

SECRETARIAT

IMPLEMENTATION OF PASSIVE VEHICLE FLEET MANAGEMENT DEVICES INTO CONTINGENT-OWNED EQUIPMENT (COE) VEHICLES

Secretariat Issue Paper # 14 - Mandated Study

1. ISSUE PAPER THEME: Major Equipment

2. SUMMARY / BACKGROUND / PREVIOUS HISTORY

The Secretariat presented an issue paper to the 2023 COE Working Group in which, building on the already existing passive fleet management devices (FMDs) installed on United Nations-Owned Vehicles (UNOE), it was proposed to use the same devices on Contingent-Owned Equipment (COE) vehicles for fuel consumption monitoring purpose.

The issue was examined, discussed by Member States (MS) who recommended to the Secretariat to conduct a more thorough study on the cost estimation, insurance, liability, and operational implications, regarding the installation of fleet management devices on COE vehicles and submit it for consideration of the 2026 COE WG.

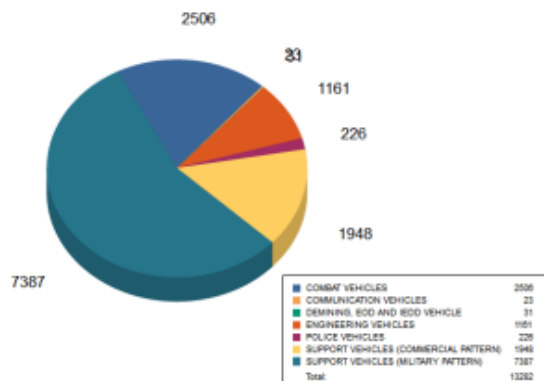
3. DETAILED PROPOSAL

This issue paper aims to provide a comprehensive analysis of the proposal to implement a Fleet Management Devices (FMD) into the vehicles of (COE). The proposed solution is based on the one implemented on UNOE through the organization's global system contracts.

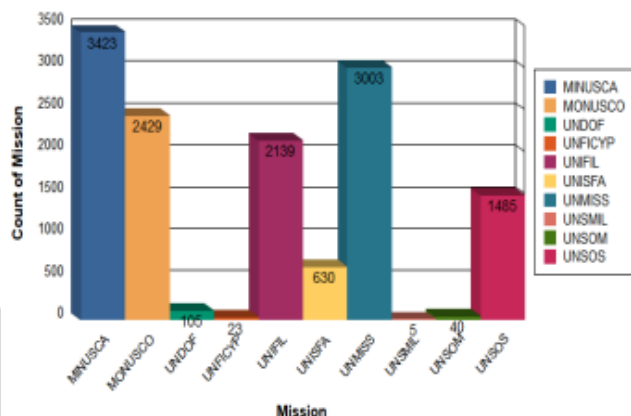
The research will cover several key areas to ensure a thorough understanding of the project's potential impact and guide strategic decision-making. Specifically, this study will examine the benefits, analyze implementation requirements and challenges, and present associated costs.

The Secretariat's vehicle fleet consists of over 25,000 vehicles, including UNOE and COE vehicles. The COE fleet comprises over 14,000 units, consisting of approximately 13,200 vehicles and 1,000 trailers provided by more than 25 contributing countries. These vehicles are used at numerous locations worldwide.

COE - Vehicle Fleet Categories



Mission

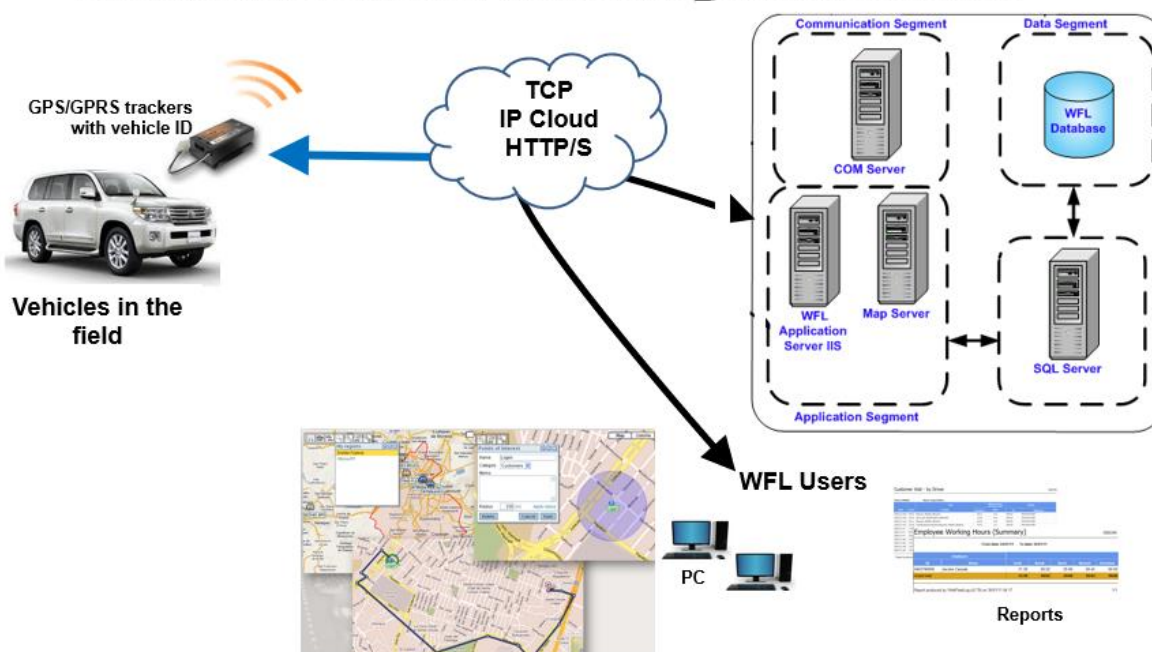


All UNOE vehicles are equipped with FMD, but none of the COE vehicles have this device. As a result, the COE faces challenges in accurately reporting key vehicle data, such as odometer readings and proper vehicle utilization. The current manual method of obtaining accurate odometer readings from the TCC/PCC is prone to errors and can be automated and improved. To alleviate the burden on the TCC/PCC, we propose installing fleet management devices on the COE vehicles, which can automatically provide odometer readings, distance traveled, idling times, and maintenance alerts to fleet managers.

3.1 Technical solution

Fleet tracking utilizes GPS technology, data transmission, and advanced software to enable either passive or real-time monitoring and management of vehicles. A primary device installed in each vehicle collects telematic data and transmits it to a central server for processing. The data collected allows for detailed analysis and reporting. This system is designed to support data-driven decision-making, improve operational efficiency, and enhance safety.

Passive and Online Fleet Management Solution



3.2 Benefits

3.2.1. Enhanced visibility and control

The system is primarily passive, but if needed, the system can provide immediate visibility into the location and status of assets or vehicles. Military/Logistics/Coordination centers can monitor routes, operation times, and vehicle conditions, leading to better control over operations. The coordinator centers or fleet managers can activate or deactivate live monitoring.

3.2.2. Improved efficiency:

Optimized usage reducing fuel consumption and travel time

3.2.3. Increased safety and security:

Real-time tracking can alert managers to avoid unauthorized areas or when deviations from planned routes, enhancing security. It helps in faster-locating vehicles or assets. Real-time alerts and notifications enable quick response to unexpected situations.

3.2.4. Cost savings

Reduced fuel costs through optimized routing and minimized idle time. Lowered operational costs due to efficient asset utilization and preventive maintenance.

3.2.5. Informed decision making

Access to real-time data enables managers/commanders to make informed decisions based on the latest information.

3.2.6. Enhanced productivity

Automation of data collection and analysis reduces manual workload and errors. To have an accurate odometer reading on monthly basis from the TCC/PCC and to reduce the burden on the TCC/PCC of reporting the data manually, we propose installing a passive FMD onto the COE vehicles. The device automatically provides the current odometer reading, distance travelled, idling times, and can provide maintenance alerts to contingents' fleet managers.

3.2.7. Environmental footprint

Implementing a Fleet Management and Tracking System (FMTS) has significant positive implications for reducing the environmental footprint of fleet operations. For example, an improved monitoring of vehicle engine idling is a key factor in achieving these environmental benefits.

- **Reduced fuel consumption:** By closely monitoring and managing engine idling times, the system can significantly reduce unnecessary fuel consumption.
- **Lower emissions:** Vehicles that idle less produce fewer emissions, including carbon dioxide (CO₂), nitrogen oxides (NO_x), and particulate matter. This contributes to improved air quality and helps in meeting regulatory requirements for emissions.
- **Driver behavior:** FMD data on idling times allows fleet managers to identify patterns and provide feedback to drivers. Encouraging drivers to turn off engines when not in use can lead to substantial reductions in idle time and associated emissions. Thus, monitor engine idling and optimize trips, organizations can achieve significant reductions in, greenhouse gas emissions and contribute to a healthier environment. This not only benefits the planet but also enhances operational efficiency and cost-effectiveness. In summary, FMD will provide increased operational efficiency, cost savings, improved safety, increased accountability, and process automation.

3.2.8 Enhance accountability

- Monitoring behavior enhances safety measures and reduces the risk of collisions. The system also records essential telematics data that can be used in investigations to establish liability. Consequently, implementing this system will decrease accidents.

3.3 Implementation requirements

FMD requires a comprehensive approach that encompasses technology, infrastructure, personnel, and processes.

3.3.1 Hardware components

Telematics Devices: Collect and transmit data on vehicle diagnostics, driver behavior, fuel consumption, etc. This hardware will be installed in each vehicle/piece of equipment to provide vehicle telematics data. Additional sensors could be added for monitoring various aspects such as fuel levels, tire pressure, temperature, etc.

The hardware requirement could be available via the UN system contract

3.3.2 Software components

Fleet Management Software: Centralized platform for monitoring and managing fleet operations, including route planning, dispatch, maintenance scheduling, utilization analyses, and reporting. A dedicated management website is available for each location and can be accessed via an internet connection. Additionally, the website provides a strategic overview of all locations and allows for global fleet management.

3.3.3 Integration capabilities

Ability to integrate with other systems such as Electronic Fuel Management System (EFMS) and other ERP or COE systems. The UN's solution facilitates integrating the processed data with third-party solutions.

3.3.4 Communication infrastructure:

Wireless Networks: Reliable cellular networks (3G, 4G, LTE) to ensure uninterrupted data transmission. In areas with poor cellular coverage, the device may use satellite communication. The UN solution provides adequate two-way communication via cellular, and satellite. The cost of the communication is part of the hosting package.

3.3.5 Data hosting, management and security:

- 1- The system requires secure and scalable storage solutions for storing large volumes of data generated by the fleet.
- 2- Data Security: Implementing cybersecurity measures to protect sensitive data.
- 3- Data Analytics: Tools and capabilities to analyze data for insights into fleet performance, efficiency, and cost savings.

The proposed solution includes a high standard of data security and storage in accordance with UN OICT stringent requirements. All data collected through these systems must be securely stored and handled in accordance with UN data protection policies to ensure the privacy and security of mission operations and personnel.

3.3.6 Human Resources:

- Trained Personnel: Technicians to install and maintain hardware
- Fleet Managers: Skilled personnel to oversee fleet operations, interpret data and make informed decisions.

3.4 Potential Challenges

The implementation of such a system requires dedicated experts and adequate resources. Therefore, the following must be agreed upon and assigned before proceeding.

3.4.1 Budget

- Funding Sources: Identify and secure funding for both the initial capital investment and ongoing operating costs. This includes the costs of purchasing and installing hardware.

3.4.2 Installation

When available, the mission Transport Section will be primarily responsible for overseeing the installation, maintenance, and operation of these systems. All data collected shall be monitored and analyzed regularly to inform operational decisions, maintenance scheduling, and compliance with mission protocols.

When internal resources are not available at the location, there is a need to determine who will handle the installation and maintenance of the system. This decision involves choosing between other UN resources or using vendors or Contractors.

If managed internally, ensure that the mission Transport Section has the necessary expertise and capacity to handle the installation, configuration, and ongoing maintenance of the system.

If outsourcing, select reputable vendors with proven experience in implementing FMTS solutions. If managed by UN TCC/PCC, establish clear contracts outlining service levels, maintenance schedules, and support procedures.

3.4.3 Training

Provide adequate training for the installation team, whether internal or external, to ensure they are familiar with the system's specific requirements and components.

Comprehensive training programs shall be provided by the United Nations to relevant personnel to ensure proficient use of the tracking and fleet management systems. This includes training on system operation, data interpretation, and response protocols based on system alerts and reports.

3.4.4 Timeline

The installation timeline that minimizes disruption to ongoing operations and includes milestones for progress tracking is estimated as five years. The priority of installation on different categories of COE vehicles will need to be developed.

3.5 Conclusion

Implementing FMD is a significant undertaking involving a major update to our fleet management, whether UNO or COE. It comes with various elements of operational improvement and efficiency. In the case of implementing the solution in COE vehicles, a clear agreement on the roles of each entity, funding, and management is critical. Therefore, considering its complex implementation, careful planning and execution are required. By addressing these requirements, COE can effectively manage their fleets, improve operational efficiency, and enhance overall performance.

4. FINANCIAL IMPLICATIONS

The costs considered for this study are:

- a. Hardware costs
- b. Running costs (subscription and comms costs)
- c. Management and Maintenance costs

a. Hardware costs

The cost of the hardware depends on the selected communication method. For example, selecting the Hybrid option (GSM and Satellite communication) will require adding more hardware parts and increased cost. For this study, we assume that 50% of COE vehicles will require a hybrid system while the remaining 50% will be on GSM only. Also, we anticipate including 2% of additional hardware to be used as spare parts.

However, for this study, we estimated an average cost of around \$750.00 per vehicle.

Below are the calculations:

Year	Cumulative Vehicle Installed	Annual Device Cost (\$)
One	2,640	\$1,980,000
Two	5,280	\$1,980,000
Three	7,920	\$1,980,000
Four	10,560	\$1,980,000
Five	13,200	\$1,980,000
		\$9,900,000

b. Running costs (subscription and comms costs)

Depending on the selected provider at the time of implementation, we estimate that an average of \$30.00 per vehicle is sufficient to cover communication and subscription fees.

Year	Cumulative Cars Installed	Service Fee (\$)
One	2,640	\$79,200
Two	5,280	\$158,400
Three	7,920	\$237,600
Four	10,560	\$316,800
Five	13,200	\$396,000
		\$1,188,000

c. Management and maintenance costs

Ensuring the system is fully functioning requires constant monitoring and fleet management tasks. Each TCC/ PCC will have access to its vehicles and full online visibility 24 hours a day. The Transport Section/Unit in the area of operation will be responsible for installing, monitoring and managing the system. However, managing large fleets may require additional human resources. Below is an estimate for dedicated personnel to manage and maintain the system.

Category	Number of staff per location	Number of Locations (Global)	Estimated cost	Total cost/Year
International	1	6	\$100,000.00	\$600,000.00
National	2	6	\$30,000.00	\$360,000.00
				\$960,000.00

e- Overall cost to equip 13200 vehicles including management and communication fees per year (1-9).

Year	Cumulative Cars Installed	Annual Device Cost (\$)	Service Fee (\$)	Management Staffing	Total Cost (\$)
1	2,640	\$1,980,000	\$79,200	\$320,000	\$2,379,200
2	5,280	\$1,980,000	\$158,400	\$640,000	\$2,778,400
3	7,920	\$1,980,000	\$237,600	\$640,000	\$2,857,600
4	10,560	\$1,980,000	\$316,800	\$960,000	\$3,256,800
5	13,200	\$1,980,000	\$396,000	\$960,000	\$3,336,000
Total Cost for the first 5 years					\$14,608,000

Year	Cumulative Cars Installed	Annual Device Cost (\$)	Service Fee (\$)	Management Staffing	Total Cost (\$)
6 to 09	13,200	\$50,000	\$396,000	\$960,000	\$1,406,000
Total Cost Per Year From Year 6 to 10					\$1,406,000

5. PROPOSED 2026 COE MANUAL TEXT

Chapter 3, Annex A, add a new para 40 and update the rest of para numbering accordingly. The text to be added is in bold.

40. All Contingent Owned Equipment (COE) vehicles deployed in United Nations missions shall be equipped with real-time vehicle tracking systems and integrated fleet management software. The United Nations will install and maintain such systems. These systems must provide continuous monitoring of vehicle location, status, movement, and fuel consumption.