “Digital Peacekeeper”
 - ASG CITO Atefeh Riazi: crime fighting, dark web
 - TIP report: digitally-equipped pkr
 - Boots/bots on the ground
 - Cyber peacekeeper

Peacekeeping is ... partnership ...
a continuing adventure ...



**IF THIS TECHNOLOGY-AIDED
PRESENTATION DIDN'T WORK ...
FORGET EVERYTHING I SAID!**



Satellite
reconnaissance

Aerial reconnaissance

UN

Observation
post

Video
camera

Artillery-locating radar

Ground-penetrating
radar

Acoustic
sensor

Ground
surveillance
radar

Checkpoint

IR break-beam

Taut-wire
fence

Pressure
transducer

Seismic
sensors

UN

Rapid reponse
mechanism

Protection Tech Interactive

- Tech for POC and Force/Mission
- Protective, Proactive, Precision Peacekeeping
 - Situational awareness: Information collection and management
 - Other tech

Protection of	Protection from
INDIVIDUALS	
(e.g. civilians, mission personnel, VIPs) Body armour Body camera (incl. voice recorder) Close protection team comms and tech Comms Panic button Tracking: GPS through smartphone, TETRA UAS individual tracking	(e.g. body-bourne IEDs, lone-wolf attacker, snipers) Detectors/cameras: Infrared, Microwave, X-ray (help spot weapons) Elint: cellphone intercept/tracking (tactical electronic intercept) Facial recognition/biometrics Jammers/Electronic Counter-Measures (ECM) Long-range laser pointer Non-Lethal Weapon: e.g., Taser

Protection of	Protection from
VEHICLES	
(e.g. convoys) Advance recce with UAS (e.g. forward-deployed route recce) Armoured vehicles (e.g. bolt-on armour) Cameras (dashboard/night) Jammers: Counter radio-controlled IED Tracking (real-time): TETRA/HF/Beyond line of sight tracking, with data and applications	(e.g. from vehicle-bourne IEDs) Barriers and demobilizers (e.g. caltrops, speed barriers/bumps) License plate scanners to monitor patterns of life Long-range speed detectors/warning system Sinkable poles, raising truck-proof barrier X-ray/under-carriage vehicle scanner

Protection of

Protection from

SMALL GROUPS

(e.g. UN patrols)

Crowd seeding for warning

Mobile reporting (by locals)

Tactical Electronic-Counter-Measures
(ECM)

Squad radios

(e.g. neighborhood gangs)

Acoustic

Choke point creation

Monitoring/tracking technologies

Rules of engagement for urban
operations and use of technologies in
urban areas

Water cannon

Protection of

Protection from

CHECKPOINTS

(e.g., UN checkpoints)

Barriers (inc. speed bumps and pressure transducers)

Checkpoint suites (with all of the above) inc. in-ground upward-facing cameras Ground surveillance radar, cameras (visible and infrared) and explosive detection devices

Motion sensors (IR, seismic) and illuminators (solar-powered)

Sniffer dogs

(e.g., rebel groups)

Aerial reconnaissance

GIS for alerts and detour planning

Recce for checkpoint detection (e.g. infrared)

Unmanned ground vehicle

Protection of

Protection from

VILLAGES/TRIBES

Community Alert Network (911 service, phone/SIM card distribution)
Identify friendly forces/civilians illuminator technologies (IRs)
Safe house/Shelters (e/g/ during incoming fire)
UAVs (mini, tactical and tethered to vehicle)

Anti-sniping, acoustic, radar shot-fire sensors, trajectory detection (to identify source of attack and respond, as well confirm identify of perpetrator)
QRFs (well-equipped)
Urban fighting tools (e.g. spotlights and illuminators)

Protection of

Protection from

REGIONS (COUNTRY)

Aerial surveillance (UAVs and turboprop planes)
Big Data (inc. social media analysis, crowd sourcing)
De-mining technologies (survey, detection, removal) inc. robotics
Safe havens
Satellite reconnaissance
UAS (High-altitude, long-endurance, inc. for vehicle detection)

High-altitude, long-endurance UAS
(inc. vehicle detection)

THANK YOU!

