JOINING UP THE DOTS OF FLEET MANAGEMENT TO REDUCE OVERHEADS AND CREATE IMPROVED SERVICE PROVISION IN REMOTE LOCATIONS

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Keywords: Fleet Management, Tracking, Service Delivery, Auditing, Accountability

Abstract

Marie Stopes International has developed a combined fleet management system with GPS/GPRS tracking to improve service delivery and increase access to contraception in rural areas around the world. The system is the first time these two aspects have been integrated together. Integration enables Marie Stopes International to assess its reach of service delivery, along with fleet running costs and fleet utilisation. In areas of higher security risk, Marie Stopes International is using the system to increase the safety of its team members. From the six countries that have implemented the system to date, lessons include the need for a dedicated fleet manager and involvement from key employees. Time to properly implement the system and manage the data, as well as allowing for delays in customs for importation, is also necessary. The integrated system will enable Marie Stopes International to manage its fleet more efficiently, including reducing running costs, increasing appropriate vehicle utilisation and monitoring service delivery.

1 Introduction

Each year nearly 1.3 million people die as a result of a road traffic collision more than 3,000 deaths each day\(^1\). Fleet management is an area of an organisation that can have a significant impact upon operations and service level delivery while enabling access to rural areas many of the vehicles travel on poor dangerous roads. For the humanitarian sector, a poorly managed fleet can mean the difference between reaching beneficiaries on time and with the right personnel and equipment on board or failing to meet demand and reach the underserved client altogether. For Marie Stopes International, an international NGO which delivers crucial sexual and reproductive health services to some of the world’s poorest and most remote communities, it is critical that outreach services are delivered where and when they are needed. 51% of Marie Stopes International’s CYPs\(^1\) in 2011 were delivered free, or at heavily subsidised prices, through mobile clinical outreach programmes that target hard to reach communities in rural areas and urban slums. These are communities that have traditionally had very limited access to modern family planning methods.\(^^2\)

Figure 1. Vehicles shown in Uganda and North West Tanzania. Vehicles with a number on the top show that there is more than one vehicle in the area

Most of Marie Stopes International’s vehicles are used for outreach, a service delivery method that takes medical service providers and necessary equipment out to rural areas and offer Long Term and Permanent Methods, such as IUDs, implants, tubal ligations and vasectomies, in communities where there is no access to contraception or where only short term methods are available. Outreach service delivery relies on schedules being developed weeks or months in advance. These schedules are agreed with the venue that the service provision is being offered at, often government medical facilities, and locally based community educators let the local community know of the services that will be on offer and when.

\(^1\) Couple Years of Protection: One CYP is the equivalent of one year of contraceptive protection for one couple.
Historically, fleet management at Marie Stopes International has been managed locally in each country. Some country programmes have excellent reporting standards, using Microsoft Excel and Word to summarise running costs in detail. Other country programmes have concentrated on monitoring running costs, such as servicing and parts, without combining all fleet data such as fuel, servicing, maintenance, repair and insurance together with mapping to get a detailed picture of the vehicle. This leads to vehicles continuing to be used when they are old and costly. Furthermore, without vehicle tracking systems it is difficult to know where the vehicles are at any point, and therefore to have a detailed picture of what the vehicles are needed for on a daily basis.

In 2011 Marie Stopes International pioneered a new method of fleet management for the humanitarian sector, involving the integration of tracking (telematics) functionality (integrated use of telecommunications and informatics) and fleet management data consolidation software. With this system, Marie Stopes International has been able to improve visibility over maintenance and repair schedules, driver/vehicle/trip allocations and duty of care obligations. In addition, with this new visibility, comes increased control over expenditure and a reduction in unnecessary cost.

2 System development

Traditionally organisations with fleet management systems have divided the tracking and management into two teams. Logistics teams are generally responsible for the day to day management of the vehicles and security teams are generally responsible for vehicle tracking. Marie Stopes International required a holistic approach to vehicle management, with one team managing all aspects of vehicle management. Such an integrated system would enable up-to-date data to be fed into one system, and compared. The consolidation of this data also enables other teams to use this data, such as for mapping operational service delivery, and reviewing vehicle use.

Marie Stopes International put together an international tender and opened it up to all interested suppliers. Part of our criteria was having an integrated system, either coming from one supplier or suppliers suggesting a partnership to offer the management and the tracking in a single system. This was important for us because we wanted to get a full picture of our vehicles, not just where they are and what the costs are. We also wanted a supplier who works worldwide, just as we do, and someone with experience of working in rural areas in the developing world. We then shortlisted two suppliers and ran a month long trial in Madagascar and Tanzania, before asking them present their systems to us. Combined with the feedback from Madagascar and Tanzania, we selected Chevin and Novacom. These two systems HumaNav (Novacom) and FleetWave (Chevin) are two independent software suppliers. The integration is unique to Marie Stopes International to meet our needs.

3 System features

The system comprises 4 parts: a transmitting GPS/GPRS device onboard each vehicle, a telecommunication link between the vehicle and the ground, a real time data processing platform (HumaNav) and a fleet management platform (FleetWave).

GPS, Global Positioning System and GPRS, General Pack Radio Service, are two ways of passing information remotely. GPS uses a global satellite, while GPRS uses mobile phone technology to transmit the same data. All the data is sent from a device fitted in the vehicle to either the GPRS antenna most closely located or the global satellite in space. From there the data is then sent to Novacom platform HumaNav. The system allows Marie Stopes International to choose options of just GPS systems if mobile phone signals and therefore GPRS are weak in countries. A GPRS only system designed for countries where security risks are low is also possible, where if a signal is lost temporarily the device can store the information and send it through once the signal returns.

Thirdly a dual system that allows both GPS and GPRS communication options is available. The system will send through GPRS – the cheapest way of data exchange – unless this signal is down, when it will automatically switch to GPS. In countries where there are areas of poor GPRS signal, risk of GPRS being switched off by governments, or the risk of vehicles being stolen and driven outside of the country, having the dual system allows for flexibility.

![Diagram of data flow](image)

Figure 2. A diagram of how the data is sent from the device fitted to the vehicle to the web based system

Both platforms are accessible online. The HumaNav software provides real time tracking information such as location, trajectory, mileage, and destination, as well as information around events such as over speeding, start, stop times and GPS coordinates. The system then has daily feeds through to the FleetWave part of the integration. Through this, Marie Stopes International users log in and access the fleet management perspective, which includes global fleet mileage, KPIs, reports, mission costs. They can then go through to the global tracking with the single sign-on design.

Every night, HumaNav exports a file to FleetWave from each country the full system is implemented in. That file archives
all information related to the vehicle utilisation. FleetWave then computes the information and automatically updates its database. Marie Stopes International does therefore not need to manually type any information around location, odometer readings or recent trips into FleetWave.

By having the automatic update and single sign on, an Marie Stopes International user gets comprehensive maintenance history and fuel transaction records held in the system. This enables accurate planning for when vehicles are due for their next service, as well as regular monitoring for fuel consumption. The automatic capture and exchange of data with Chevin’s Fleet Management System reduces human errors, cuts costs, improves speed and accuracy of information and ultimately leads to accountability and improved vehicle utilisation. Without the integration, fleet managers have to manually enter the odometer reading when the vehicle refuels. It also enables fleet managers to move quickly between the two systems with one integrated login.

By automating this data capture and with a single sign-on to Novacom’s tracking system, distinct advantages can be realised. By utilising what are known as ‘points of interest’ to plot Marie Stopes International’s offices and outreach locations, the user can determine when the vehicle departed and arrived at each predetermined location.

Serving communities in extremely remote locations, Marie Stopes International is also able to build and access detailed maps with destinations visited (and often officially unnamed) stored as ‘points of interest’ for future references and service provision delivery. This enables Marie Stopes International to review its service delivery models to achieve the most economical routes, leading to potential reductions in fuel and maintenance costs and cost per service to the donor. Marie Stopes International can use the system to look at the operational logistics so they are able to spend more time offering services while still only travelling at the safest times, such as during daylight hours.

4 System implementation

Currently Marie Stopes International is implementing the fleet system in seven countries:

- Afghanistan
- Ethiopia
- Ghana
- Madagascar
- Papua New Guinea
- Tanzania
- Uganda

Although a standard system has been developed, all countries have different limitations that have affected the implementation process. Lessons learnt from these initial countries will inform future implementation lead times and processes.

Afghanistan

Security is the main reason for the devices being fitted, along with management of the vehicles. Dual GPRS and GPS devices with international SIM cards will be fitted to these vehicles. Unlike other settings, vehicles in Afghanistan are used for transporting team members, rather than service delivery, and thus don’t cover great distances on a daily basis.

Ethiopia

Ethiopia is the largest geographical country involved in the initial implementation, with vehicles spread across most of the country. There are two major difficulties with the fleet in Ethiopia. Firstly, vehicles are very expensive, with 200% tax on each vehicle. For this reason vehicles are kept for a long time and some therefore have high running costs. The management software will enable Marie Stopes International to track these costs against the high costs of new vehicles.

Secondly, the government of Ethiopia does not permit GPS in the country. The vehicles will therefore be fitted with GPRS only systems. In addition, we are unable at present to use our preferred provider for a GPRS only system, as Ethiopia will only permit GPRS tracking if the data received from the system is held in the country and accessible to the Ethiopian government if they wish. We are therefore reviewing current
providers of local GPRS systems, which have slowed down the roll out.

Ghana
The newest country on the initial roll out, where devices are currently being implemented. The devices will be run on a GPRS only system due to the low security risks in country. This will run on local SIM cards and therefore dramatically reduce the monthly running costs of the system. Ghana is currently expanding their outreach teams as well as looking at new geographical locations that outreach could move into. Because we now have the ability to use Google maps to map our present sites, population data and unmet need demographics, we will be able to assess the best areas for new teams to be deployed.

Madagascar
Delays in the devices clearing customs has meant the planned implementation has been delayed. The devices have now been cleared and are presently being fitted to the vehicles to start implementation. Unlike other outreach service delivery models, Madagascar is offering services using their own tents rather than government facilities. This means the system will enable improved tracking of population demographics, therefore reaching the unmet populations more efficiently. The teams will be able to go to areas solely based on need, and not limited to where government health facilities are located.

Papua New Guinea
Like Afghanistan the main reason for deployment is around security. Our teams are in very rural areas, such as the highlands, and are often only reachable from the capital, Port Moresby from air. The system is on a tight schedule to be implemented before the elections in the summer this year, due to a previous experience of election related violence.

Tanzania
Similar to Ethiopia, Tanzania is a large country with our services offered over a large geographical area. Logistically it is important that vehicles don’t have to keep going back to Dar es Salaam (the capital) for servicing, as this increases the down time of service delivery for servicing and maintenance. The system data will assist in the programme planning the best vehicle for purpose, depending on access to garages and parts in that area. All devices have been fitted and the data is starting to be entered on the system regularly.

Uganda
Uganda has recently increased their outreach services to 25 teams, the largest number in the initial implementation countries. In addition to these 25 vehicles (one per outreach team), Uganda also has vehicles used by the social marketing teams (to supply contraceptives to retail outlets) and to transport staff. The system will enable us to undertake a detailed mapping exercise as to where the outreach teams go compared to demand, unmet need statistics and client numbers that we see. We are also operating in the state of Karamonja, where there is a higher security risk than other areas of Uganda. As such, the security options used for Afghanistan will also be used on vehicles in this area.

5 Lessons learnt
There are a number of lessons learnt from the initial implementation period.

1. To be successful, each country must have a fleet person in place that has good experience of using an electronic fleet system, ideally before implementing the fleet system. Without a dedicated person monitoring fleet, misuse of vehicles and lack of incident investigations can happen.
2. Shipping the devices into countries can often take longer than expected due to countries not knowing what the devices are and high custom charges on electronic goods.
3. The system doesn’t save time in most cases due to the full set of data it collects compared to previously. It requires a full time fleet position to properly use and manage the system. As more data is collected by each system, it will be easier to review costs, replacement planning, incident investigation, service delivery models and planning. However this will also result in endless streams of data being available to analyse!

6 System evaluation
We plan to evaluate the success of the system in terms of its effects on vehicle incidents, vehicle costs, distance travelled and number of clients served. To do this, we are collecting the following baseline information from each implementation country (where available):

1. Total incidents in 2011 and a description of the incident
2. Maintenance costs by vehicle and month for 2011
3. Servicing costs by vehicle and month for 2011
4. Fuel costs by vehicle and month for 2011
5. Distance travelled by vehicle and month for 2011
6. Total number of clients seen on outreach broken down by outreach teams for 2010 and 2011
7. Total number of Couple Year of Protection (CYPs) by outreach in 2010 and 2011

We plan to monitor these indicators during system implementation in order to assess the benefits of operating these systems.
Figure 5. Taking the paper analysis and time consuming data entry out of fleet and service delivery mapping and accountability.

7 Future

The system will continue to be rolled out where Marie Stopes International has fleets of vehicles – implementation timelines will depend on factors such as importation, and availability of dedicated people in country. At present we are concentrating on the reporting side of the system to enable the detailed information collected to be analysed and used by operational teams.

Once implemented widely in countries, the system will increase the viability of remote service delivery. It will enable Marie Stopes International to potentially move into higher risk areas to enable marginalised populations in insecure areas access to family planning. Planning of future service delivery models and development in existing systems will be reviewed using the system, with an aim of increasing access to family planning, particularly long term and permanent methods, with a decrease in cost.

Future enhancements to this system will include linking the planned trips to the actual trips and running reports to monitor actual vehicle utilisation against planned utilisation. Some of this functionality uses the tools built into the Novacomsystem, such as Geofencing (marking an area that the system recognises and can send alerts when a vehicle enters this area) and ‘points of interest’.

Novacom is designing new areas around driver recognition, fuel monitoring using levels in the tank and alerts if there are abnormal changes, and finally in cab screens. The in cab screens enable drivers to communicate with fleet managers live. This enables immediate communication to increase safety.

Acknowledgements

I wish to thank Marie Stopes International for their innovative approach to embracing technology, Tracey Brett (Associate Director of Procurement and Logistics) for championing the fleet needs, procurement and logistics teams and fleet managers in country for driving this forward and making it happen. Patricia Atkinson (Director of Health Systems Department) for making it a reality and Judy Gold (Innovation Analyst) for reviewing the abstract.

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