2024 MASS ITN DISTRIBUTION BALES SCANNING
LIBERIA'S EXPERIENCE

Presented By:

Joseph O. Alade

SME/ICT4D Officer

NMCP-Liberia

OUTLINE

- Political profile and Malaria situation
- Background
- Liberia DIGIT HCM Stock Management Module
- Stock received screen (Bale scanning functionality)
- Stacking of ITN bales in the warehouse before scanning
- Unstacking and bale scanning
- Results
- Benefits of Bales scanning
- Challenges
- Recommendations
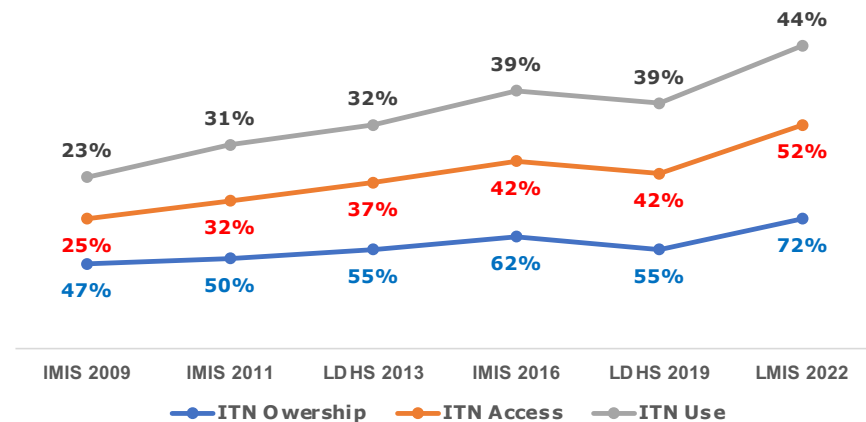
Political Profile of Liberia

- Liberia is a west African nation
- Liberia is divided into 15 sub-political divisions and 98 Health Districts
- Liberia has an estimated 2024 population of 5,569,923

Malaria Situation in Liberia

- Malaria is endemic in Liberia with the entire population at risk
- Malaria prevalence is 18% and 10% using mRDT and Microscopy respectively (LMIS-2022)
- Core Malaria prevention intervention in Liberia is the distribution and use of insecticide-Treated Nets (ITNs)
- Four rounds of ITN mass campaigns have been conducted since 2015 with the recent (2024) digitalized and ITN bales scanning introduced

Trend of ITN Ownership, Access and Use

	IMIS 2009	IMIS 2011	LDHS 2013	IMIS 2016	LDHS 2019	LMIS 2022
ITN Use	23%	31%	32%	39%	39%	44%
ITN Access	25%	32%	37%	42%	42%	52%
ITN Ownership	47%	50%	55%	62%	55%	72%

BACKGROUND

During the last three (2015, 2018, and 2021) mass distribution campaigns, the supply chain system was 100% paper-based

Waybill

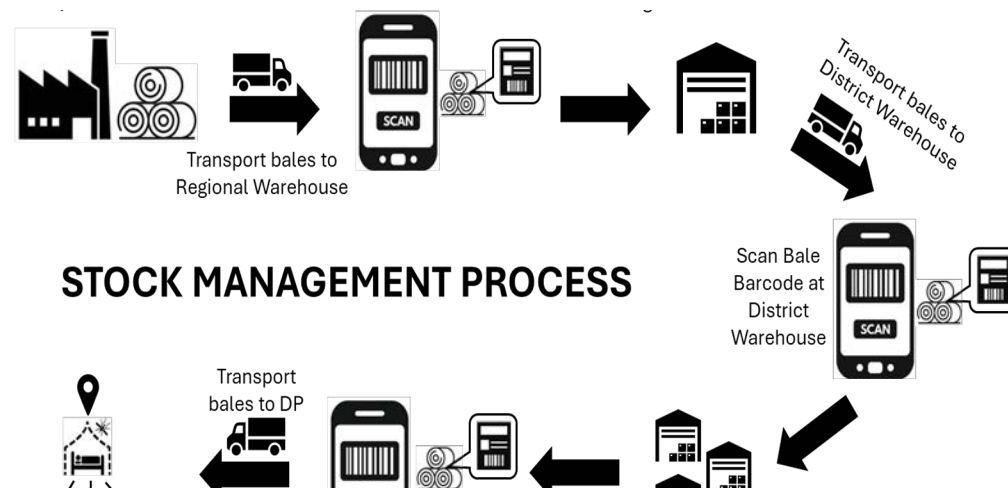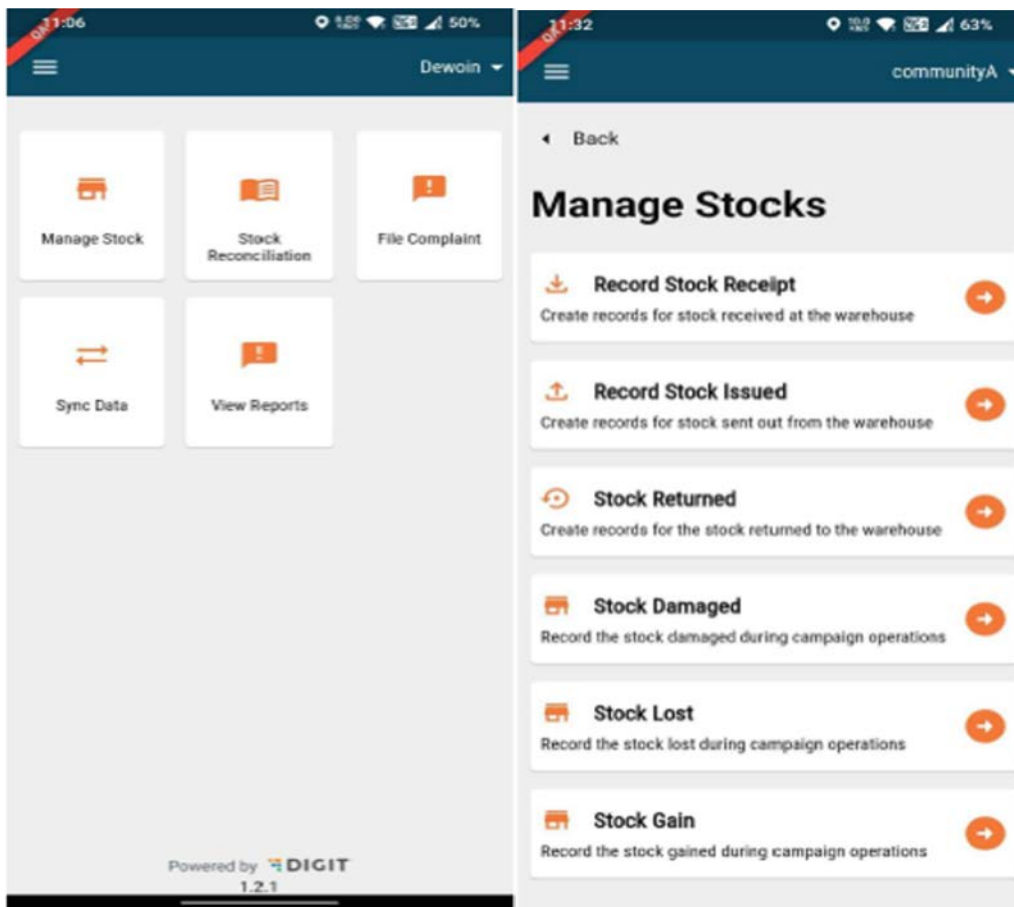Traditional means of tracking the movement of nets in the supply-chain system and required little training

- The 2024 Mass ITN campaign was Liberia's first digitalized campaign

- Liberia Health Campaign Management (HCM) application powered by DIGIT was deployed

- Supply-Chain (Stock Management) was one of the modules of the Liberia HCM with GS1 barcode scanning functionality

- Over 3 million ITNs were procured by the GF for the 2024 Mass campaign with 61,870 bales GS1 barcodes expected to have been scanned

Stock Management Module Liberia DIGIT HCM

Manage Stocks

- **Record Stock Receipt** — Create records for stock received at the warehouse
- **Record Stock Issued** — Create records for stock sent out from the warehouse
- **Stock Returned** — Create records for the stock returned to the warehouse
- **Stock Damaged** — Record the stock damaged during campaign operations
- **Stock Lost** — Record the stock lost during campaign operations
- **Stock Gain** — Record the stock gained during campaign operations

STOCK MANAGEMENT PROCESS

Transport bales to Regional Warehouse

Transport bales to District Warehouse

Scan Bale Barcode at District Warehouse

Transport bales to DP

STOCK RECEIVED SCREEN

- Bale scanning functionality works only with stock received

- All ITN bales were expected to be scanned upon received (regional and district warehouses)

Received Stock Details

Select product *

Acetellic - 1litre

Stock received from *

FAC_F-2025-02-05-008905

Quantity received *

20

Waybill number

BH08YY77

Quantity indicated on waybill

20

Transport type

Bus

Vehicle number

Gt665yu9

Comments

⊞ Scan Bales

Submit

ITN BALES STACKED IN WAREHOUSES PRIOR TO BALES SCANNING

- The nets were stacked in all the warehouses prior to the scanning of the bales

ITN stacked in a Regional warehouse

ITN stacked in a district warehouse

- While logistic training was conducted prior to the arrival of the nets in the there was a need for mentorship

- The campaign management team conducted mentorship of the warehouse supervisors on bale scanning

Barcodes scanning mentorship in Nimba and Lofa Counties

ITN BALES SCANNING PROCESS

ITN bales were unstacked from warehouses, put outside or in a separate room in batches (50 or 100) and barcodes were scanned using the application (phones)

Bales without stickers or damaged stickers were captured, and reasons for not being able to scan were stated in a comment box

This was repeated until all the bales were scanned
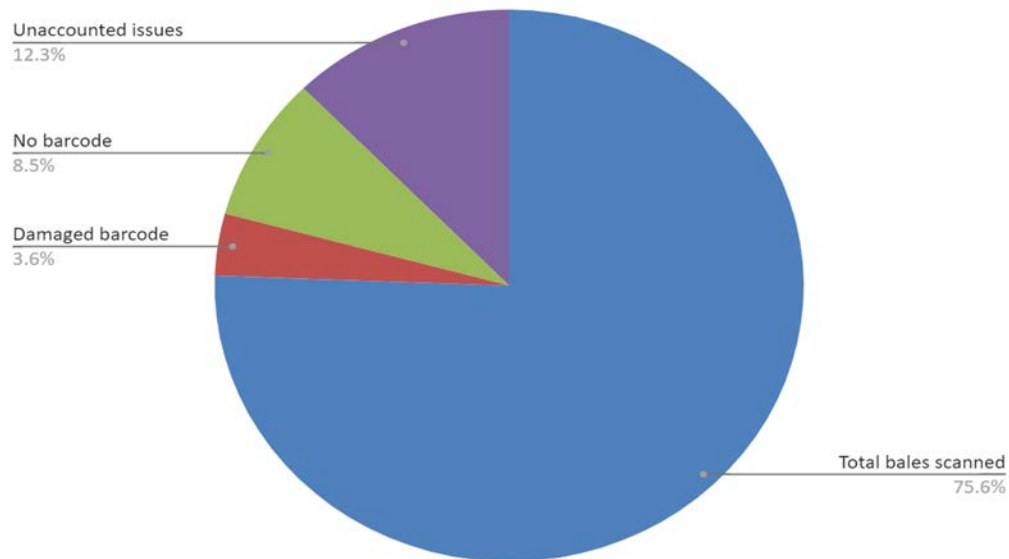After the scanning, the bales were restacked in the warehouses

At the end of each batch of scan, the data was synced to the cloud server
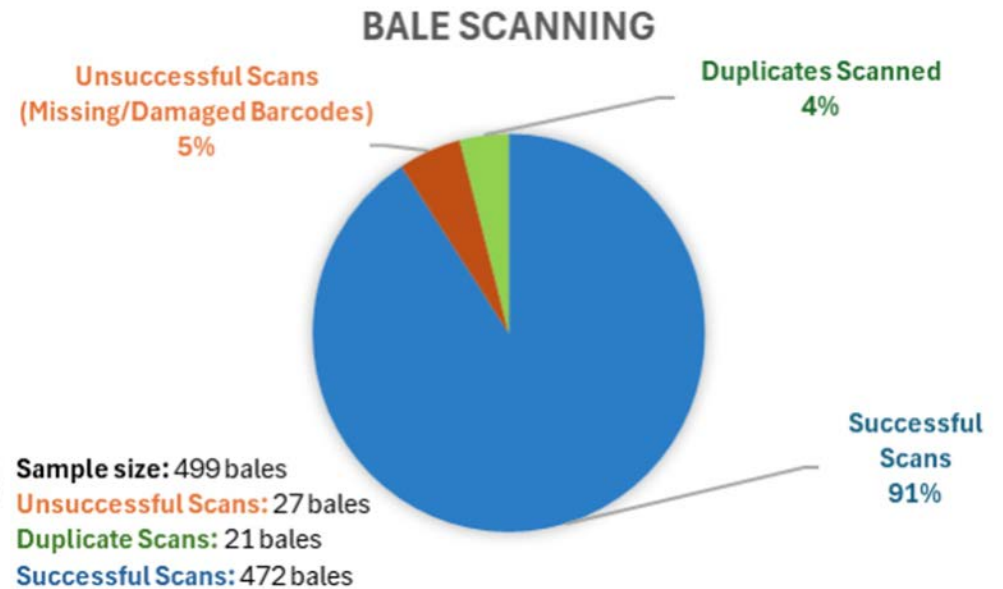
ITN bales being scanned

Results from Liberia

Phase 1: One County

Unaccounted issues
12.3%

No barcode
8.5%

Damaged barcode
3.6%

Total bales scanned
75.6%

Phase 2: Two counties

BALE SCANNING

Unsuccessful Scans
(Missing/Damaged Barcodes)
5%

Duplicates Scanned
4%

Successful Scans
91%

Sample size: 499 bales
Unsuccessful Scans: 27 bales
Duplicate Scans: 21 bales
Successful Scans: 472 bales

BENEFITS OF BALE SCANNING

During Distribution

● **Data Accuracy:** Scanning eliminates common human errors and provide aggregate counts in virtual and printed reports.

● **Traceability and Accountability:** With scanning, every action is digitally recorded in real time, creating a clear audit trail. For example, if a bale goes missing during the campaign, the system maintains a record of the last location where it was scanned.

Post Distribution

● **Reporting:** Data gathered through bale scanning can generate detailed reports, providing insights into the efficiency of the campaign.

● **Audit and Verification:** Scanned data serves as a digital ledger that can be audited to verify whether the bednets reached their intended recipients. For instance, a post-campaign audit could cross-check the scanned data with physical inventories at various health centres to resolve any discrepancies.

● **Reverse Logistics:** Enables quick aggregation and reverse of ITN into LMIS for routine distribution.

CHALLENGES AND RECOMMENDATIONS

CHALLENGES

- Lack of standard operation procedure (SOP) for bale scanning

- Application not flexible to correction once data is submitted

- Unstacking and restacking of ITN bales in warehouses before and after bales scanning

- Bale scanning functionality only at stocks received

- Data loss due to accidental back press or phone goes to idle mode

- Barcodes have not information about the bale (only an 18 digits numbers)

RECOMMENDATIONS

- A well-defined SOP on bale scanning must be developed by the digital transformation partner

- If possible, application must be made flexible to allow users make correction to transaction even after submission

- Bale scanning must be done before the stacking of the nets in the warehouse

- Bale scanning must be at both stocks receipt and stocks issued to enhance accountability

- App must cache the list of barcodes scanned to allow continuation in case of accidental back press or idle mode

- Information about the nets must be included in future barcodes to ensure tracking and traceability

☺ THANKS