IMPROVED LAST-MILE HEALTHCARE DELIVERY

VillageReach + Aeris: improving availability and access to medicines in Mozambique
Healthcare is improving in low-resource communities, which often are rural and remote. A persistent problem, however, is routinely moving goods and services from a central location to the “last mile”. Internet of Things (IoT) technology and innovation can translate these challenges into solutions.

The last mile is the final leg of service delivery to users. Too often, health systems in low-income countries cannot adequately reach or serve the last mile because the system itself and new solutions are not designed to accommodate the unique needs of these environments.

Organizations focused on tackling the last mile today have access to technologies that were unavailable just a few years back. The race to find the most innovative ways for healthcare delivery is one story of the connected economy. Those who can adapt and employ newer technologies to expand coverage and reduce cost will be able to make healthcare available to individuals previously out of the reach of essential medicine.

Focus on Mozambique

VillageReach has worked in Mozambique for nearly 20 years, partnering with the Ministry of Health (MOH); other government agencies, such as CMAM (Mozambique Central Medical Stores); non-governmental organizations; and private sector partners to implement supply chain improvement strategies related to planning, distribution, and data analytics at scale. The organization is supporting the government to ensure timely access to essential medicines, vaccines, and medical supplies in low resource, rural communities that represent more than 60% of the country’s population.

In Tete Province, Mozambique, VillageReach is working to build a sustainable last-mile distribution system, using commercial third-party logistic providers (3PLs) to transport vaccines, anti-retroviral drugs (ARVs), tuberculosis drugs, and other medical supplies from central warehouses to local clinics and community health facilities. VillageReach aims to increase the capacity of health workers and ensure they have access to the necessary data to improve the quality of healthcare delivery. Integrating data-driven decision making at all levels of the health system will yield insights leading to smarter healthcare decisions.

This model of outsourcing distribution—called Transport Services Solutions or TSS—now reaches 136 health facilities in 15 districts, serving a population of more than 2.8 million.

VillageReach’s experience in Mozambique demonstrates that one of the best ways to achieve long-term sustainability is early partnerships and a focus on solutions that can thrive within existing government systems.

“Precision and reliability, route monitoring, and employee safety are important aspects that define the quality of our services. Previously, it was difficult to get accurate time-of-arrival and time-of-stay reports of vehicles on site, which led to struggles in analyzing which vehicles drove the longest route, which served more health facilities, or which routes were in the most adverse conditions for possible replacements in case of breakdowns. Today, with the vehicle tracking system, we can monitor all these aspects while keeping our employees even safer.”

Dr. Hassane Raul, Chief of Provincial Medicines Deposit, Tete DPS
As a long-term government partner in Mozambique, VillageReach has developed significant experience and tested approaches to ensure that government employees are prepared to manage and operate new solutions.

Crafting a Reliable Transport Solution

In the early phases of designing and testing TSS in Tete Province, VillageReach and the Tete Provincial Health Directorate (DPS) mainly relied on physical delivery notes shared by 3PLs as proof of delivery. In spite of obtaining signatures, the organization started receiving non-visit reports from health facilities—drivers were sometimes cutting distances by leaving out the most difficult and hard-to-reach facilities. Compounding the problem, they were getting signatures of health workers, but not those in the right health facilities. There was no list of approved signatures for verification due to frequent health worker rotations. In order to have more visibility during distribution, a more independent and reliable way to monitor 3PL deliveries was needed. VillageReach started by researching local solutions. It also investigated other free-of-charge tools that would help monitor assets.

However, such tools only tracked transportation. The DPS in Tete needed to track not only vehicle location and status, but also other parameters including specific facilities visited, visit times, and stoppage analysis, as well as out-of-hours vehicle usage.

Government agencies have to work within constraints. One important constraint is cost, so the total expenditure to implement a solution was a critical consideration. VillageReach recognized that it could generate value to the government through the transparency the system provides, thereby instilling confidence in the transport system.

“AEC is pleased with the introduction of the vehicle tracking system as it allows us to capture vehicle location in real time; monitor speeds traveled by drivers so that they do not transgress the speed limit established by local authorities; monitor visiting hours of the health units; and ensure that vehicles visit all the health units. Even in the case of vehicle theft, we would know how to locate it.”

Diniz Zacarias, General Manager Sr., AEC
(AEC is a third-party logistic provider that transports medicines)
Aeris Tracks

Aeris has been working with VillageReach and the DPS for nearly two years to put in place a vehicle tracking system that enables independent monitoring and verification of 3PL deliveries. Aeris and VillageReach teams tested the Aeris Mobility Platform (AMP) to ensure that it would be able to track vehicles all around the Tete Province in Mozambique—nearly 100,000 square kilometers where the geography can be challenging and where there are vast areas with no cellular coverage.

A solution that includes satellite coverage would be more effective, but also would be far more expensive and, therefore, cost-prohibitive in Mozambique. The Aeris solution is uniquely optimized for a poor connectivity environment. Incorporating Aeris SIMs enables the tracking devices to connect through multiple carriers, improving the device’s tracking capabilities, as well as reducing the overall solution cost for DPS by bundling the solution with connectivity.

With vehicle tracking capability in place, the VillageReach and Aeris teams then spent many months working to identify the information that would be most useful to DPS, and the best way to generate vehicle data that could be used to derive that information. For example, using data from Project Last Mile’s route optimization work, the teams created software-based geofences around the 136 health facilities in Tete Province.

Those geofences enable the GPS tracking device in a 3PL vehicle to create records of when it visits and leaves a local health facility.

Reporting Accuracy

At the end of each monthly supply cycle, a report is generated that shows 3PL performance of key performance indicators (KPIs) against pre-agreed metrics. These KPIs include data on the number of health facilities visited, how long a vehicle stopped at each facility (and whether the stop was deemed “too long” or “too short”), whether the stops occurred during normal business hours or not, the total mileage covered by vehicles during the supply cycle, and even the number of instances of vehicles traveling at speeds deemed to be too fast. Views can be broken down by province, by district, and by health facility.

The report is generated directly from the Aeris platform, and includes both an easy-to-view summary and back-up data to support each of the KPI metrics analyzed. End users also are able to view vehicle information directly and set up alerts from the Aeris web-based dashboard, which is an asset management portal.

Using reports generated by the Aeris system, uncertainty about health facility visits is no longer an issue. GPS data allow VillageReach and the DPS to identify delivery locations and times. In addition, 3PL managers are interested in these reports, which show the behavior of their drivers. When there is a non-visit complaint, two documents enable verification—the Aeris report and the logistic provider report. This allows for better case management.

“We started thinking about tracking systems, and Aeris helped us respond, developing a solution to fit our transport services program in Mozambique, designed from the inside out, rather than the outside in. Aeris helped confirm that products were reaching the most difficult and hard-to-reach facilities.”

Ruth Bechtel, Mozambique Country Director, VillageReach
Additionally, with a fleet of trucks and a great number of facilities to visit, all these capabilities eventually will facilitate route optimization outcomes, resulting in shorter drives, less time on the road, and significant savings in fuel.

An especially important benefit of the Aeris solution is transparency in operations, which is critical for building trust between the government and private sector. This transparency allows the private sector to showcase that they are delivering exactly what they promised to deliver. Managing logistic providers in a transparent way was necessary to ensure that distributions actually arrive.

The Aeris solution provides a check and balance to the system, so that logistic providers are not supervising themselves.

The Aeris solution has been tested locally to ensure its optimal applicability with the local context in Tete, aligned with the DPS needs. As the Mozambique health supply chain matures, the Aeris solution will afford better visibility on the delivery process, which will allow better overall supply chain management and, ultimately, will ensure patients get the products they need.
ABOUT AERIS:

Aeris is a technology partner with a proven history of helping companies unlock value through IoT. We strive to fundamentally improve businesses by dramatically reducing costs, accelerating time-to-market, and enabling new revenue streams. Built from the ground up for IoT and road tested at scale, Aeris IoT services are based on the broadest technology stack in the industry, including the Aeris Connectivity Platform (ACP) and the Aeris Mobility Platform (AMP), spanning connectivity up to vertical solutions for things that move. At Aeris, we believe that if you focus on the customer, you gain a competitive edge by delivering an experience that surpasses your competitors and fulfills all customer expectations. We know that implementing an IoT solution can be complex, and we pride ourselves on making it simpler.

Visit www.aeris.com or follow @AerisM2M to learn how we can inspire you to create new business models and to participate in the revolution of the Internet of Things.

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ABOUT VILLAGE REACH

VillageReach works with governments to solve health care delivery challenges in low-resource communities. Its programs focus on increasing access to quality healthcare at the last mile, or the point at which services are delivered. VillageReach develops and implements new ideas and approaches to ensure vaccines and medicines are available, increases the capacity of health workers, and ensures they have access to data to improve health. VillageReach’s work improves the lives of more than 20 million people in sub-Saharan Africa.

Visit www.villagereach.org or follow VillageReach on Twitter @VillageReach to find out more. Contact: info@villagereach.org

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