{TESS+}
Telecommunications Security Standards
- Service Charter -

This updated {TESS+} Service Charter is formally endorsed by the IASMN (Interagency Security Management Network) and ETC (Emergency Telecommunications Cluster) (Feb 2022).

version V4.3 – 22 Feb 2022

Appendixes:
Appendix A: TESS/{TESS+} Business Case (as endorsed by the IASMN June 2020)
Appendix B: TESS/{TESS+} 2019/2020 budget expenditure analysis

Consultations:
"{TESS+} Future" ad-hoc Consultative Group
including the {TESS+ Interagency Steering Group and IASMN representatives);
IASMN Technical Advisory Group (IASMN TAG);
IASMN Steering Group;
Emergency Telecommunications Cluster (ETC).

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Revisions

Versions	Date Modified	Comments
Version 4.0a	21 January 2021	Original version – Endorsed by IASMN (Jan 2021)
Version 4.1	26 October 2021	Amendments reflect IASMN endorsed long-term funding and additional clarifications on service delivery accountability and responsibility, submitted to and supported by the IASMN Steering Group (Nov 2021)
Version 4.2	31 January 2022	Amendments were submitted to and endorsed by the ETC (Emergency Telecommunications Cluster), and submitted to the IASMN (Feb 2022)
Version 4.3	22 February 2022	After consultation with the IASMN, minor edits/clarifications were inserted. This final version is now officially endorsed by the IASMN and ETC (Feb 2022)

1. Executive Summary

This document provides an overview of the {TESS+} (Telecommunications Security Standards) services, summarizing the “why-who-what-how” including the requirements, mandate, key services, governance, accountability, oversight and reporting, the service model, staffing, funding, …

As such, this document provides the baseline for the institutionalized {TESS+} service, similar to what “the TESS Project Charter” (as endorsed by the IASMN in Jan 2019) provided for the TESS project.

This document is based on the “{TESS+} Programme of Work”, as endorsed by the IASMN in Jan 2020, adapted with subsequent additional feedback collected in a consultative process.

The main input was provided by the ad-hoc “{TESS+} Future” consultative group consisting of the {TESS+} Interagency Steering Group members and IASMN representatives.

The first version of this Charter was endorsed by the IASMN in Jan 2021.

To adopt the agreements reached in converting TESS (as a project) into {TESS+} (as a permanent service) inputs from the UNDSS, WFP, {TESS+} Interagency Steering Group, ETC, IASMN Steering Group and IASMN were adopted into this final version.

2. Background and mandate

Interagency standards for UN Security Communications Systems (SCS) were initially established in the late 1990s by UNSECOORD and an informal interagency technical working group, consisting of UNHCR, UNICEF, UNDPKO and WFP. These standards were expanded and forming part of the Minimum Operational Security Standards (MOSS) as outlined in the Field Security Handbook of 2006, which preceded the Security Policy Manual (SPM) and the Security Management Operations Manual (SMOM).

In 2009, reference was made to the standards within the MOSS Policy as part of the SPM. At that time, guidance was provided by the Working Group on Emergency Telecommunications (WGET).

With subsequent amendments to security policies and the revision of the Security Risk Management Policy which took into account MOSS and security risk management measures, specific responsibilities for security communications were not identified nor afforded to any entity.

The TESS Project

As of May 2018, at the request of the Interagency Security Management Network (IASMN, chaired by UNDSS) and the Emergency Telecommunications Cluster (ETC, chaired by WFP), a new interagency collaborative project, called Telecoms Security Standards (TESS), was formed to re-standardize the SCS for both existing and future purposes.

Coordinated by WFP, TESS worked in collaboration with all UN entities (represented through the IASMN), in consultation with NGOs (represented through the ETC), individual communications and security experts, and the private and public sector.

The conversion of TESS to {TESS+}

In January 2020, the IASMN and ETC endorsed the conversion of TESS, as a project, into {TESS+}, a permanent and institutionalized support service to the UN Security Management System (UNSMS) and NGO community, as of July 2020, with a mandate, budget, service deliverable and governance structure similar to TESS.

The TESS and {TESS+} mandate

In July 2018, UNDSS issued a communiqué, endorsed by the ETC and the IASMN, mandating TESS to provide clear recommendations on the standardization of future UN security communications systems (connectivity, applications and procedures) and to inform UNSMS decision makers and stakeholders to streamline their field investments for future security telecommunications services.

In January 2020 the IASMN agreed, endorsed by the ETC, to extend the TESS mandate to {TESS+} as a permanent, institutionalized service. Beyond its mandate for longer term standardization on SCS systems, {TESS+} is to provide active field support, guiding and assisting the UNSMS in establishing pragmatic and cost effective SCS solutions.

As such, {TESS+} is the primary global focal point for guidance and support on SCS in the UNSMS (UN Security Management System) and NGOs, working closely with Communications/ICT technical personnel of UNSMS organizations through the ICT Working Groups (ICTWGs), and security personnel of the UNSMS and NGO stakeholders.

At the country level, UN entities are strongly encouraged to adopt, implement and use the {TESS+} recommendations and guidance.

Common SCS systems versus intra-agency ICT systems

As mandated, {TESS+} only supports common SCS systems, and does not cover intra-agency operational communications systems, applications nor procedures, which remain within the authority of the ICT divisions of the UNSMS organizations.

3. {TESS+} requirements and key services

Requirements:

The UNSMS and NGO community recognized the TESS project was a "catch-up exercise". By the time the project ended in June 2020, the IASMN and ETC agreed TESS should be properly institutionalized as a permanent support service, “{TESS+}”, in full collaboration with all stakeholders.

As such, the key business requirement is for {TESS+} to provide continuous guidance and support on SCS for the UNSMS (UN Security Management System) and in a more limited capacity to NGOs (see chapter 11).

The {TESS+} key services:

1. Normative services:
    a. Standards design: Provide global technical and procedural (security) standards and guidance for the UNSMS through the design, testing and adoption of current and future technologies ensuring a standardized and well-adopted fit-for-purpose SCS architecture;
    b. Standards documentation: Ensure the SCS standards are adequately documented through global standards documents, manuals and training courses designed for field technical support personnel, security personnel as well as for the users and operators of the SCS;
    c. Assessments and monitoring: Assess the existing field SCS and recommend concrete improvements through remote support or onsite missions. Continuously monitor the status of the recommendations’ implementation, and the overall status of the field SCS;
2. Field support services:
    a. Standards implementation support: Provide hands-on remote or onsite technical guidance, training and capacity building to support the field-based UNSMS in the implementation of the SCS assessment recommendations;
    b. On-demand support: Provide hands-on remote or onsite technical support to resolve more complex technical or procedural SCS issues, for which a field UNSMS or technical team has insufficient capacity or knowledge.
3. Operational process support:

    This is not a key service delivery but defines how the {TESS+} operations are organised in order to deliver the key services.

    a. At a global level: facilitate and operationally coordinate all {TESS+} global services in close collaboration between the SCS technical service providers (UNICEF, UNHCR, OICT/DOS, WFP and ETC) and the main service clients (UNDSS, IASMN, NGOs – represented through the ETC);
    b. At a field level: facilitate and operationally coordinate all {TESS+} field services, in close collaboration with the UNSMS and the technical service providers at local, regional and HQ level.

The {TESS+} Service layers:

The {TESS+} key services are based on three service layers. Each layer builds on top of the other, starting from the connectivity layer:

a. Connectivity layer:
This layer defines the connectivity, the hardware components of the SCS, providing reliable telecommunications tools supporting staff security and safety.

b. Applications layer:
Based on the connectivity layer, this element, the software or data components of the SCS, defines which applications should be used.

c. Procedures layer:
Based on the previous two technological layers, this element defines and supports the UNSMS security and safety procedures and policies needed to ensure technologies are properly translated into standardized tools used by the UNSMS.

4. {TESS+} governance, accountability and oversight

The overall {TESS+} governance model

{TESS+} follows a consultative process defined as Responsible, Accountable, Consulted and Informed (RACI) governance model, described below:

- R (Responsible): Those who do the work to provide the services, or delegate the services while supervising the delivered services
- A (Accountable): The entity (or entities) ultimately answerable for the service deliverable or execution of the tasks.
- C (Consulted): Those entities whose input is sought in a collaborative process.
- I (Informed): Those entities which are kept informed of the progress and deliverables.

The RACI components are defined for each of the {TESS+} key services' components (cfr Chapter 3).

The key entities and their roles within the {TESS+} governance model

- **IASMN (Inter-agency Security Management Network) - *functional oversight***
  The IASMN assembles all UNSMS stakeholders, chaired by the UNDSS USG. Any input to the IASMN is routed first via the IASMN Steering Group, a subgroup of the IASMN. The IASMN has different working groups, which have interactions with {TESS+}, such the IASMN TAG (Technology Advisory Group), and the Working Group on SCS Guidance and Procedures. The IASMN shares functional oversight over {TESS+} with the ETC.
- **Emergency Telecommunications Cluster (ETC) - *functional oversight***
  The ETC is a humanitarian cluster entity, which comprises of a global network of humanitarian organizations (both UN and non-UN) that work together to provide shared communications services in humanitarian emergencies. The ETC lead agency is appointed by Inter-Agency Standing Committee (IASC). Within {TESS+}, the ETC represents the NGOs. The ETC shares functional oversight over {TESS+} with the IASMN.
- **{TESS+} Coordinating Agency (CA) - *administrative support***
  This entity is a UNSMS organization designated by the IASMN to host the {TESS+} service through the provision of administrative support to the {TESS+} services, while the functional oversight remains with the chairs of the IASMN and ETC. WFP is the current {TESS+} CA .
- **{TESS+} Senior Programme Manager (SPM)**
  The SPM is appointed by the CA as the overall {TESS+} coordinator and facilitator, and responsible for the {TESS+} service delivery and operations.
  The SPM is recruited by and administratively reports to the CA. With WFP appointed as the CA, the SPM administratively reports to the Director of the WFP Technology Division. The SPM functionally reports to the Chair of the IASMN (representing the UNSMS) and the Chair of the ETC (representing the NGOs, for a more limited support as outlined in Chapter 11).
- **{TESS+} Core Service Team (CST)**
  This is the "operational arm" of {TESS+} consisting of subject matter technical experts either directly contracted by the coordinating agency (and thus functionally and administratively reporting to the SPM), or seconded by donors, or {TESS+} stakeholders (functionally reporting to the SPM and administratively reporting to the seconding entity). The seconded technical experts from {TESS+} stakeholders are provided as in-kind, to assist the {TESS+} core service team on an ad hoc basis.
  The CST is involved in field assessments, field support, coordination of all technical tests, and

input to other processes such as the design of training and manuals and provides the technical input into commercial contracts.

- **{TESS+} Interagency Steering Group (IASG)**
  The IASG consists of:
  - The five main technical SCS field service providers (UNICEF, UNHCR, OICT/DOS, WFP and ETC)
  - The key business client stakeholders: UNDSS, ETC –representing NGOs as both service providers and business clients-, and the IASMN. Currently the IASMN is represented in the IASG by IOM and ITU (as per the IASMN decision of January 2020).
  - In a consultative role: key members of the {TESS+} Core Service Team

  Each IASG stakeholder has a maximum of 2 permanent seats, and a maximum of 2 alternate seats in the IASG. The ETC and IASMN members in the IASG are appointed through a formal process.

  The IASG is supported by {TESS+} Technical Working Groups, with key subject-matter experts representing all IASG stakeholders.
  The IASG is facilitated by the {TESS+} SPM.

- **{TESS+} online community**
  This is an open community assembling anyone interested in {TESS+}, be it technical, security or operational staff from a UN AFP or NGO or a commercial, public, donor or academic entity.

In summary: the {TESS+} governance

- {TESS+} is led by the Senior Programme Manager (SPM), who is responsible for the {TESS+} service.
- The SPM is appointed by and administratively reports to the Coordinating Agency.
- The SPM functionally reports to the IASMN (through the IASMN Chair) representing the UNSMS, and to the ETC (through the ETC Chair) representing the NGOs.

In detail: the {TESS+} governance matrix (following the RACI model):

	Responsible	Accountable	Consulted	Informed
1.Normative services				
1.a Standards design	SPM (supported by IASG and IASG working groups)	Chair of the IASMN (UNSMS), Chair of the ETC (NGOs)	IASG, IASMN TAG, ETC, UNDSS DRO (and IASMN WGs where appropriate)	All involved R-A-C stakeholders, TESS online community
1.b Standards documentation	SPM (supported by IASG and IASG working groups)	Chair of the IASMN (UNSMS), Chair of the ETC (NGOs)	IASG, IASMN TAG, ETC	All involved R-A-C stakeholders, TESS online community
Assessments and monitoring	SPM (supported by CST)	Designated Official of the target country (supported by the field UNSMS and ICTWG)	IASG, IASMN TAG, ETC (where deployed), UNDSS DRO, field UNSMS and ICTWGs	IASG, IASMN TAG, field UNSMS and ICTWGs, UNDSS DRO (where appropriate: Regional and HQ UNSMS technical and security personnel)

	Responsible	Accountable	Consulted	Informed
Implementation of global standards and {TESS+} assessment recommendations	Field UNSMS and ICTWG	Designated Official of the target country (supported by the field UNSMS and ICTWG)	SPM (supported by CST)	IASG, IASMN TAG, field UNSMS and ICTWGs, UNDSS DRO (where appropriate: Regional and HQ UNSMS technical and security personnel)
2. Field support services				
2.a Standards Implementation support	SPM (supported by CST)	Designated Official of the target country (supported by the country UNSMS and ICTWG)	Field UNSMS and ICTWGs (where appropriate: Regional and HQ AFP technical and security personnel)	IASG, IASMN TAG, field UNSMS and ICTWGs, UNDSS DRO (where appropriate: Regional and HQ UNSMS technical and security personnel)
2.b On-demand support	SPM (supported by CST)	Designated Official of the target country (supported by the country UNSMS and ICTWG)	field UNSMS and ICTWGs (where appropriate: Regional and HQ AFP technical and security personnel)	IASG, IASMN TAG, field UNSMS and ICTWGs, UNDSS DRO (where appropriate: Regional and HQ UNSMSN technical and security personnel)
Implementation of recommendations from field support services	Field UNSMS and ICTWG	Designated Official of the target country (supported by the field UNSMS and ICTWG)	SPM (supported by CST)	IASG, IASMN TAG, field UNSMS and ICTWGs, UNDSS DRO (where appropriate: Regional and HQ UNSMS technical and security personnel)
3. Operational process support				
3.a Global level	SPM (supported by IASG)	CA	CA, IASG, IASMN	CA, IASG, IASMN, ETC
3.b Field level	SPM (supported by IASG and CST)	CA	CA, IASG, IASMN	CA, IASG, IASMN, ETC

{TESS+} administrative support

The coordinating agency (CA) is the administrative host of {TESS+}, and as such is its administrative managing entity, ensuring all {TESS+} activities are conducted in accordance to the CA's administrative rules and regulations.

This CA services include:

- Ensuring any actions or transactions in the area of finance, administration (e.g. travel) and HR (e.g. recruitment and supervision of personnel hired by the CA for the {TESS+} service) are conform to the CA's corresponding rules and regulations.
- Legal representation: The CA represents {TESS+} towards external entities, including procurement/financial transactions and legal agreements (e.g. signing of Memoranda of Understanding or Non-Disclosure Agreements, financial registration of external funding).

While the {TESS+} CA provides the administrative financial support services, the CA is not accountable nor responsible for the {TESS+} global normative services or field support services, or their implementation, as clearly outlined in the RACI table above.

5. {TESS+} services delivery and delivery process

The {TESS+} services at global level

These services include two normative services (standards design and standards documentation).

- Standards at the technology side (connectivity and applications layer):
    - This process starts at the architectural (high) level, typically designed by the IASG
    - The architecture draft goes through a consultative process (as outlined in Chapter 4) before it is submitted to the IASMN (via the IASMN Steering Group) for formal endorsement
    - Based on the architecture, the Core Service Team works with IASG Working Group, assembling technical subject-matter experts to test the technologies which can be used in both lab and field tests.
    - Based on these field tests, a technical standards document is drafted, reviewed in a consultative process, and officially published.
    - Based on those standards, the appropriate manuals, training modules and inputs for procurement processes are developed and published, after review by the IASG and IASMN TAG.
    - During the different steps in this process, a large stakeholder group is kept informed through public webinars.
- Standards at the security side (procedures layer)

  These standard concentrate on adopting technologies into security guidance and procedures, and have a different delivery process:
    - Draft SOP or guidance documents are submitted to the IASMN Working Group on Guidance and Procedure for SCS, which assembles technical and security staff
    - The drafts go through an editing process within this Working Group, during which, if applicable, external entities (e.g. other working groups) are consulted.
    - The final draft of all procedural documents is submitted to the IASMN (through the IASMN Steering Group) for endorsement, after which they are published.

The {TESS+} services at field level

These services include assessments and monitoring of field SCSes (at the normative side) and include the field support services (standards implementation support and on-demand support).

The over-arching goal of these field services is to make the target UNSMS as self-reliant and compliant as possible, so it can support its own operations (at the three {TESS+} layers.

The approach is to provide these services remotely wherever needed and appropriate. If remote support is deemed ineffective, too time-consuming or costly, a field missions will support the country UNSMS and the local ICTWGs, executed by the {TESS+} core Service Team in collaboration with all stakeholders.

The process is:

- A request for support (assessment request, standards implementation support or on-demand support) is received from any of the {TESS+} stakeholders.
- The SPM allocates a case officer from with the CST (Core Service Team) who contacts the target operation, to assess the issue, and to evaluate if a mission is needed, or if the issue can be handled remotely.

- If the issue is handled remotely, the case officer coordinates all tasks needed.
- If the issue is handled through a mission, the target operation is included in the overall mission schedule:
    - {TESS+} missions' prioritization is done with input from the {TESS+} IASG (Interagency Steering Group) and the IASMN TAG, while ensuring the flexibility for the {TESS+} Core Service Team to respond to emergency requests.
    - The SPM (or delegated to a {TESS+} Core Service Team member) drafts a TOR with a mission schedule, and requests formal approval by the DO and UNDSS Security Advisor in the target operation.
    - Based on this, the mission is scheduled and executed. It typically includes remote preparations with key people from the UNSMS, UNDSS Security Advisor and members of the ICTWG, who are also the key partners during the actual mission.
    - The draft mission report is screened by the local UNSMS and ICTWG members, and the final version is sent to the DO and the UNDSS Security Advisor. The mission reports are published on UNSMIN and distributed to the involved local, regional and HQ stakeholders, including the IASMN TAG.
- After the remote support or mission, the SPM appoints a country case officer, who follows up and monitors the post-mission implementation of the recommendations or technical plan.
- {TESS+} will keep a continuously updated comprehensive overview of the SCS status in all supported countries. This will include the status of the endorsement and implementation of the mission or remote support recommendations. This overview will be distributed to the IASMN and UNDSS DRO on a 6-monthly basis, highlighting any unresolved SCS issues (either with endorsement or implementation of the recommendations). These issues will need mediation, guidance, advice or support by either UNDSS DRO or the IASMN.

The coordination with the local ICTWG and UNSMS

- At any stage, for either assessments and technical support missions, the country ICTWG and UNSMS remain the focal points to support and operate the SCS, with the ultimate accountability resting with the Designated Official.
- In all its activities, {TESS+} aims at ensuring the local ICTWG and UNSMS can support and operate the SCS. As such, capacity building and training is at the core of any {TESS+} support and guidance.

Note:

All {TESS+} related documents are published in three different repositories, dependent on the target public:

- *UNSMS Security Personnel (with a UNSMIN profile)*: All mission reports, standards and IASMN-endorsed documents are published on UNSMIN.
- *UN personnel*: All mission reports and UN-internal documents are published on a restricted library (access by UN personnel to this library is to be requested by email via TESS@wfp.org)
- *Public access*: Public documents (including standards, IASMN-endorsed documents, training and webinar material, technical resources,…) are published on a public library: http://bit.ly/tess-public (no login required)

6. {TESS+} staffing

{TESS+} has many stakeholders, who contribute at many different levels, be it in the governance (e.g. the {TESS+} Interagency Steering Group and its supporting technical working groups), in actual field assessment and support missions, or remote support and post-mission follow-up.

As such, only a few positions in the {TESS+} service require dedicated core staff, such as the SPM and the staffing needed for the core {TESS+} Core Service Team.

The SPM position is allocated to a specific person, recruited by the CA. The SPM's TOR should reflect the tasks and responsibilities for that position as per the {TESS+} Service Charter. It is up to the CA to determine the time allocation and contract modalities for the SPM.

The {TESS+} Core Service Team, being subject-matter experts, can be contracted directly, or seconded by donors or other UNSMS organizations, under the direct supervision of the SPM.

The {TESS+} Core Service Team contracting, be it as direct consultancies or secondments, is based on a "Work as Actually Employed" arrangement: to optimize the {TESS+} running costs, these resources are only paid or compensated for work when actually needed or are provided as an in-kind contribution to the {TESS+} service.

The {TESS+} Core Service Team is administratively and functionally supervised and coordinated by the SPM.

7. Programme of Work (2021-2022)

Approach and review cycle

The {TESS+} Programme of Work is based on an overall bi-annual set of priorities, which are to be detailed and dynamically reviewed by the IASMN and ETC through a 6-monthly review and approval cycle, which is to be linked to the funding cycle.

2021-2022 priorities

These priorities are structured according to the {TESS+} key services (cfr chapter 3)

1. Normative services:

   a. Standards design:

   i. Currently used technologies:

      VHF radio networks: completed in 2020

      VTS (Vehicle Tracking Systems): done, follow up on the IASMN agreement for the implementation of a standard and uniform platform usable for SOCs, UNDSS Security Advisors and AFP FSOs.

      HF radio networks: approach completed in 2020. Provide technical guidance on the phase out of HF radio, per operational area

      MSS (Mobile/Portable Satellite Systems): Provide overall architecture and approach, guide it through the IASMN and ETC approval process. Provide practical technical guidance documents, usable at field level.

   ii. Future technologies:

      Continue to liaise and work with the private sector to ensure future technologies are usable and adoptable for the use as a UN SCS, compliant with our “future” architecture

   b. Standards documentation:

      VHF radio networks: Finalize the VHF training and manuals set. Provide and support training (online or onsite) for field personnel

      VTS (Vehicle Tracking Systems): Ensure VTS service providers (private sector) are aware of the standards, and properly implement the software interfaces. Ensure the operations of a centralized SOC Vehicle Tracking Systems tool is properly documented and training modules are provided to SOC assistants

      HF radio networks: ensure the technical guidance on the phase out of HF radio, per operational area is well documented and distributed to the field.

      MSS (Mobile/Portable Satellite Systems): Provide practical technical guidance documents and training modules to implement MSS systems at field level.

   c. Assessments and monitoring:

      Continue to monitor the status of the implementation/adoption of the TESS recommendations (i.e. provided through assessment or technical support missions). New assessment missions are to be fielded pending COVID travel restrictions and DOs approval. Remote assessments and support are done where on-site support is not needed or is not feasible.
      All operations where TESS or {TESS+} missions and remote support is provided are

aggregated into a continuously updated SCS status sheet which will be shared with the IASMN on a six-monthly basis.

2. Field support services:

   a. Standards implementation support: Provide hands-on remote or onsite technical guidance, training and capacity building to support the field-based UNSMS in the implementation of the SCS assessment recommendations;

   b. On-demand support: Provide hands-on remote or onsite technical support to resolve more complex technical or procedural SCS issues, for which a field UNSMS or technical team has insufficient capacity or knowledge.

   c. Ensure the primary and backup SCS is well defined in all operations, and is properly implemented, operated and supported

   d. Optimize the SCS systems, specifically at the level of radio-based systems, ensuring these are fit-for-purpose, cost-effective and efficient. Priority should be given to the optimization of VHF/UHF radio based SCS systems, in terms of the implementation of Remote SOC systems and bridging VHF systems.

3. Operational process support:

   This is not a key service delivery, but rather defines how the {TESS+} operations are organised in order to deliver the key services. The overall goal is to keep the operational overhead (cost and effort) to a minimum at a maximum impact.

8. {TESS+} funding

Cost savings and improved efficiencies.

In Appendix A, we attach the TESS/{TESS+} business case as recognized and endorsed by the IASMN in June 2020, which noted *"(the IASMN) recognized the cost savings and improved efficiencies realized by the TESS project, and the potential for further cost savings and efficiencies for the {TESS+} as an institutionalized longer-term service, as presented in the TESS/{TESS+} business case."*

In summary:

a. It is recognized TESS (2018-2019) provided an annual cost saving on investments of US$1.76 million and an annual operational cost saving of US$ 95K versus an annual project cost of US$0.922 million of operational cost.
b. It is recognized in the projections for 2021 and following years, the annual {TESS+} cost savings on investments is estimated at US$6.2 million and the operational cost savings are US$8.2 million, versus an expected service cost which was at the time of the business case submission estimated at US$1.52 million (this service cost, which is refined and detailed further below, now reduced to US$840K/year).

{TESS+} Centralized funding needs.

Appendix B provides the detailed breakdown of the 2019 TESS budget expenditure (US$91K/month) and the breakdown of the optimized 2020 TESS/{TESS+} expenditure (US$62K/month).

The budget expenditure optimization was done by:

- Optimizing the DSA (Daily Subsidiary Allowance) for TESS/{TESS+} Core Service Team members on consultancy contracts and on non-mission status (working on remote support, reports, generic support) are now to be based at home (where DSA is not applicable) rather than to be based at a duty station (where DSA was applicable).
- Re-negotiating the costs of the Core Service Team daily rate with the current service provider (FITTEST)
- Properly implementing WAE (Worked as Actually Employed) contracts for several of the Core Service Team.
- Re-negotiating the costs of the Core Service Team costs for non-active weekend and holiday days while on non-mission status.

Based on these figures we expect the 2021-2022 funding requirement to be US$70K/month or US$840K/year.

{TESS+} Centralized funding source

Based on the agreement in the IASMN online consultation held in August 2021, IASMN members agreed to provide permanent annual funding to {TESS+} as of January 2022, through an incremental increase in the JFA (Jointly Funded Activities) account, a source jointly funded by the IASMN members and managed by UNDSS.

If additional funding for {TESS+} activities is found from external donors, those contributions are to be deducted from the centralized JFA funding needs.

At any time, for field-based technical support missions, the SPM seeks cost-recovery funding from the target countries, which are to be included in the calculations of budget expenditures and

spending forecasts. It should be noted that recovering the costs for technical missions poses a number of additional administrative complexities and inherent risks which are further detailed in Chapter 10.

9. Reporting

The {TESS+} mission reports

{TESS+} mission reports, for assessments or technical support, are forwarded to the country DO and UNDSS Security Advisor, copying all stakeholders involved in the mission. Mission reports are published on UNSMIN and distributed to the IASMN TAG.

The {TESS+} financial reports

{TESS+} financial reports, including budget expenditures and forecasts, are monthly reported to UNDSS, as the JFA custodian, and summarized on a 6-monthly basis for review by the IASMN Steering Group and IASMN.

The {TESS+} service progress and planning reports

{TESS+} progress and planning reports are forwarded monthly to the IASMN TAG and on a 6-monthly cycle, presented to the IASG, IASMN Steering Group and the IASMN.

The {TESS+} SCS status report

The {TESS+} SPM keeps track of the overall global SCS status and implementation status of recommendations for each country the service supports, presenting a status overview to the IASG, IASMN TAG, IASMN Steering Group, and IASMN on a 6-monthly basis

10. Risk Management and mitigation

Funding:

The main risk factor in the continuous {TESS+} service provision involves its long-term funding. It is critical that continuous annual centralized funding is provided for the {TESS+} service, as agreed during the IASMN online consultation in August 2021.

Discontinued centralized funding will mean the {TESS+} services are suspended, with the risk of the UNSMS regressing back into the pre-TESS situation where gradually SCS become fragmented, over-costly and not fit-for-purpose.

Lack of continuous centralized funding will cause (temporarily) suspended services, with the challenge of having to restart services when funding becomes available, which will cause a significant operational and cost overhead.

Mitigation: While the {TESS+} service is responsible for its service deliverables, budget expenditure monitoring (including assuring that expenditures are kept as efficient as possible) and reporting, the identification and allocation of the funding is the responsibility of the IASMN.

Cost recovery for technical support missions

While it Is proposed to have a centralized core {TESS+} funding, there is also an overall consensus that technical support missions will be cost-recovered from the target countries as much as possible.

Recovering the cost for technical support missions might include additional risks or complexities:

(a) target countries might be unable or unwilling to fund {TESS+} technical missions, even though, according to {TESS+}, they need the extra technical support;
(b) specifically smaller field operations might have problems
(c) target countries might have difficulties or resistance to include the cost of {TESS+} technical missions in their annual LCSSB, which goes through a rigorous and long approval process;
(d) for 2021, all LCSSB budgets have already been approved and fixed: Providing ;
(e) Cost recovering missions is administratively complex. While within {TESS+} there is an administrative/financial mechanism to receive funding from target countries via an internal charging/invoicing mechanism, in the past we have seen several target countries struggling to find a way to process this internal invoices within the limitations of their procurement processes, systems and procedures;
(f) Internal charging and cost-recovery processes are often lengthy and complex, and can cause significant delays to technical support missions (which has been proven in different past cases).

Mitigation: The SPM will have to use sound judgement which technical support missions are to be/can be cost-recovered on case-by-case basis.

Adoption at field level:

The Designated Official for each country, supported by the local UNSMS and ICTWG (ICT Working Group), is responsible the adoption and implementation of the {TESS+} standards and assessment recommendations. It is possible this adoption and implementation, for various reasons, is not done.

Mitigation: {TESS+} continuously supports and monitors the adoption and implementation of the standards and its assessment recommendations. {TESS+} reports possible issues to the UNDSS desk officers and to the IASMN.

Support to NGOs:

The UNSMS governance, guidance and support is well structured, with clear responsibilities, accountability, policies and guidelines, and coordinated by a dedicated UN Department. However, this is not the case for NGOs or other implementing partners neither at global or local level.

Beyond that, the agreed security and safety services the UNSMS provides for NGOs at a local level often varies for each SRMA (Security Risk Management Area) or Designated Area.

This makes it challenging to provide {TESS+} services to NGOs, globally and locally.

Mitigation: At a global level, the ETC represents the NGOs (and other entities) as service clients, and as such, NGOs are encouraged to engage with {TESS+} through the ETC. At a local level, where the ETC is active and deployed, as a cluster, the ETC user groups also include NGOs. Where the ETC is not active or deployed, {TESS+} follows the local UNSMS arrangements towards NGOs, within the Saving Lives Together framework. During field missions, {TESS+} continuously tries to identify and engage the NGO counterparts.

11. {TESS+} and NGOs

NGO representation in {TESS+}

While within the “Saving Lives Together” framework, {TESS+} provides services to both the UN (UNSMS organizations), it is recognized that in the field many of the UN operational services are provided by implementing partners, such as NGOS.

While the UNSMS is well organized, regulated and structured as a safety and security framework for UN agencies, the coordination of security services within the NGO community is far less structured.

Lacking a formally recognized central NGO security coordinating body, within {TESS+} the representation of NGOs is centralized through the ETC.

Services for NGOs in the field

Within the “Saving Lives Together” framework, the actual services and support provided for NGOs in the field, is done in coordination with the country UNSMS, defined by their local security arrangements and agreements. As such, the level of services {TESS+} provides to NGOs in the field, is defined by the country UNSMS in the field operations.

The TESS and {TESS+} Business Case

Version 5.2
June 11 2020

Data collection and initial draft
by Alf Ellefsen (TESS Senior Assessment Officer)
Final edit
by Peter Casier (TESS Senior Programme Manager)

In June 2020, the IASMN "recognized the cost savings and improved efficiencies realized by the TESS project, and the potential for further cost savings and efficiencies for the {TESS+} as an institutionalized longer-term service, as presented in the TESS/{TESS+} business case"

1. Background.

The interagency standards for UN Security Communications Systems (SCS) were initially established in the late 1990s by UNSECOORD and an informal interagency technical working group, consisting of UNHCR, UNICEF, UNDPKO (now DOS/OICT) and WFP.

In May 2003, UNSECOORD and the IASMN endorsed a document standardizing radio callsigns and VHF/HF radio selective calls. These initial standards were further expanded with proper security communications connectivity standards for each UN security phase, included in the Minimum Operational Security Standards (MOSS). MOSS also identified the standards for the support infrastructure, and appointed WFP as the lead entity for UN security telecommunications support and guidance.

For a number of reasons, from 2005 to 2018, the UN system no longer had a single entity formally mandated to provide standards, guidance and support for common security communications systems (SCS). Instead, individual AFPs (agencies, funds and programs) and NGOs relied on older standards or developed their own, without a clear common UN strategic approach nor the direct involvement of the UNSMS stakeholders, being the actual business clients.

Testimony: The reality of UN Security Communications Systems anno 2018:
"Through my work, I visited many high risk field operations. Frankly, by 2017, I was appalled to see the amount of radio equipment installed in vehicles, offices, and dispersed through our operations, which were almost never used, giving a false sense of security. Back in the 1990's, those were tools critical for our operations and staff security, but this was the 21st century... I was convinced, as a UN system, together with our NGO partners, we could do better. So we pushed to start the TESS project, as I knew this could make our operations more efficient and cost effective, and ultimately, safer. Two years into the TESS project, I am happy with the progress TESS has made. But this is only the beginning. We can do more and better, together. (Enrica Porcari, Director WFP Technology Division, Chair ETC)

Consequently, the UNSMS was gradually faced with outdated or incompatible technologies, dispersed systems used as their existing Security Communications Systems (SCS). Overall, the UNSMS in most countries had cost-ineffective UN security communications services which were no longer fit-for-purpose which, at core, posed a risk to the safety and security of UN and NGO personnel.

Example: The use of mobile phone systems as a Security Communications Systems tool:
Up July 2018, a combination of radio and satellite communications tools were officially still the sole official UN security communications systems in most countries. This was based on a communiqué from UNDSS in 2005, which did not allow the use of mobile phones as a security communications tool. However, since 2005, the public mobile phone networks had spread into the deeper field, became more reliable with cheaper subscriptions. De-facto, by 2018, in most countries, mobile phones had taken over as the primary security communications tool for many years already, but this was not standardized nor formally recognized. Until TESS came around...

In May 2018, the TESS project was established, on request of the IASMN (Interagency Security Management Network) and the ETC (Emergency Telecommunications Cluster), to collaboratively develop updated SCS standards and solutions, for connectivity (hardware) and applications (software) using both current and up-coming technologies. TESS was also requested to contribute to

updated security guidance and procedures supporting the SCS, in close collaboration with the business clients (IASMN, ETC, UNDSS).

As the TESS project evolved, ample opportunities were identified to not only make the field security communications more effective, but also to significantly optimize investment and operating costs, even by using currently deployed technologies, through onsite or remote assessment and support missions.

Testimony:
"During the April IASMN Steering Group, Bill Miller (Director UNDSS DRO) expressed support for the project, including the need for on-site TESS assessments and support mission, noting it has given the UNSMS a chance to re-evaluate how it communicates and benefited the entire system. He noted that the options proposed by TESS missions were tailored to each country." (Bill Anthony Miller, Director Regional Operations, UNDSS New York)

TESS was created as a two-year project using a collaborative approach with stakeholders from the UN system working closely with NGOs and the public/private/academic sector. As the project progressed and efficiencies and cost savings were realized, it became obvious that a continued availability of the services provided by the project would be required.

By June 2020, {TESS+}, a common and permanent service, endorsed by the IASMN and the ETC, built on the same foundations of TESS, will replace the TESS project ensuring a continuous adoption, standardization and support of new security communications technologies, translated into proper security procedures and guidance.

This document presents the business case behind the TESS project, and {TESS+} as its institutionalized service. This business case was requested by the IASMN Steering Group (April/May 2020), for submission to the 32nd session of the IASMN (June 2020).

This business case approach is aggregating:

1. ***The benefits of TESS by means of actual figures for the two-year project phase, and***
2. ***Estimated and potential benefits of {TESS+}, as an institutionalized service.***

In both cases (TESS and {TESS+}), benefits are divided into actual cost savings and efficiencies, for the UN system globally. Any direct cost savings, actual or potential, are compared with the TESS/{TESS+} operational costs.

As standard in the TESS and upcoming {TESS+} modus operandi, this business case was developed collaboratively, in four weeks, with practical input from our stakeholders, including members of the IASMN, ETC, TESS Interagency Steering Group and the IASMN TAG.

We would like to acknowledge the input from:

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Luc Vandamme, UNDP, Director Security Office
Rita Richter, UNHCR, Head of the Asset and Fleet Management
Enrica Porcari, WFP, Director Technology Division; ETC, Chair
Roman Sinchuk, UNHCR, VTS project, Global Fleet Management
Erwan Rumen, WFP, Chief Operations and Policy, Security Division
Marzia Campodonico, WFP, Business Support Assistant
Dzenan Viteskic, UN Women, Global Security Specialist – Business Continuity Manager

Stephane Imberton, UNHCR, Senior Technical Security Advisor
Elias Ntawuruhunga, UNHCR, Regional ICT Officer (Dakar)
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Mark Hawkins, Save the Children International, Global Humanitarian Technology Manager
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Simbarashe Nyambauro, UNICEF, Administrative Specialist, Field Services Unit
Frederic CAILLETTE, WHO, Fleet Manager
Gilles Hoffmann, Emergency.lu coordinator, Luxembourg
Jalal Shah, WFP, Global ETC Coordinator
Tomislav Condic, UNDP, Regional Security Adviser, Asia & Pacific
The TESS Core Project Team

2. Definitions

2.1 Definition of terms used:

(Capital) Asset	a piece of equipment, owned and required by the organization in order to deliver its mandate.
Investment costs	one-time cost attributed to acquiring assets.
Asset value	is equivalent to the acquisition cost of the asset
Operational costs	recurring costs related to the operation of an asset or service, e.g. subscription fee for a satphone or mobile phone, or salary for SOC Assistants.

2.2 Financial indicators (defined within the context of this document):

Savings on investment	one-time saving that can be realized by choosing to acquire one, more cost effective, solution over another.
Operational costs savings	recurring cost savings that can be realized by choosing a more cost-effective solution over another.
Payback (time)	the time it will take for cost savings from an investment to pay back that investment.
Assets value reduction	the reduced total value of the deployed assets, when all these assets (over their operational lifetime) are replaced with a more cost-effective solution or through more efficient procurement process. It is calculated by multiplying the cost savings per unit with the quantity of assets deployed currently.

3. Summary: TESS/TESS+ cost saving and efficiencies

	TESS - Actuals[1]	{TESS+} - Projections
 Asset value reduction		**USD 41.1 M**
 Cost savings on investments (annual)	**USD 1.76 M**	**USD 6.2 M**
 Operations cost savings (annual)	**USD 95 K**	**USD 8.2 M**
 Project cost (annual)	**USD 922 K[2]** **(Operational cost of TESS)**	**USD 1.52 M** **(Operational cost of {TESS+})**
 Efficiencies	Fit-for-purpose global standards adapted for local solutions, using existing technologies. Partial transfer of SCS cost, risk and complexity by adopting third party infrastructures and services Common testing of existing and new technologies. Global SCS standards, field guidance and technical field support Translating technologies into proper security guidance.	Institutionalized single global focal point for SCS support and guidance Opportunities to establish common UN service contracts for key services, ie Satphones and mobile phones. Optimize field operations through e.g. consolidated SOC services. Continuously tested and updated SCS standards and training across the globe.

[1] Figures have been summed up, and divided over the two-year duration of the TESS project.
[2] Total actual cost for the TESS project over two years (USD 1.85 M) is divided equally over two years for the sake of simplicity. In reality, less was spent the first 6 months during the project start-up, while the operational costs increased as the rate of activities increased.

4. TESS project (2018 to 2020) – Actual

The following demonstrates the actual cost of and benefits resulting from the TESS project during its two-year active period. Apart from the direct cost benefits and efficiencies, one of the key achievements of the TESS project is that it has created a solid foundation for further efficiencies and cost saving in the future.

USD 1.76 M	USD 95 K	USD 922 K
		
Cost savings on investments (annual)	Operations cost savings (annual)	Cost of running TESS (annual)

4.1 Direct cost savings

The main direct cost savings were realized by three key TESS initiated actions:
(1) A UNDSS USG communiqué (July 2018), formally recognized mobile phone systems could be used as an SCS tool, and consequently reduced the over-reliance on VHF radio networks as the primary SCS;
(2) Redefining, optimizing and largely simplifying the VHF radio SCS standards, to be based on improved legacy analogue standards rather than forcing UNSMS in multiple countries to migrate to digital VHF standards.
(3) A UNDSS USG communiqué (April 2019) publishing the new VHF standards.

Concretely: since publication of the new VHF standards, not a single analogue VHF network was migrated to digital VHF. Since the start of the TESS project, all planned migrations to digital VHF were stopped, with only two exceptions, where the procurement process was initiated before the new standards were published: Kinshasa (DRC) and Togo.

This represents a significant cost saving for the UNSMS, as migrating analogue to digital radio infrastructures is costly and complex. Even more importantly, individual AFPs have realized considerable cost savings from "not having to purchase" new digital VHF user equipment (handhelds, mobile radios), as the new analogue VHF standards also supported all older legacy user equipment.

Testimony:
"Before TESS, WFP annually spent USD 2.7 million on procuring new VHF/UHF radios (2017 figure). Since TESS started, and the SCS reliance on VHF/UHF was rationalized and reduced, immediately our annual expenditure went down: In 2018, TESS' first year, we spent USD 2.1 million on VHF/UHF radios, and in 2019, this was further reduced to USD 1.6 million. Cumulatively, this represented 1.7 million of savings over two years. This means only this saving, for only one agency, for only one SCS tool, could almost have paid for the entire TESS project for two years. I can only imagine what the cost saving was for the entire UN system. Beyond the cost savings, through rationalizing the use of VHF/UHF radios as SCS tools and officializing the use of mobile phones as security comms tools, also increased the efficiency of the SCS. Cost savings and increased efficiency, what more could we ask for?" (Erwan Rumen - Chief Operations and Policy Security Division, WFP)

Prior to the start of TESS, many countries had developed plans to migrate to a digital VHF network. In a number of countries this pending migration was already in an advanced stage: often the SMT or OMT had already approved the migration, or tenders were already issued and in some countries the budget was already allocated or approved.

In the first six months of the TESS project, the countries in the list below where targeted to review the need to migrate to digital VHF systems (or in the case of Nepal, to reduce the pending upgrade of the existing digital VHF network). In all cases, the planned migration was stopped, on the advice of TESS, through onsite assessments (with the exception of Somalia where the support was given remotely).

The Mauretania case:
Early 2018, the UNSMS had decided to upgrade its VHF radio network in three locations to digital technology at an investment cost of almost USD 474K. A TESS assessment proved that the use of mobile phone services combined with the existing analogue VHF network would provide a robust SCS, meeting their requirements. Cancelling the migration to digital led to a one time saving of USD 474K and an annual savings of USD 22K related to the licensing cost of the proposed digital VHF system. The savings do NOT include the additional cost of upgrading all legacy user equipment for all AFPs.

The table below lists only those countries where TESS actively engaged to halt ***imminent*** digital VHF upgrades. This list does not include all other countries with less advance upgrade plans, all of which were 'automatically' stopped once the new UN standards for VHF systems were published.

The figures represent the value of planned digital VHF infrastructure upgrade and/or user equipment.

Country	Savings on capital investment	Savings operational cost (annually)
Mauritania	474,000	22,000
Guinea-Bissau	420,000	33,600
Senegal	300,000	
Bangladesh	1,000,000	20,000
Nepal	206,000	20,000
Malawi	100,000	20,000
CAR	350,000	20,000
Somalia	680,000	14,573
Grand Total	**3,530,000**	**94,573**

Testimony:
"While there are still tasks currently being completed, in two operations (CAR and Burkina Faso), our staff acknowledge the efforts and added value from TESS to resolve the problems of security communications which impacted them negatively in the past: I had personally participated in the CAR situation where UNHCR was asked to contribute a sum of 400,000 USD for the implementation of a digital network. This dossier was, at the time (before the TESS mission), escalated up to the levels of UNHCR HQ (ICT services and security). But today, we are satisfied this problem is well under way of being resolved. "(Elias Ntawuruhunga, UNHCR Regional ICT Officer Dakar)

4.2 Efficiencies and non-quantifiable savings

Here is a non-exhaustive list of the main efficiencies realized through TESS.

4.2.1 Fit-for-purpose approach

Testimony:
"During TESS' mission in Benin, the team made the diagnosis of our VHF and HF telecommunications network. At the end of this mission, recommendations were made to us to optimize our communication set-up, which were implemented and our communication improved." (Patrick Nelson Udeh, SA, UNDSS Benin)

Breaking with legacy main reliance on radio systems for SCS and adopting a fit-for-purpose approach has allowed mobile phone services to be formally adopted as a key component of the SCS. This formed the foundation for a more cost efficient and effective standard for SCS solutions.

4.2.2 Partial transfer of SCS cost, risk and complexity by adopting third party infrastructures and services.

Shifting from UN installed/supported proprietary SCS systems onto third party services, such as mobile phone networks and satphones, has led to less complex infrastructures to be managed and supported by the UN system. This reduced the need for (or reliance on) the required highly specialized expertise of the technical support teams in each country. This specialized expertise needs a skill set which we would have had to largely rebuild, if we had continued to solely rely on our own radio networks for SCS systems.

With the UN moving, to a large degree, from managing its own infrastructure to managing the services of the third-party providers (mobile phone networks and satellite systems), the SCSs have not only become more resilient but also more sustainable, better fit-for-purpose, and cheaper.

4.2.3 Common testing of new and existing technologies

Testimony:
"TESS completed a through test of the Iridium PTT technology, based on the results of these tests, I was able to confidently recommend the Icom-SAT100 PPT handset as the standard Iridium PTT handset for Save the Children. We have started to deploy to our first country and our aim is to replace most HF Radios with PTT by 2025" (Mark Hawkins, Global Humanitarian Technology Manager, Save the Children International)

Having a central entity like TESS coordinate and consolidate the testing, simplification and standardization of existing and new technologies on behalf of the UNSMS and NGOs, not only saves cost but also represents a significant improved efficiency.

Rather than each organization doing their technical tests individually, TESS has been able to combine the technical expertise from the different AFPs and NGOs, and the business clients (ETC, IASMN, UNDSS) into common technical working groups. Each working group focuses on one specific technical area such as VHF radio systems, Vehicle Tracking Systems, mobile satellite systems or even the newest technologies, which are not yet commercially available.

Consolidating the testing of technologies into common efforts, also gives us more momentum and gravitas to engage directly with the private sector (manufacturers, suppliers, services providers). As the past two years have shown, the private sector has also been more willing to actively engage in all

technical tests, through common UN/NGO test projects, rather than engaging with individual AFPs or NGOs. Systematic and thorough testing of their technologies or products has also proven to be crucial for manufacturers or suppliers to adopt their systems or devices for the use of SCS systems, and in some cases has even led to improved products and services.

Testimony:
"UNDP approached TESS for a common project to test the suitability of the Iridium PTT network [as an SCS tool]. Working with UNDP Haiti, regional security and ICT teams, the projects' output assisted UNDP, and the UNSMS in general, in optimizing its security communications. The TESS team proves to be a valuable partner, bringing in key private sector partners, and providing technical expertise and project guidance." (Luc Vandamme , Director Security Office, UNDP)

Reviewing new technologies and establishing their suitability as a SCS tool is one of the core purposes of TESS. Once more, partnering up with the private sector, we are not only consolidating the testing, but in many cases, the TESS stakeholders are also involved in the development and prototyping of the latest technologies, ensuring they are fit-for-purpose for their use as an SCS tool.

The Iridium Push-To-Talk (PTT) case:
Iridium PTT is a relative new satellite-based technology using a VHF radio-like user service (PTT- "Press To Talk") Until 2018, several UN organizations and NGOs had tested this technology and many started to use these devices in different operation. However, few of the tests were done systematically using a solid test protocol. Consequently, it was not clear if the apparent issues with Iridium PTT, were due to a systematic network problem, issues with single devices, or if all of it was due to user-problems. In short, when mid 2018, TESS did a survey of over 20 operations using the Iridium PTT technology, evidence was mainly anecdotal often quoted as " it didn't work very well".

In 2019 UNDP approached TESS requesting support to perform a full test of the Iridium PTT service, in collaboration with their Central America and Haiti teams. TESS brought in three private sector partners (representing the service provider, the network operator and the device manufacturers), its network of UN and NGO practitioners, and its own technical team. Collaborative, the test team developed a structured test project, with tests done in several geographical locations. The project team was able to iteratively provide feedback on issues observed to the private sector partners, which in turn, allowed them to fine-tune the service or devices in near real time. The outcome was not only a clear recommendation on the applicability and usability of Iridium PTT as an SCS tool, but also improved network service and user devices for everyone, AND provided actionable recommendations to the UNDP teams.

4.2.4 Global SCS standards, field guidance and technical field support

From 2005 until the start of the TESS project, there was no global, mandated support and guidance service for common security communications. This was exacerbated by the fact that, over the past decade most AFPs and NGOs had gradually lost their knowledge, expertise and specialized staff all of which is crucial to support increasingly complex SCS technologies and infrastructures.

Early in the start of the TESS project, the IASMN, UNDSS and the NGO community insisted TESS, beyond its initial purpose of re-standardizing the SCS systems, also provided hands-on support to field operations.

Since its inception, TESS has fielded over 60 assessment and technical support missions prioritizing operations facing issues with their SCS systems and higher-risk countries; provided remote assessments and support in 20+ countries; and provided support to a dozen countries with detailed technical guidance, often facilitating the resolution of issues with the SCS amongst AFPs, NGOs and hands-on support or guidance for UNDSS Security Advisors or local ICT teams.

This extensive field support as a win-win for all parties concerned: Not only were we able to provide hands-on and actionable recommendations and practical support, but it also allowed the TESS project to gain an in-depth overview of the issues faced in the field. The latter, in its turn allowed TESS to provide more pragmatic and fit-for-purpose standardization recommendations.

Testimony:
"Myself, the DO/SMT and relevant Working Groups were very happy with TESS support…TESS carried out assessment at regional level and additionally send technical support for two weeks… training my Security Operations Centre Associates and supporting, leaving software and code plugs… he is constantly calling us to find out further support required and progress made on to do activities since his mission." (Mopeli C. Nthejane, Field Security Associate UNDSS, Lesotho)

The case of the digital (radio) divide:
When, some years ago, manufacturers introduced new digital VHF radio technologies (and announced the analogue radios would be phased out), the UN system didn't have an centralized and mandated entity to review and recommend a common strategy for the way forward. Consequently, different digital and analogue VHF technologies were deployed as SCS solutions, often in parallel. Apart from the additional cost of supporting parallel complex SCS systems for the AFPs, the technologies were not interoperable, resulting in fragmented and inefficient SCS systems.
With the new VHF standards, we have not only simplified the basic and standard VHF infrastructures, but were also able to design and test different solutions to bridge the existing parallel VHF/UHF radio systems in the field, making the SCS systems more fit-for-purpose, protecting past investments.

4.2.5 Translating technologies into proper security guidance.

While the initial priority for TESS was to standardize on the connectivity (hardware) and applications (software) used in SCS systems, both only represented technology solutions. Implementing only technology solutions in an operation is useless unless if these are properly integrated into the field security operations through appropriate, official and globally standardized security guidance and procedures, as a key tool for both UNDSS field security personnel and the AFPs security personnel.

In the past six months, TESS has actively engaged in the IASMN Working Group on Guidance and Procedures for Security Communications Systems. Not only is TESS chairing this working group, co-chaired by UNDSS, but has also injected significant staffing resources to help drafting the new chapter on SCS for the Security Management Operations Manual (SMOM), and drafted all SMOM annexes which include all Standard Operating Procedures (SOPs), standard templates and TORs for the key entities supporting the field SCS systems.

In full collaboration with this Working Group's membership, this will be the first time ever, the UNSMS has a global and all-comprehensive SCS guidance document. It will also be the first time ever, that all SOPs and detailed guidance documents are consolidated, standardized and formally

approved. This by itself, will have a significant impact on the UNSMS' implementation, support and management of the field SCS.

5. {TESS+} (2020 and on…) - Projections

Transitioning TESS as a two years catch-up project into {TESS+}, a permanent and institutionalized service and with a clear mandate, will amplify and continue to implement the cost savings and SCS efficiency improvements TESS has worked on.

{TESS+} will continue on the foundations of TESS: providing field support and guidance, further standardizing existing and new technologies, and supporting the translation of technologies into proper security guidance and procedures.

More importantly, {TESS+} will be able to properly implement and support the streamlining of improved field SCS systems, using the existing and new technologies tested by TESS.

While TESS already proved actual cost savings and improved efficiencies, the real potential of these benefits will become obvious and amplified through their implementation in {TESS+}. TESS has identified the issues, re-standardized, and tested improved SCS systems. {TESS+} will allow us to fully implement these at field level, simplifying SCS systems, with major projected cost savings:

USD 41.1 M	USD 6.2 M	USD 8.2 M	USD 1.52 M
			
Asset value reduction	Cost savings on investments (annual)	Operations cost savings (annual)	Running cost for TESS+ (annual investment)

5.1 Direct cost savings

The potential cost savings (estimated) and efficiencies that can be realized in the future are presented in more details below.

5.1.1 Phase out HF radio in favor of mobile satphones

Back in the 1990's, HF radio was the only affordable way to communicate with voice over long distances between vehicles and offices, both for operational communications as well as for security communications.

Over the years, its use has diminished, as other cheaper and simpler ways to communicate over long distance became available, mostly in the form of mobile phones and satphones.

Over the past years, the TESS field missions revealed that while the use of HF radio is still mentioned in most SRMs as a SCS tool, in practice, TESS has only seen a handful of operations where the HF radio network is properly designed, implemented, supported and used.

Nevertheless, the amount of HF radio devices, which are deployed and continuously procured globally is significant and represents a continued investment, even though it is seldomly used and no longer fit-for-purpose as an SCS tool.

TESS has laid the foundations for an approach to gradually phase out the use of HF radio, and replacing it with cheaper and easier to use satphone technologies, which will be presented for the IASMN's endorsement in the coming months.

The potential cost saving by replacing HF radios with more cost effective and user friendly satphones in all new field vehicles is divided in two: (1) an annual savings in capital investments due to less expensive acquisition cost; and (2) a reduction in value of deployed assets.

USD 28.7 M	USD 4.8 M
	
Asset value reduction	Cost savings on investments (annual)

Replacing HF radio as a SCS with mobile satellite phones will lower the capital cost (Capex) considerably. This will, to some degree, be offset by the operational expenses (Opex) incurred, over the operational lifetime of the device, by the satphone versus the HF radio. However, in the context of the SCS, the satphone is mainly used as a backup means of communications and should, as such, will be used less use than the primary SCS.

For the capex (capital expenditure or investment value), the difference is USD 2,570 per vehicle and USD 2,250 per SOC, in favor of the satphone. We collected vehicle data statistics from WFP, UNHCR, UNICEF, IOM, WHO and UNDP. Total number of new vehicles these six agencies annually deploy to the field is currently 1,861 out of a total fleet of 11,009 (vehicles with communications installed).

In addition, there are over 202 common UN SOCs that would no longer need HF radios. Grand total, this has the potential to provide a maximum annual investment cost saving of **USD 4.8 M.**

It also provides a potential decrease in assets value deployed in vehicles and SOCs. Asset value reduction is calculated according to this formula: "(Cost saving per vehicle * Total number of vehicles with comms deployed) + (Cost savings per SOC * Total number of SOCs)".

With actual numbers this comes to (USD 2,570 * 11,009)+(USD 2,250 * 202) = USD 28,746,580, or rounded, to **USD 28.7 M**, (USD 40.6 M when equipped with HF radio to USD 11.8 M when equipped with satphones).

Example: the WFP business case for replacing HF radio with satphones:
WFP has a global light vehicle fleet of about 2,750 vehicles of which 90% are equipped with communications for use in the field. Every year about 20%, or 425 of these are replaced, including communications equipment, with new ones. Deploying satphones rather than HF radio in these vehicles, WFP has a potential to save annually USD 1.1 M on Capex and reduce value of assets deployed with an estimated USD 7.1 M.

5.1.2 Optimized VHF/UHF radio networks

By retaining the analogue VHF/UHF radios technology as the UN standard, we can continue to use the VHF/UHF radio devices currently in use. In addition, for newly procured mobile and handheld radios, the selection of compatible devices on the market is much larger, allowing us to choose more cost-effective models than those currently used.

USD 12.4 M	USD 1.4 M
	
Asset value reduction	Cost savings on investments (annual)

Depending on which models are currently used and the new selected, the cost savings per device is up to USD 234 per new mobile radio and USD 338 per new handheld radio. Globally, across the AFPs, this represents a significant cost saving potential:

Vehicles: Based on data from WFP, UNHCR, UNICEF and WHO, the ratio of vehicles being equipped with VHF/UHF radios is on average 64%. Procuring the most cost effective mobile VHF radio models represents a potential annual cost saving of **USD 424 K** for six agencies (Data from WFP, UNHCR, UNICEF and WHO, transposing this data to include UNDP and IOM). It is assumed that the operational life of the mobile VHF radio is aligned with the vehicle, i.e. 5 years.
The potential asset value reduction is calculated as "Cost savings per vehicle * Quantity of vehicles deployed".
In actual numbers: 234 * 11,009=2,576,106. Rounded up, this is equivalent to a potential decrease in asset value up to about **USD 2.6 M**

Handhelds: Based on data from WFP and UNHCR, we calculated there are currently about 29,000 VHF/UHF radio handhelds in the field at this moment, for all AFPs. Assuming a 10 years operational lifespan for a handheld VHF radio, by procuring the more cost effective models, an annual investment saving of up to **USD 982 K** is possible.
Potential asset value reduction is calculated as "Cost savings per handset * Quantity of handhelds deployed" and, in actual numbers: USD 338 * 29,058 = USD 9,821,604. Rounded up, this is equivalent to a potential decrease in asset value of approximately **USD 9.8 M.**

5.1.3 Remote SOC

TESS tested a way to flexibly connect a centralized SOC to remote repeater networks spread across field offices. Consolidating field SOCs currently supporting local VHF networks into one (or potentially a few) centralized Remote SOCs can reduce operational costs considerably. At the same time, this can also improve the quality of service and safety of the SOC assistants (see further below in chapter 5.2.

Up to USD 8.2 M	USD 987 K	Average 15 months
		
Operations cost savings (annual)	Investment/funding (one time globally)	Payback time (months)

Testimony:
"The implementation of the Remote SOC standards in Sudan would result in savings of USD 500k per year for WFP only…" (Erwan Rumen - Chief Operations and Policy, Security Division, WFP)

Actual savings will depend on the level of consolidation and the current structure so, for this business case, three scenarios are assumed to show the potential benefit that can be realized:

1. Full consolidation – all field SOCs are closed and monitoring handled by ONE central Remote SOC
2. Office hours only – field SOCs operate office hours only; during after-hours, the Remote SOC monitors all field locations
3. Half effort - close down SOCs that are operating 12/7 (and 12/5) and convert 24/7 SOCs to 12/7 or 12/5; Remote SOC monitors full time those field sites where SOC were closed down and after hours for those that were converted to 12/7 (or 12/5).

To ensure capacity to monitor all the field operations, staffing for the central Remote SOC will depend on number of field sites it supports. The minimum is a team of five SOC Assistants for a 24/7 service, when supporting one field site, up to 12 SOC assistants would be needed when supporting 14 or more field sites for a 24/7 service.

The cost savings presented are based on the actual situation in 16 countries with multiple physical field SOCs in operation at this moment.

Annual potential operational cost savings in the 16 countries, for the above defined scenarios, will range between **USD 3.9 M** and **USD 8.2 M** per year.

Deploying the RSOC solution will cost, on average, **USD 62 K** per country, equivalent to a one-time investment of **USD 987 K** to deploy to the aforementioned 16 countries. Cost to operate the RSOC solution is already incorporated into the potential cost savings listed above.

Payback time on investment in on average **15 months** and varies between 1 and 36 months depending on scenario and current SOC structure in the countries.

As a note of caution: in many operations, the SOC assistants support the operations of the local VHF radio network but might also have other duties related to security, administration, operations or other communications networks. This will have to be taken into account, when converting or consolidating local SOCs into Remote SOCs.

The business case for Remote SOCs in Sudan:
The UN has deployed a comprehensive network of common UN SOCs, in 13 locations. The SOCs are operational 24/7 and are staffed by a total of 71 SOC Assistants. The main UN common SOC is located in the capital Khartoum and is staffed by 6 SOC Assistants. The annual staffing cost (salary, benefits and danger pay) to operate this current setup of 13 field SOCs is USD 2.5M. By consolidating the network of physical SOCs, the operation in Sudan can realise annual operational costs savings. Using the three mentioned scenarios the potential annual cost savings that can be realized are:
- USD 2.1M (consolidate all field SOCs into one central Remote SOC in Khartoum)
- USD 1.3M (convert all field SOCs to operate during daytime hours only)
- USD 1.0M (close all daytime field SOCs and convert 24/7 field SOCs to 12/7 operation)

5.2 Efficiencies and non-quantifiable savings

5.2.1 Service quality increase through to consolidation of SOCs

By consolidating field SOCs and linking remote radio networks to a Remote SOC, it will be possible to provide a more professional and uniform level of service to the UNSMS. This is achieved through more effective training and management of the service at the central location.

In addition to very clear cost saving potential for this solution, it has a large potential to improve service quality. It is a fact that in many field locations the SOC assistants do not have a dedicated security supervisor or security reporting line. Therefore, the field SOCs often do not get the attention and guidance it requires and as such, the service quality can suffer.

If, on the other hand, all security areas are monitored by a common UN Remote SOC, a dedicated security manager/reporting line can be appointed and staff can be fully trained to ensure their knowledge is up to date.

5.2.2 One global focal point for technical support and guidance to the UNSMS

Testimony:
"The experts of TESS are hand-on people who understand the field-telecom needs and speak the language of our technical guys on the ground. Their assessment was thorough, yet quick and clear, well presented and written up and helped us to get on track in our technical and organisational transition from multiple Radio Rooms to one SOC for the country. And they remained reachable for us along the way. Knowledge sharing at its best by smart and experienced colleagues." (Marco Smoliner, Security Advisor, UNDSS Tanzania)

With TESS having the necessary expertise and capacity, the UNSMS now has one point of contact that can support and provide consistent guidance on all aspects of the SCS.

Until TESS was created the UN countries didn't have a centralized focal entity for technical guidance and support on security telecommunications. For some local teams this meant they had to work out the standards themselves, sometimes based on their internal standards, or approach service providers within the UN system, i.e. FITTEST or the ETC. The result was a fragmented implementation of SCSs.

With TESS having the necessary expertise and capacity the UNSMSs now has that one point of contact that can support and provide consistent guidance on all aspects of the SCS, and this needs to be a continued service provided by {TESS+}.

5.2.3 Continuously updated SCS standards

Having a permanent {TESS+} service will, in the future, avoid the need to have long catch-up exercises, which basically the TESS project was: Standards will be continuously updated and adopted through {TESS+}. Consequently, the UN system will always have the most cost effective and efficient solutions in operation.

Case in point is the status of the UN common security communications in the years leading up to the start of the TESS project: UN SCS standards had not been updated for over a decade and were often not fit-for-purpose, if not obsolete.

Without any global guidance through {TESS+}, local teams will revert back to uncoordinated solutions based on expertise or guidance from individual AFPs or local technical staff. Although TESS has, after two years, partially defined new standards, more efforts are required to finalize this through {TESS+}, and then to oversee the deployment.

5.2.4 Aggregated mobile phone contracts for the AFPs

The UN system in most countries is a large potential customer for the mobile phone operators and, as such, has a very good bargaining power in terms of negotiating better rates and services.

Unfortunately, in many countries AFPs and NGOs individually, or in small groups, approach the MNOs to negotiate service agreements. As a result, the full cost savings potential is not reached.

TESS has a global understanding of the mobile telephony market and how the different UN operations have approached the challenge of establishing efficient agreements with providers. Leveraging that knowledge, TESS (and subsequently {TESS+}) can assist local teams to establish better mobile phone services agreements for the common UN system, as is specified in the SMOM update, currently submitted for IASMN endorsement.

The global SCS standards also open the door for the UN to establish global agreements with providers of services and equipment manufacturers, for example for mobile satellite phone equipment and services. Again, driven by the high volume of users, the UN on a global level has a lot of bargaining power and can achieve better pricing than individual AFPs can do alone.

5.2.5 Cost savings and efficiencies resulting from common global standards

Common standards and simplified SCS solutions require less efforts to standardize on training and manuals both for the technical support staff and users, and avoid the need for re-training when moving between countries, operations and organizations.

5.2.6 Having common SOPs available for the UNSMSs

Efficiencies can be realized by ensuring the UNSMS is working under a common, and always up-to-date operational model, in terms of security communications, translated into a set of standard SOPs, template TORs for SOCs and SOC assistants, and related guidelines, as they are currently drafted for the new SMOM chapter on SCS guidelines (with its related annexes).

{TESS+} will continue to support the IASMN Working Group on Guidance and Procedures for SCS, expanding and updating the annexes.

This, by itself, is a major efficiency improvement, not only because this will make a comprehensive standardized set of SOPs and guidance documents, but this also means that each of the local security teams does not have to develop these SOPs from scratch themselves.

5.2.7 Radio bridging solutions

TESS designed and tested a cost effective technical solution to bridge legacy and digital VHF/UHF radio networks.

This eliminates the need for AFPs with incompatible user devices to acquire new hardware. Instead all users continue using their existing radios and the technical solution bridges the different technologies seamlessly at the backend.

Further, UN common SOCs do not need to install a dedicated base radio for each of the different radio systems (e.g. Analogue, DMR, dPMR and Tetra) anymore.

Apart from the potential cost savings from the above, this mitigates a significant security risk: Currently with different separate radio systems in operation, any message, also time sensitive security related information, has to be transmitted separately onto the different networks to reach all staff. Equally, currently, any security notification or alert from any staff, on one network will not be heard on the other isolated radio networks.

When bridged, all security broadcasts and communications will be heard on all networks, in real time, using the network bridge.

The Afghanistan case:
The UN system has deployed a complex VHF/UHF radio network consisting of three, non-interoperable, technologies: dPMR, DMR and Tetra. As per June 2020, the local ICT Working Group and the Security Cell, supported by TESS will be piloting the first deployment of TESS' bridging solution in such a complex radio environment. Already tested successfully in the lab, the solution will be deployed, and verified, in Kabul before being replicated to the field offices and other operations. At a cost of USD 6,000 per location, the bridging solution solution will safeguard the investment AFPs and mission have already made into different radio technologies while providing interoperability.

TESS-{TESS+}
2019-2020 Budget expenditure analysis

This {TESS+} Service Charter adjusted to the feedback from the IASMN (Interagency Security Management Network) and endorsed in the IASMN 33rd session (January 2021).

21-Jan-2021

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1. Executive Summary

This document provides the detailed breakdown of the 2019 TESS budget expenditure (US$91,000/month) and the breakdown of the optimized 2020 TESS/{TESS+} expenditure (US$62,000/month).

The 2020 budget expenditure optimization was done by:

- Optimizing the DSA (Daily Subsidiary Allowance) for TESS/{TESS+} Core Service Team members on consultancy contracts and on non-mission status (working on remote support, reports, generic support, etc.) are now to be based at home (where DSA is not applicable) rather than to be based at a duty station (where DSA was applicable).
- Re-negotiating the costs of the Core Service Team daily rate with the current service provider (FITTEST).
- Properly implementing WAE (When Actually Employed) contracts for several of the Core Service Team.
- Re-negotiating the costs of the Core Service Team costs for non-active weekend and holiday days while on non-mission status.

Based on these figures we expect the 2021-2022 central/core funding requirement to be US$70,000/month or US$840,000/year.

2. 2019 Budget expenditure breakdown

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2019 breakdown	total amount in USD	%	per month in USD
Program Staffing Costs	126,038.73	11.5%	10,503.23
Technical Staffing Costs	575,154.51	52.7%	47,929.54
Admin Stops/reporting	70,257.26	6.4%	5,854.77
Total Travel Costs	261,820.09	24.0%	21,818.34
Total Equipment and Other Costs	58,977.58	5.4%	4,914.80
Grand total (12 months)	**1,092,248.17**		**91,020.68**

3. Jan-Sept 2020 Budget expenditure breakdown

2020 breakdown	total amount in USD	%	per month in USD
Program Staffing Costs	111,388.38	19.7%	12,376.49
Technical Staffing Costs	316,426.52	55.8%	35,158.50
Admin stops/Reporting	31,287.31	5.5%	3,476.37
Total Travel costs	82,279.97	14.5%	9,142.22
Total Equipment & Other costs	25,187.28	4.4%	2,798.59
Grand total (9 months)	**566,569.46**		**62,952.16**

4. 2019-2020 budget expenditure analysis

The difference between the 2019 and 2020 TESS/{TESS+} budget expenditure is only in a small part due to COVID-19 travel restrictions, which suspended field missions only from April to June. The budget expenditure optimization was mostly done by:

- Optimizing the DSA (Daily Subsidiary Allowance) for TESS/{TESS+} Core Service Team members which are consultancy contracts: While on non-mission status (e.g. working on remote support, reports, generic support, etc.) these consultants are now to be based at home where DSA is not applicable rather than to be based at their duty station, where DSA was applicable;
- Re-negotiating the costs of the Core Service Team daily rates with the current staffing provider (FITTEST);
- Properly implementing WAE (When Actually Employed) contracts for several of the Core Service Team;
- Re-negotiating the costs of the Core Service Team costs for non-active weekend and holiday days while on non-mission status, which are now no longer charged to TESS/{TESS+}.

The analysis shows, contrary to common belief, field missions are only a relatively small part of the total annual expenditure. The findings indicate the following:

- In 2019, the total cost for missions (travel) was only 24% of the total cost, and in 2020 this was only 14.5% of the total cost.
- This travel expenditure included ALL travel, not just assessment and technical support missions, but also all travel for the project/service coordination and all technical field tests (for the TESS streams 2 and 3).
- As such, based on the 2019-2020 budget analysis it is to be concluded that the actual field assessment and support missions only amount to an estimated 10% of the total past budget expenditure and future budget requirements.

As of 2021, further cost reductions will be implemented with the following actions:

- Technical support missions will be cost-recovered from the target countries as much as possible. It should be noted that recovering the cost for technical support missions might include additional risks or complexities: (a) target countries might be unable or unwilling to fund TESS technical missions, even though, according to TESS they need it; (b) target countries might have difficulties or resistance to include the cost of TESS technical missions in their annual LCSSB, which goes through a rigorous and long approval process; (c) for 2021, all LCSSB budgets have already been approved and fixed; (d) Cost recovering missions is administratively complex. While within TESS we have the administrative/financial mechanism to charge target countries via an internal charging mechanism consisting of internal invoicing, in the past we have seen several target countries struggling to find a way to process this internal charging within the limitations of their procurement processes, systems and procedures.
- A more rigorous field training programme will be implemented for both technical personnel as well as security field personnel.
- Several tools and guidance documents will be rolled out, enabling the field UNSMS and technical teams to self-assess their Security Communications Systems (SCS), the suitability of local mobile phone systems as an SCS connectivity tool, and standardizing the maintenance required for field-based radio systems as an SCS tool.

Based on this analysis, the centralized/core budget requirement for 2021 is estimated to be US$70,000/month or US$840,000/year.