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# Sample Taxi:
## Ride-sharing for sample transportation

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# VillageReach Mission and Impact



Save lives and improve health by increasing access to quality health care for the most underserved communities.

Our Mission

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

Our Impact

villagereach.org

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## Background

- "SampleTaxi" or "AmosTaxi"

- BMGF Grand Challenges

- November 2017- April 2019

## Problem

Long turnaround time for TB, EID and VL samples originating from peripheral health facilities in Mozambique
Flooded but disjointed sample transportation network
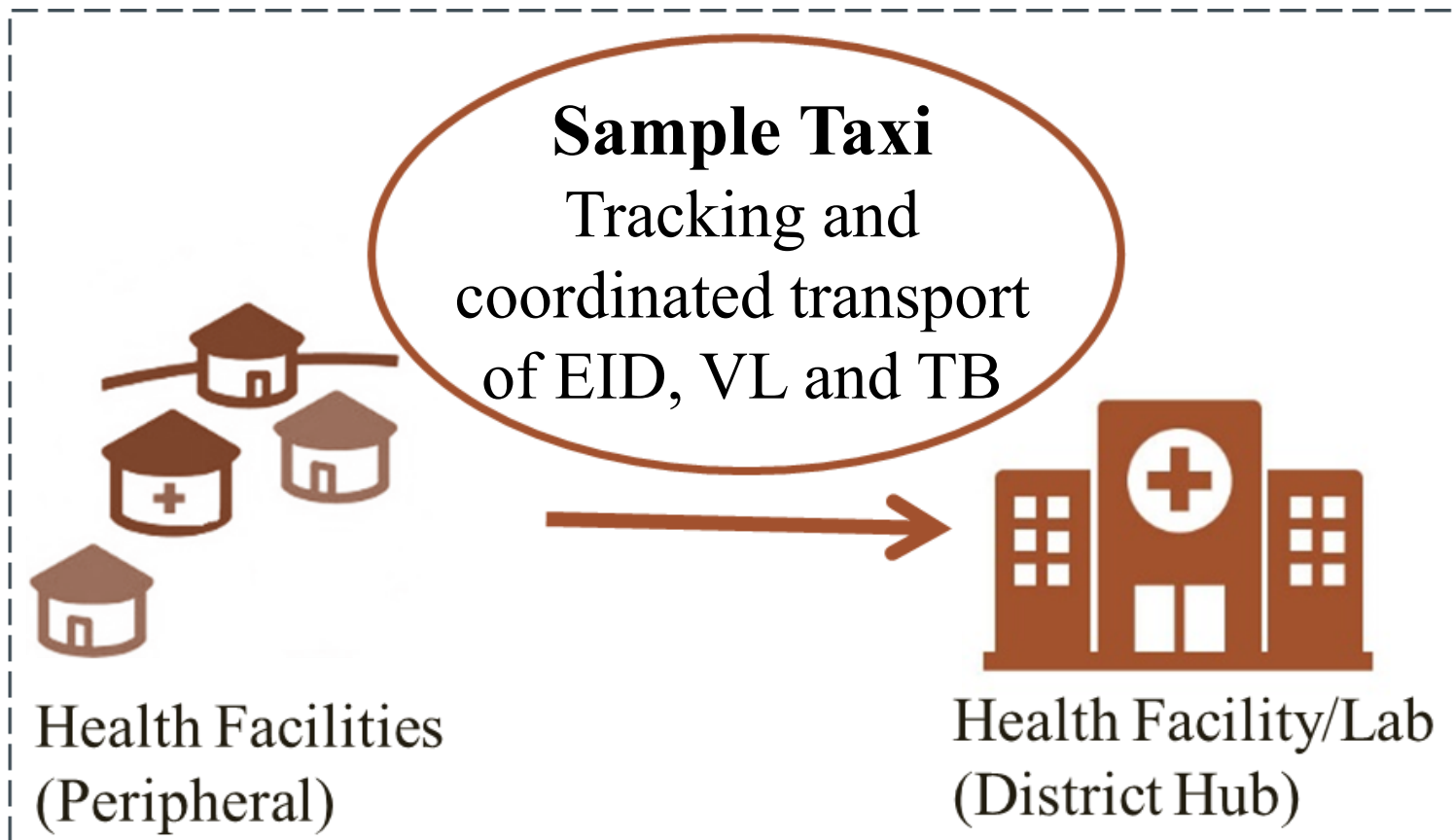Irregular documentation and tracking

## Concept

To reduce the transport time of specimens by using technology to coordinate a pool of drivers, on-demand

**VILLAGE REACH**

# Sample Taxi Findings

- Applying a ride-sharing approach ("Uberizing") resulted in dramatic improvements in **transit time**, introduction of **digital tracking of samples**, and increased efficiencies in terms of **kilometers traveled**.

- Opportunities for optimization of system include diversification of drivers enrolled, increasing health worker buy-in, expansion of digital tracking, and integration of additional lab sample types for transport.

# Sample Taxi Scope



**Sample Taxi**
Tracking and coordinated transport of EID, VL and TB

Health Facilities
(Peripheral)

Health Facility/Lab
(District Hub)

# What is the innovation?

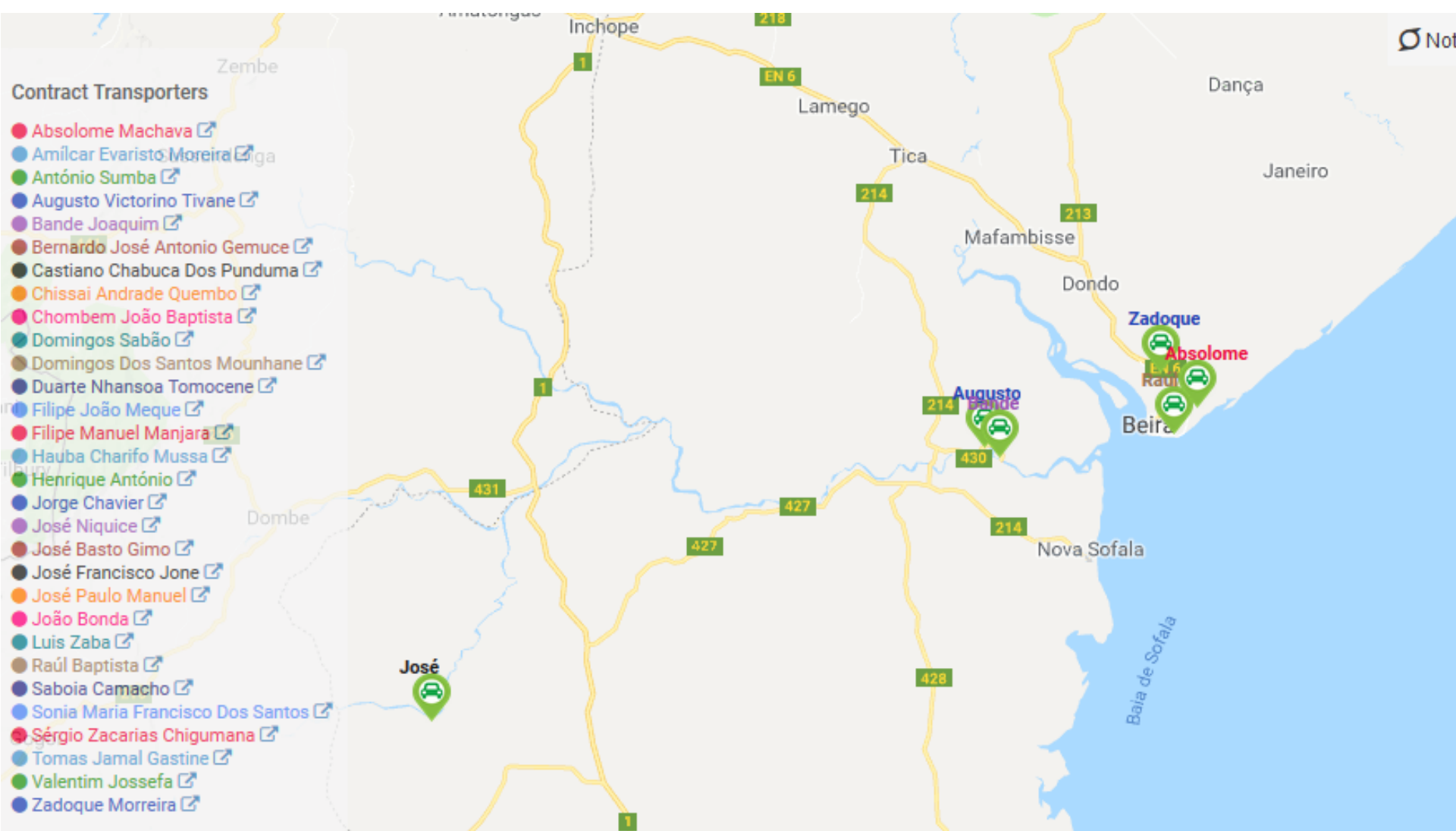| Samples collected from patient at health facility | Health worker contacts dispatch hub using toll-free number | Dispatcher registers request into Fleet application; SMS generated to health worker | Dispatcher identifies appropriate driver; drivers accepts/ rejects request | Drivers QR code and pick up samples; photo and signature. Samples tracked throughout with GPS | Samples delivered to district hub and/or laboratory; scanned upon delivery |

# Project Location



- Launched July 3, 2018
- 2 Districts in Sofala Province (Buzi and Chibabava)
  - 30 HU participating
- 14 Drivers enrolled
  - MoH (10)
  - FHI360 (4)
- 1 Dispatcher based in VillageReach office in Maputo

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## Contract Transporters

- ● Absolome Machava 🗗
- ● Amílcar Evaristo Moreira 🗗
- ● António Sumba 🗗
- ● Augusto Victorino Tivane 🗗
- ● Bande Joaquim 🗗
- ● Bernardo José Antonio Gemuce 🗗
- ● Castiano Chabuca Dos Punduma 🗗
- ● Chissai Andrade Quembo 🗗
- ● Chombem João Baptista 🗗
- ● Domingos Sabão 🗗
- ● Domingos Dos Santos Mounhane 🗗
- ● Duarte Nhansoa Tomocene 🗗
- ● Filipe João Meque 🗗
- ● Filipe Manuel Manjara 🗗
- ● Hauba Charifo Mussa 🗗
- ● Henrique António 🗗
- ● Jorge Chavier 🗗
- ● José Niquice 🗗
- ● José Basto Gimo 🗗
- ● José Francisco Jone 🗗
- ● José Paulo Manuel 🗗
- ● João Bonda 🗗
- ● Luis Zaba 🗗
- ● Raúl Baptista 🗗
- ● Saboia Camacho 🗗
- ● Sonia Maria Francisco Dos Santos 🗗
- ● Sérgio Zacarias Chigumana 🗗
- ● Tomas Jamal Gastine 🗗
- ● Valentim Jossefa 🗗
- ● Zadoque Morreira 🗗

| **DELIVERED** | 21/08/2018 09:13 AM | 21/08/2018 09:13 AM - 22/08/2018 05:00 PM | 23/08/2018 05:00 PM |
|---|---|---|---|
| updated on: 21/08/2018 06:33 PM | Placed on | Pickup window | Expected Delivery |

**Picked**
by José Paulo
on 21/08/2018 05:12 PM
Fernando Mudeia Bandua Cs
📍 Buzi, Sofala - 2107

**Delivered**
by José Paulo
on 21/08/2018 06:33 PM
Hospital Rural De Buzi
📍 Buzi, Sofala - 2107

(Distance: **342.329** Km) ➤



EID ✏️

02 Samples ✏️

**CONSIGNMENT**

| Total Packages | Normal | 2 | ✏️ |
|---|---|---|---|
| | Large | 0 | ✏️ |
| | **TOTAL** | **2** | |
| Dimensions | | | ✏️ |
| Total Weight | | 0.0 Kg (estimated) | ✏️ |

# Calls received/samples transported

| District | Calls Received | Samples transported |
|---|---|---|
| Buzi | 58 | 462 |
| Chibabava | 37 | 223 |
| Total | 95 | 684 |

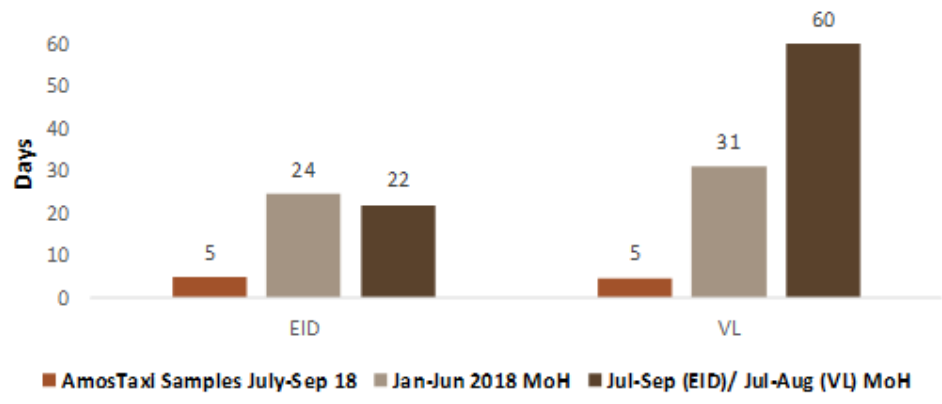Date range: July 3, 2018 – November 21, 2018

# Change in transit time =
## Time from patient to lab



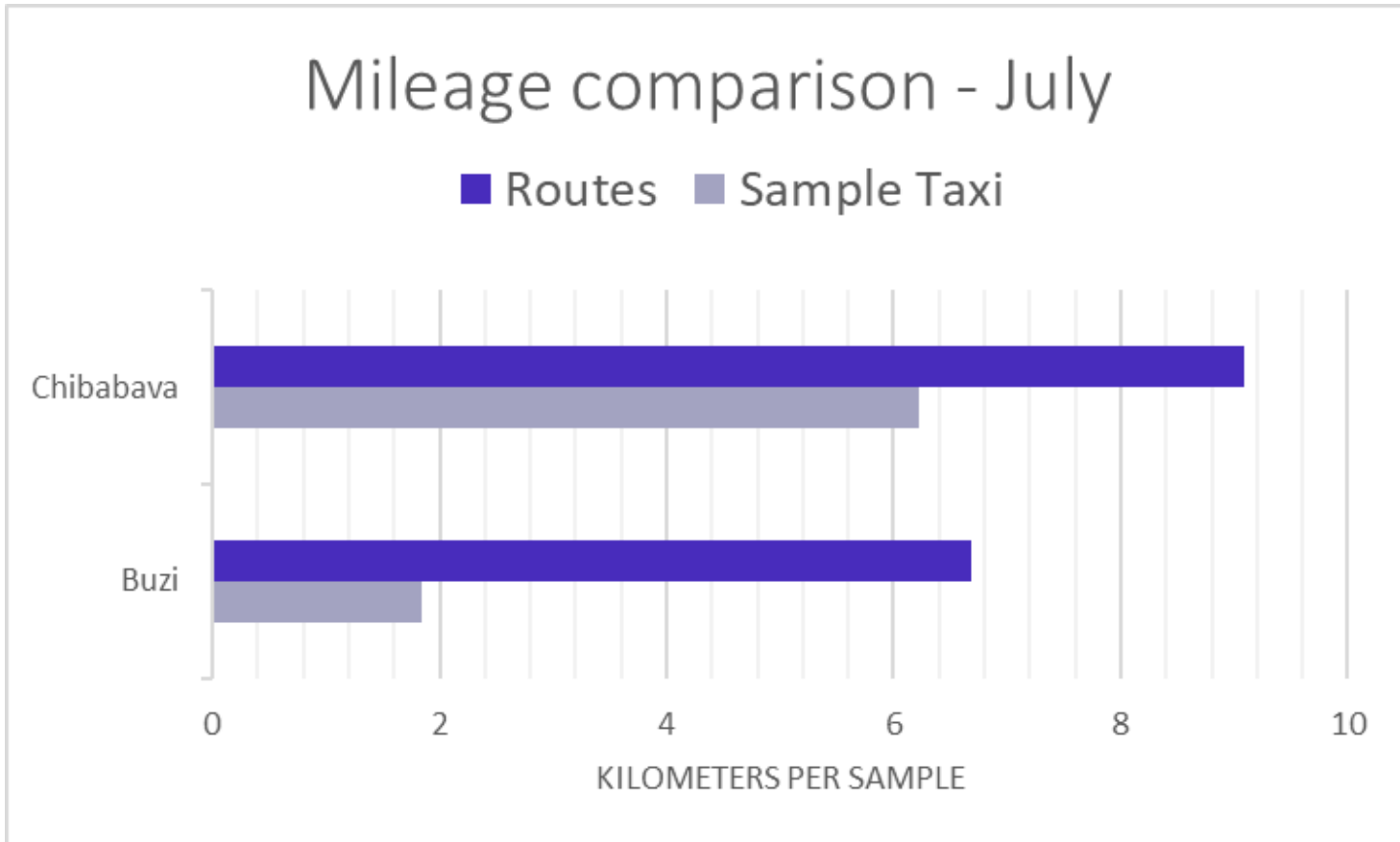Average days of transport time per sample (Chibabava)
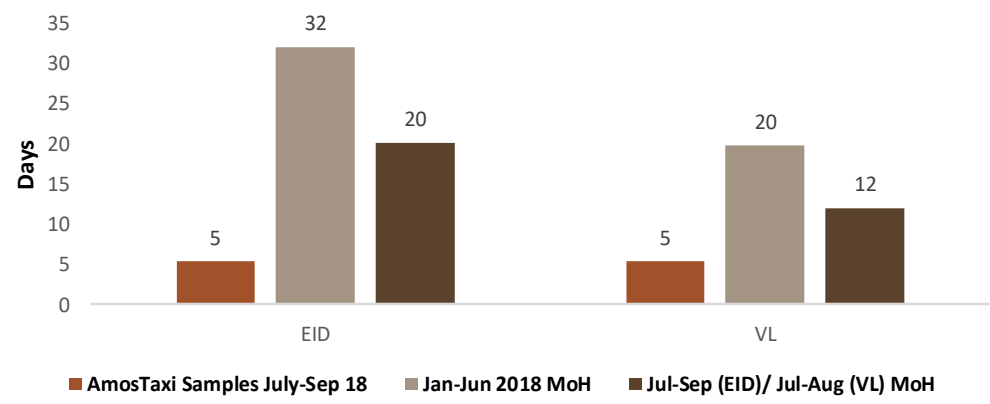


Average days of transport time per sample (Buzi)

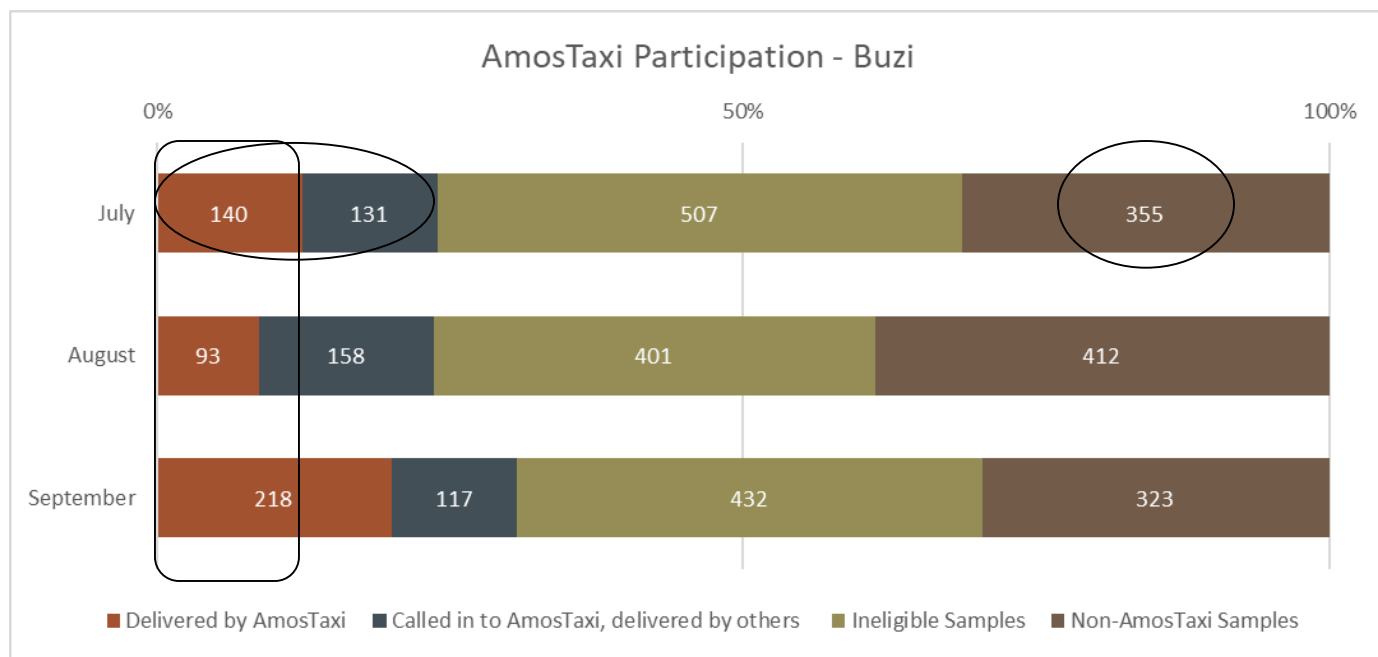EID and VL samples were transported in approximately 5 days when using Sample Taxi

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# Kilometers per sample



Mileage comparison - July

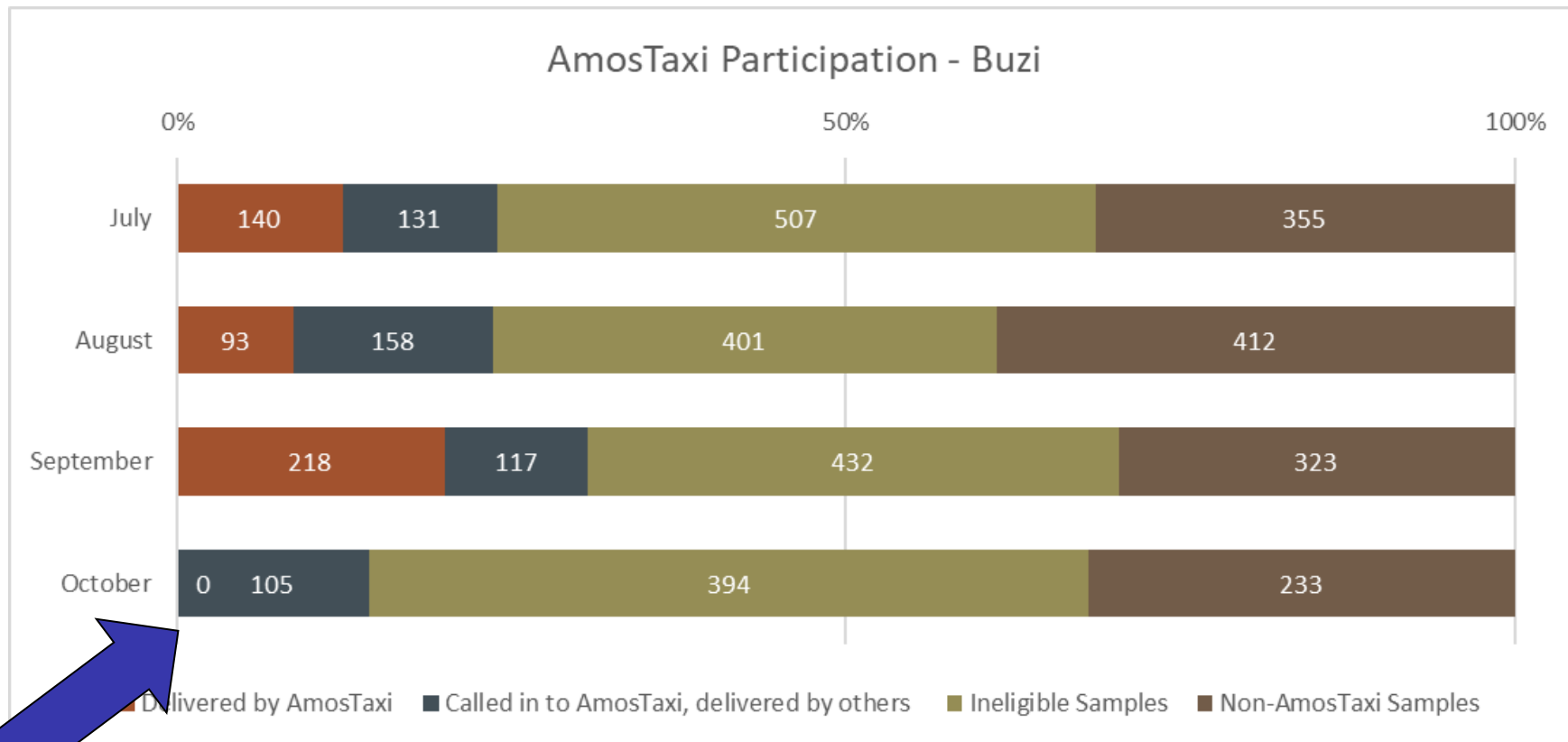Routes · Sample Taxi

KILOMETERS PER SAMPLE

# Volume transported by Sample Taxi

- 45% of eligible samples were reported to Sample Taxi

- Of those, Sample Taxi successfully coordinated transport for 52%



AmosTaxi Participation - Buzi

| Month | Delivered by AmosTaxi | Called in to AmosTaxi, delivered by others | Ineligible Samples | Non-AmosTaxi Samples |
|---|---|---|---|---|
| July | 140 | 131 | 507 | 355 |
| August | 93 | 158 | 401 | 412 |
| September | 218 | 117 | 432 | 323 |

# Driver numbers and diversification



AmosTaxi Participation - Buzi

| Month | Delivered by AmosTaxi | Called in to AmosTaxi, delivered by others | Ineligible Samples | Non-AmosTaxi Samples |
|---|---|---|---|---|
| July | 140 | 131 | 507 | 355 |
| August | 93 | 158 | 401 | 412 |
| September | 218 | 117 | 432 | 323 |
| October | 0 | 105 | 394 | 233 |

Legend: ■ Delivered by AmosTaxi   ■ Called in to AmosTaxi, delivered by others   ■ Ineligible Samples   ■ Non-AmosTaxi Samples

# Qualitative Results

Strengths

- Formalizing an informal practice
- Higher quality samples and better paperwork
- Elevated drivers' engagement with system
- Health workers transparency into network
- Clinical focus rather than transport focus

Limitations

- Transport unavailability – reluctant to try again
- Competes with transport reimbursement/per diem
- Digital tracking covers portion of network

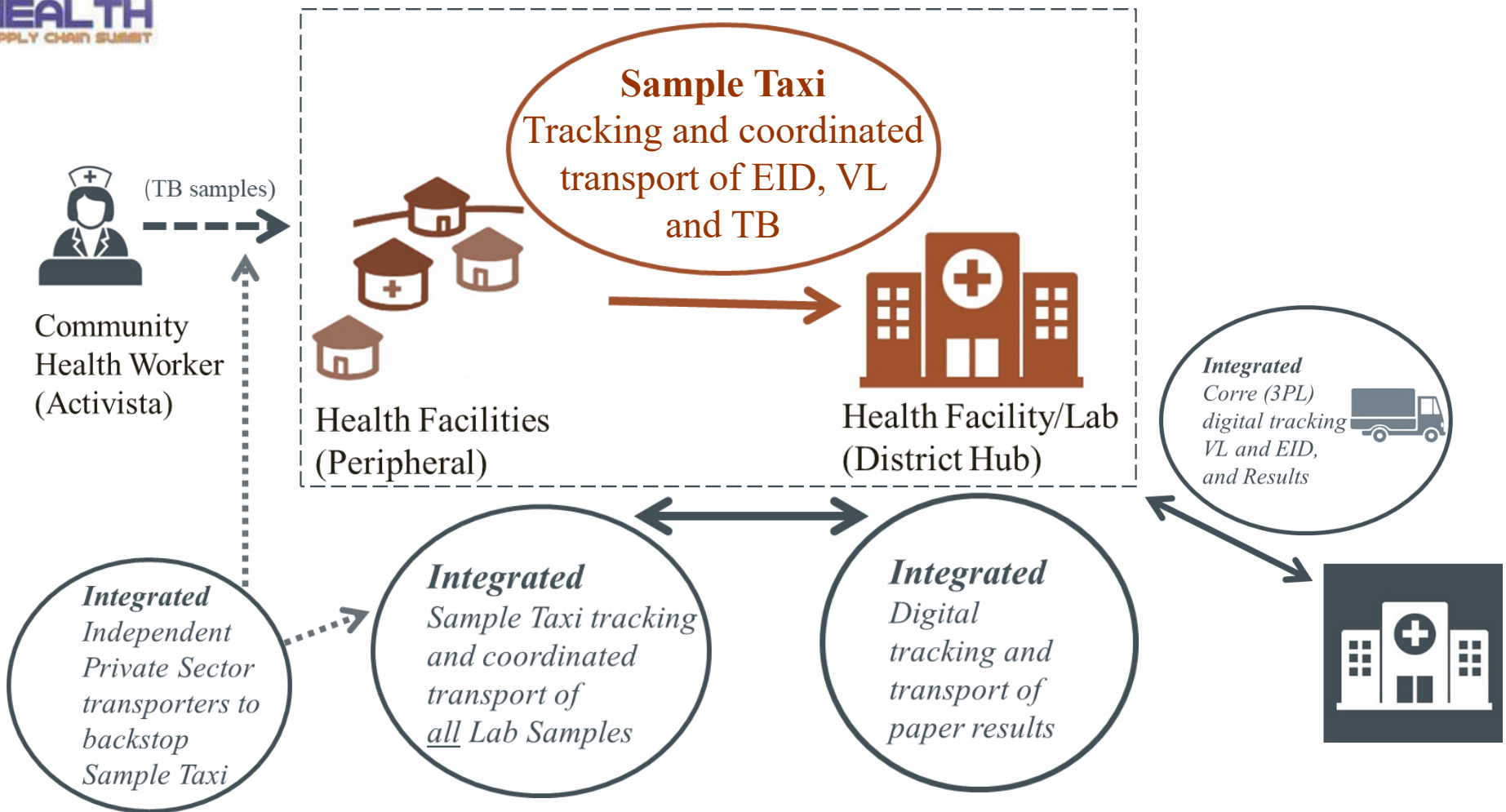# Sample Taxi Findings, revisited (1)

- Applying a ride-sharing approach ("Uberizing") resulted in dramatic improvements in **transit time**, introduction of **digital tracking of samples**, and increased efficiencies in terms of **kilometers traveled**.

# Sample Taxi Findings, revisited (2)

- Opportunities for optimization of system include
    - diversification of drivers enrolled,
    - increased health worker buy-in,
    - expansion of digital tracking, and
    - integration of additional lab sample types for transport.

# Sample Taxi 2.0

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