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SAPICS CONFERENCE

Century City Conference

Centre, Cape Town,

South Africa

SAPICS

PROFESSIONAL BODY FOR  
SUPPLY CHAIN  
MANAGEMENT

## Navigating the last mile in extreme environments

Supply chain insights for the private sector from using the supply chain to increase access to public health care at the last mile

Insights from the Last Mile

Craig Usswald, Joseph Roussel

[www.villagereach.org/work/supply-chain-and-logistics/](http://www.villagereach.org/work/supply-chain-and-logistics/)

VILLAGEREACH<sub>®</sub>  
Starting at the Last Mile



[www.sapics.org](http://www.sapics.org)

The Leading Event in Africa for Supply Chain Professionals

# Presentation objectives

- Explore how organizations can use the **supply chain** to reach **customers at the last mile** in **low resource** environments
- Identify **learnings** that can be derived from **public health supply chains** and applied in the **private sector**
- Specifically share supply chain practices that optimize the **total cost to serve**, improve **resilience** and meet **low resource segment needs**

# Our Mission & Impact

VillageReach works with governments to solve health care delivery challenges in low-resource communities.

VillageReach programs increase access to quality healthcare for more than 20 million people throughout sub-Saharan Africa.

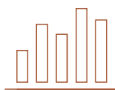
To maximize its impact, VillageReach focuses on these three areas of the health system:



Health Workers



Access to Products



Data Systems

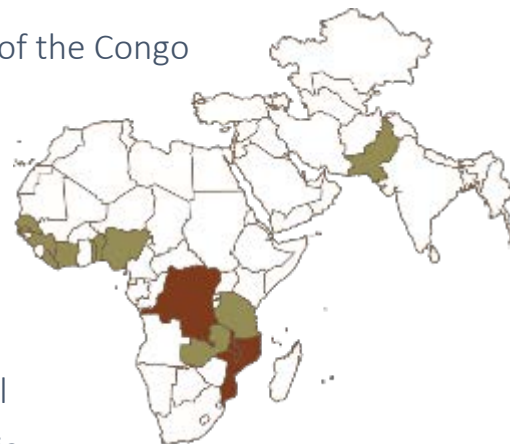
# Where We Work

## Core countries

Democratic Republic of the Congo

Malawi

Mozambique



## Partner countries

Benin Senegal

Côte d'Ivoire Tanzania

Guinea Togo

Liberia Zambia

Nigeria

Pakistan

# Supply chain-related activities



## NexGen

- Next-Generation Supply Chains
- SC design and implementation
- Mozambique, DRC, Zambia, Pakistan (Vaccine delivery), Nigeria
- Partners: MoH, BMGF, Gavi, UNICEF, CHAI, MfM, Aeris, Bolloré

## OpenLMIS

- Enterprise software to manage health supply chain data in low-resource settings
- 9 country implementations
- 10,000+ health facilities served
- Multiple donors + implementing partners

## Other programs

- Transport Services Solution
- Drones for Health
- Lab Sample Transport
- Cold chain maintenance
- Pharmacy Assistants
- Supply Chain for CHWs

# The Last Mile



# The last mile in extreme environments

For VillageReach, the Last Mile is the final location in the public system where health commodities are dispensed to the client/patient

Many locations have: limited accessibility by road, power outages, limited connectivity, unreliable cold chain capacity, limited secure storage....

There are hundreds, **often thousands** of these locations in each country we work



# The last mile challenge

Informing and counselling clients/patients on treatment regimens, possible methods and approaches to prevention must be accompanied by product availability

If clients/patients come for health commodities but are told that they aren't available, confidence in the system can break down

Clients/patients may then seek other options, (if affordable), or stop treatment



# A system design approach to supply chain in Pakistan





# Pakistan – Supply Chain challenge addressed

## Supply Chain Realities

- Transporting vaccines was costly with vast travel distances due to location of National store
- Temperature excursions from national to provincial stores were seen leading to spoilage











## Supply Chain Needs

- Optimize cost but reduce travel time and eliminate frequent temperature excursions during transport
- Improve availability to patients
- Achieve sustainable solution



- Geography – Pakistan
- Land Mass – 881 900 km<sup>2</sup>
- Population – 213 million
- Commodity Type – Cold Chain (Vaccines)

# Pakistan – Major changes made

Focus	Centralized Model	Decentralized Model
 <b>Vehicles</b>	Distribution distances are lengthy, travel in vehicles for extended periods	 Significantly reduced travel times within Province
 <b>Distribution &amp; Storage</b>	Vaccines travel vast distances and are exposed to temperature excursions	 Inbound arrival at Provincial warehouse allows 99% and 81% reduced travel distances in two large provinces
 <b>Costs</b>	Lower total cost, higher unit cost, lower efficiency	 Higher total cost, lower unit cost, higher efficiency
 <b>Direct Delivery</b>	Inbound to single National Distribution location for National distribution	 Delivery to multiple Provinces for regional distribution to health facilities
 <b>Supply Chain Structure</b>	Single Port of Entry, distribution by road and air to multiple Provinces	 Multiple Ports of entry – Direct to two provinces for own distribution based on geographic location and airport capabilities

# Pakistan – A system design approach to SC design



## Chosen Approach

- Reduce handling frequency and travel distances for vaccines and related commodities
- Provinces are prioritizing changes to reduce immunization vulnerability

A frugal approach to  
supply chain  
technology in  
Mozambique to build  
in resilience



# Tete Province – Supply Chain challenge addressed

## Supply Chain Realities

- Inefficient and unreliable health commodity transport to health facilities, leading to stock outs
- National strategy called for use of private sector transport capacity but little experience in working with private sector











## Supply Chain Needs

- Find capable private sector transporters
- Adjust demand planning cycle to schedule transport and fully load trucks
- Adjust warehouse practices to synchronize pick-pack in line with transport schedule
- Create and maintain trust between public and private sectors

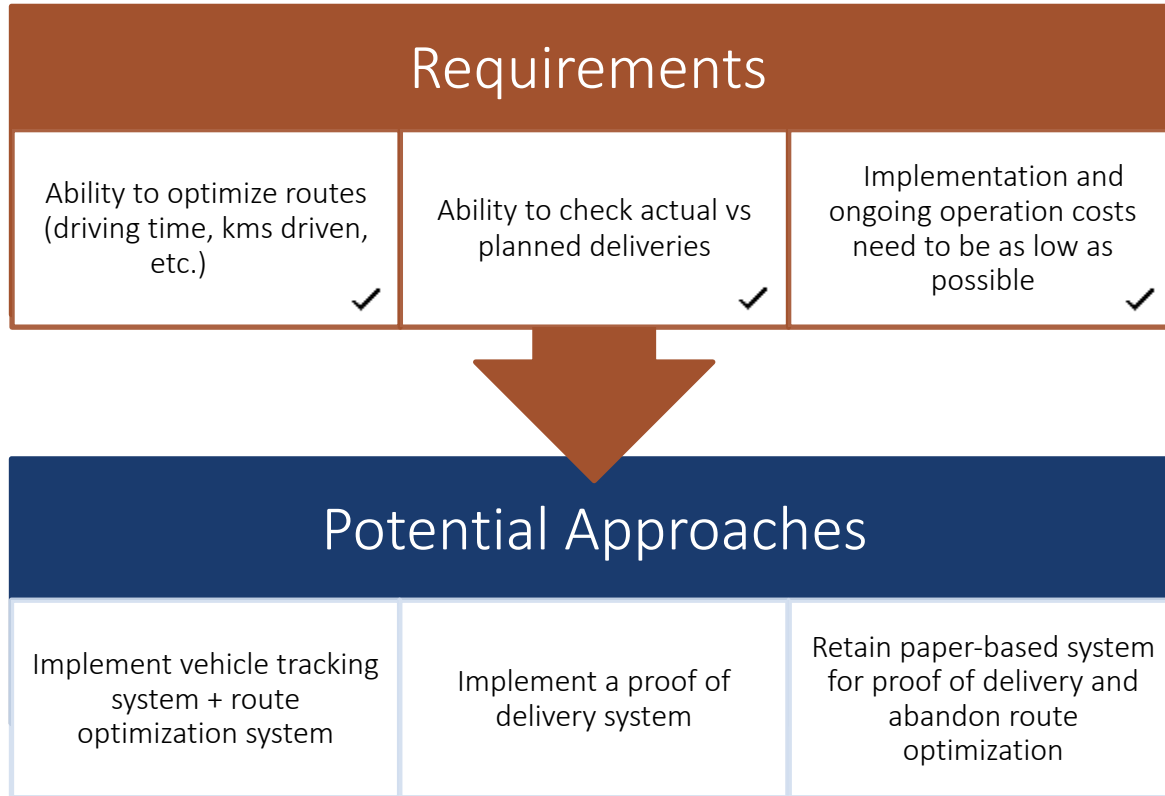


- Geography – Tete Province, Mozambique
- Land Mass – 100 724 km<sup>2</sup>
- Population – 2.7 million
- Commodity Type – Cold Chain (Vaccines) and Ambient (ARVs, TB...)
- Number of HF: 136

# Tete Province – Major changes made

Focus	Old model	Outsourced model
 <b>Vehicles</b>	Multiple uses, limiting planning, ongoing maintenance challenges	 3PL determines use, maintenance, and planning for vehicles
 <b>Distribution &amp; Storage</b>	Commodities kept at district stores for extended periods	 Commodities delivered from province to HC in maximum # of days
 <b>Costs</b>	Low total cost, high unit cost, lower efficiency	 Higher total cost, lower unit cost, higher efficiency
 <b>Direct Delivery</b>	Multi-tier distribution	 3PL transports directly from provincial warehouse to health facility
 <b>Supply Chain Structure</b>	Multiple supply chains	 Combined delivery for multiple commodities

# Tete Province – A frugal approach to supply chain technology



## Chosen Approach

- Prioritize critical data (time of visit, duration, out-of-hours, number of visits...), use data from a Vehicle Tracking system from Aeris Technologies to support vehicle tracking, proof of delivery and route optimization functionality

An integrated service model in the Democratic Republic of Congo to meet service delivery point needs





# Equateur Province – Supply Chain challenge addressed

## Supply Chain Realities

- Health staff have to travel to pick up medicines; not available for clients/patients
- Many service delivery points are far from the inventory stocking point (40km or more)
- Inventory Control System not in place
- Cold chain not in place or not working











## Supply Chain Needs

- Find resources to transport medicines
- Promote use of integrated deliveries (vaccines, essential medicines + planning products)
- Establish an inventory control system
- Develop management skills at service delivery points (Health Facilities)



- Geography – Equateur Province, DRC
- Land Mass – 130 422 km<sup>2</sup>
- Population – 2.6 million
- Commodity Type – Cold Chain (Vaccines) and Ambient (Family Planning, Essential Medicines)
- 284 HF and 18 hospitals (41 HF in scope)

# Equateur province – Major changes made

Focus	Old model	NGCA model
 <b>Vehicles</b>	Insufficient number of vehicles to reach service delivery points	 Private sector vehicles + partner vehicles used to reach service delivery points
 <b>Distribution &amp; Storage</b>	Commodities kept at district stores	 Commodities delivered from provincial WH to HC in maximum # of days.
 <b>Costs</b>	Low supply chain cost due to low volume of activity	 Grouped deliveries of multiple commodity types = optimized delivery costs
 <b>Direct Delivery</b>	Multi-tier distribution	 Transport directly from provincial warehouse to health facility
 <b>Supply Chain Structure</b>	Multiple supply chains	 Combined delivery for multiple commodities

# Equateur province – Using an integrated service model

Requirements		
Ability to transport product on a pre-determined schedule ✓	Ability to collect data on consumption; implement inventory control system and ensure data is being properly entered ✓	Need to ensure that cold chain equipment is working ✓



Potential Approaches		
Identify and contract with private sector transporters	Organize regular visits of health facilities by persons skilled in capacity development	Ensure visits by cold chain technicians

## Chosen Approach

- Have one person provide an integrated set of services:
  - + product delivery
  - + data collection
  - + coaching on inventory management and related practices
  - + check of cold chain equipment condition

## Summary of key learnings

To reach **last mile customers** in **low resource environments**, supply chains need to be simple to manage, robust, and highly efficient

Consider three levers when working to increase access to these customers

- **System design approaches** that bring you the end-to-end insights needed to optimize the total cost to serve
- **Frugal approaches to supply chain technology** that add resilience to your supply chain through lower complexity and costs
- **Customer centric thinking** that may lead to integrated service models based on the working conditions and capabilities of customers



Thank you!

VILLAGE REACH<sup>®</sup>  
X *Starting at the Last Mile*