VAN High Level Design
## What is the VAN concept?

<table>
<thead>
<tr>
<th>Element</th>
<th>The VAN is...</th>
<th>The VAN is more than...</th>
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</thead>
</table>
| **People** | • Centralized and integrated team, of **supply chain professionals** | • People trained on **quantitative analysis** of supply chain performance  
• A new name for the existing roles that operate the supply chain |
| **Process** | • Data driven processes that use analytical methods to **plan, proactively respond and recommend continuous improvements that improve availability to beneficiaries** | • Better SOP’s and improved adherence  
• Business process re-engineering of everything on the ‘World on a Page’  
• One-off system redesign |
| **Technology** | • Systems for data **collection and aggregation** that **generate alerts** and deliver **actionable insight**, with automation wherever possible | • New supply chain transactional systems for recording orders, shipments, budget etc. |
| **Policy** | • Enabled with visibility of **the end to end supply chain**  
• Setup to deliver supply chain services to all programs and tiers  
• Empowered to **measure performance** | • An improvement mechanism for one domain (procurement, warehousing)  
• A project to improve milestones/KPIs for one program |
The Cross-Program VAN can be situated at any level of the Supply Chain but it should still be able to:

• Have end to end visibility of what happens and how well it happens (closed loop)
• Have a highly skilled team of people on board delivering a set of well defined services
• Perform complex analytics (what if, root cause, predictive)
• Provide optimized holistic plans and proactive corrective action recommendations down to the execution layers aiming for meeting the beneficiary needs
Ad Hoc Phase

- No formal logistics roles and processes
- Fragmented efforts across actors, who have limited understanding of the supply chain

Organized Phase

- Standardized systems designed and implemented
- Logistics roles and processes defined and followed
- Sufficient resources mobilized

Integrated Phase

- People, functions, levels and entities linked under an interconnected organization
- Supply chain managers are empowered, using information to manage the system and align actors

Moving from Ad Hoc to Organized:

- Conduct system assessment, using process mapping, network optimization and costing analysis
- Undertake system design for functions and products using segmentation analysis
- Roll out logistics system by conducting training on developed SOPs and supervision guidelines
- Conduct regular quantification of commodity needs

Moving from Organized to Integrated:

- Establish logistics management units and technical working groups
- Professionalize supply chain managers
- Optimize performance with analysis and tools
- Strengthen automated processes for data collection and sharing
- Develop performance management indicators and incentives
What are the VAN priorities outcomes?

Six priority outcomes were identified:

1. Sufficient quantities forecasted and ordered
2. Commodities ordered on time
3. Order delivered in full
4. Order delivered on time
5. Commodity arrives with sufficient remaining lifetime before consumption
6. Commodity maintains potency/efficacy

The VAN will improve the identified priority outcomes through:

• End-to-end visibility and analytics across all supply chain tiers
• Improved business processes and proactive planning
• Exception handling processes to deal with emergency events (mitigate risk / impact)
The United Republic of Tanzania
Ministry of Health and Social Welfare

Vaccines
Information
Management
System

An effective and sustainable electronic logistics management information system (eLMIS) should be user friendly and facilitate that adequate quality and quantities of health commodities* are always available at the point of service to meet patient demand. The eLMIS must provide integrated access to:

- Accurate, timely and routine consumption data
- Real-time logistics management capabilities covering point of origin to point of consumption
- Demand forecasting, capacity planning & modeling based on consumption

(* vaccines, medicines, medical & diagnostic supplies, etc.)
eLMIS is driving supply chain system strengthening

**eLMIS**
- Health facility staff calculate order quantities and order new supplies in less than a minute.
- Quarterly report and order sent to district for approval in 7 days.
- Report and order data from the nine MSD Zones made visible in the central system in 1-14 days.
- Time it takes for health facility data to reach the central level is 7-14 days.
- Time it takes for the health facility to get feedback from the MSD is 1-8 weeks.

**Manual LMIS**
- Health facility staff calculate order quantities and order new supplies in 3 hours.
- Quarterly report and order sent to district for approval in 7 days.
- Report and order data from the nine MSD Zones made visible in the central system in 1-14 days.
- Time it takes for health facility data to reach the central level is 7-14 days.
- Time it takes for the health facility to get feedback from the MSD is 1-8 weeks.

**Benefits of eLMIS**
- Faster, easier, and more accurate reporting data for supply chain managers.
- Improved stock management for better decision-making.
- Better decisions regarding stock levels.
- Reduced stockouts.
- Better health outcomes.
Key milestones in the evolution of Tanzania’s vaccine supply chain system

- IVD stock management requirements established
- eHealth strategy launched
- SMT and Cold Chain Inventory Tool rolled out nationally
- eLMIS rolled out nationally
- Piloted use of GS1 barcodes on packaging
- VIMS requirements review workshop

- Jul 2013
- Oct 2013
- Sep 2014
- Sep 2013
- Jun 2014
- Dec 2014
### VIMS conceptual framework

#### Logistics
National, District and Regional Levels

- Forecasting
- National Arrival Tracking/Receipt
- Regional and District Receipt
- Inventory Management of Vaccines and CCE
- Order Requisition
- Temperature Monitoring
- Barcoding

#### Routine Data
Facility Level

- Facility information
- Number of children vaccinated
- Stock management vaccine and supplies
- Cold chain and temperature monitoring
- Adverse events following immunization
- Disease surveillance
- Vitamin A supplementation

<table>
<thead>
<tr>
<th>Interfaces and Exports</th>
<th>EPICOR E9 Only at MSD Level</th>
<th>Forecasting &amp; Financing</th>
<th>DHIS2 All levels</th>
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<tbody>
<tr>
<td></td>
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<td>Takes from Program Data:</td>
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<tr>
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<td></td>
<td></td>
<td>• Coverage rates</td>
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<td>• Drop-out rates</td>
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<td>• Access and Utilization</td>
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- Storage (central vaccine stock, receipts, issued to each region)
- Distribution (picking and packing, delivery schedules, arrivals)
- Take logistics and routine immunization data to create national forecast
VIMS is being implemented through a multi-stakeholder partnership

Leadership

Donors

Partners
VIMS dashboard is set to visualize KPIs to enhance data for management:

- **Vaccine Coverage**
- **Order On Time & In Full**
- **Stocked According to Plan**
- **Stock Out Rates**
- **CCE Functioning**
- **Forecasted Demand Ratio**
Key takeaways on VIMS objectives

- VIMS is maintaining the standards of WHO and UNICEF in reporting for DVDMT and SMT
- VIMS will facilitate critical linkages between DVDMT and SMT for improved immunization supply chain decision making
- As an open source tool, VIMS code base will be freely available to countries to adapt with minimal configuration
- VIMS can be implemented in a phased approach beginning with districts or facilities that have the requisite infrastructure
- VIMS will enhance the quality of data reported throughout the immunization system through improved checks and balances
- To work VIMS will need trained people willing to use the data it generates for decision making
What are the key supply chain challenges that remain?

- Complex paper-based reporting and requisitioning
- Insufficient staff capacity at facilities, districts, regions, and nationally to use data for appropriate analysis, proactive action, and continuous improvement
- Inadequate definition of roles and accountability for supply chain performance
- Limited knowledge of continuous improvement options and approaches
- Insufficient compliance with standard operating procedures
- Uncertain denominators for forecasting supply needs at various facilities
Master
SMT
RIVO
Quality Assurance

Epicor
Inform Demand Planner
& Consolidate regional zonal demand plans

Define forecast KPIs

Update expected demand data

Review forecasted demand against allocated budget and receipt schedule

Initiate inventory distribution/stock transfers

SPM 2.1.2
Define service levels

SPM 2.1.3
Set planning parameters

CTI
Bureau of National Statistics

Beyond Wireless (RTM)

DVDMT

Faulty equipment

LMU National

LMU Zonal

IVD

RIVO

Technicians

DIVO

Health Facilities

LMU Zonal

MSD Central and Zonal Warehouse

DVDMT

Promissory

eLMIS

IVD

RIVO

Quality Assurance

SPM 2.2.2
Redistribute material with lesser shelf life between facilities

SPM 2.2.1
Generate supply plan based on material receipt schedule

SPM 2.5.4
Communicate supply plan to facility representatives

SPM 2.1.2
Create statistical projection

SPM 2.3.1
Initiate inventory distribution/stock transfers

SPM 2.5.1
Generate supply plan

Epicor

CCIT

Forecasting Tool

Beyond Wireless

Proof of Delivery

DHIS2

Surveillance

Immunization Registry

Master Facility List

VIMS (in development)

Epicor

eLMIS

SMT

DVDMT
What key processes are we targeting for improvement?

1. Demand planning (DP)
2. Supply planning and inventory management (SPIM)
3. Distribution/transportation management (DTM)
4. Cold chain management (CCM)
What additional activities do we plan to undertake to implement the VAN?

• Build capacity to institutionalize VAN roles and accountability
• Link demand planning to forecast accuracy
• Ensure continuous improvement of “on-time, in-full” delivery
• Track funding in full
• Improve cold chain maintenance
• Increase visibility of facility accounts and stock held at the Medical Stores Department
• Deploy facility-based electronic logistics management information system (eLMIS) at high-volume facilities
• Use manufacturer barcode data to manage batches and expiry
What is our planned approach?

**PHASE 1 (Q4-2015)**
- Baseline evaluation
- Job analysis and initial capacity building
- Continuous improvement tracking for demand planning, OTIF, and funding
- Cold chain and barcode management integration
- Deploy facility-based eLMIS at high-volume facilities

**PHASE 2 (Q4-2016)**
- Transportation planning
- Facility-to-facility transfers
- Forecast modeling
- Integrated temperature monitoring (facility-based and in transit)
- Programmatic dashboards
- Mid-point evaluation

**PHASE 3 (Q4-2017)**
- Business process automation
- Network optimization
- VAN maintenance activities
- Final evaluation

* Pending Phase 1 analysis
Driving the VAN in Mozambique

TechNet Conference

May 14, 2015
Taking the VAN vision....

End-to-end Visibility
Analysis & Insight
Continuous Improvements
Improved Distribution of Health Commodities
...into Mozambique reality
Challenges Identified by EPI Program

- Duplicate Data in Multiple Systems
- Facility-Level Stock Data Not Available Nationwide
- EPI Indicators and Stock Data In Different Systems
- Poor Data Utilization at Lower Levels
- Difficult to Assess Wastage Rate
- Limited Data Feedback to Lower Levels
- SMT Hard to Use
VAN Approach

Clear Vision, Incremental Improvement

- People & Processes
- Build MISAU & District Capacity
- Ease of Use
Mapping VAN to Administrative Hierarchy

- National-Level VAN
  - Provincial-Level VAN
    - District/Service Delivery-Level Feedback Loops
    - District/Service Delivery-Level Feedback Loops
    - District/Service Delivery-Level Feedback Loops
    - District/Service Delivery-Level Feedback Loops
  - Provincial-Level VAN
  - Provincial-Level VAN
  - Provincial-Level VAN
Building the VAN

People
• Secunded Logistics Data Analyst to MISAU
• Transport Management Capacity

Processes
• Systematic Monthly Data Review Process
  • KPIs tied to roles
  • Data Collection Process
  • Data Feedback to Health Centers

Technology
• Consolidated Vaccine Data Platform
  • Exception Alerts
  • Transport Management/GIS
  • What-If Analysis

Policy
• Flexibility to Change Annual Plan
  • System redesign?
  • Outsources transport?
  • Integration of vaccines with CMS?
THANK YOU
MAY 2015

TECHNET BRIEFING

Visibility & Analytics Networks in Nigeria

NATIONAL PRIMARY HEALTH CARE DEVELOPMENT AGENCY (NPHCDA)
CLINTON HEALTH ACCESS INITIATIVE (CHAI)
eHEALTH SYSTEMS AFRICA (eHA)
MCKINSEY & COMPANY
WHO & UNICEF - NIGERIA
ACCENTURE DEVELOPMENT PARTNERS (ADP)
VAN nigeria

Background

› Formation of DL&HC
› Gavi graduation and funding gaps
› New vaccine introductions

VAN in Nigeria

› Construct for reframing programmatic challenges
› Adaptation of blueprint through the White Paper
VAN OVERVIEW

Build on existing systems
  ‣ Integrate and network existing systems

Analytics framework
  ‣ Value-chain views
  ‣ Performance management
  ‣ Bottleneck analysis

Focus States
  ‣ All along maturity curve
  ‣ Custom strategies
  ‣ Build reference models for scale
VAN BASELINE SYSTEM

HEALTH FACILITIES

Service Delivery
- REGISTER Patent list
- TALLY SHEET: Tally of each vaccine administered by age group per dose in schedule per session

Stock & Data Management
- SESSION SUMMARIES
- VM1 LEDGER: Printed or manual summary
- UTILIZATION SUMMARY
- SUPPLEMENTARY FORM(S)

LOCAL GOVERNMENT AREA STORES

Data Aggregation
- VM2 Aggregated VMs

Stock Management
- VM3 Utilization Report Form
- VM4 Store Issue & Receipt Voucher
- VM5 Supply Stock Record Card
- VM6 Ledger
- VM8 Weekly Balance
- VSPM Stocked to Plan
- DVD-MT (VM7) Program Report
- SM/NAV (VM9) Stock Report

STATE STORES

Data Aggregation
- VM7 Aggregated VMs

Stock Management
- VM8 Supply Stock Record Card
- VM9 Supply Stock Record Card
- VM10 Store Issue & Receipt Voucher

LGA CCO
- LIO

STATE CCO
- SIO
VAN ANALYTICS FRAMEWORK

KPIs are calculated per node to identify bottlenecks impinging the facility or store from achieving stock availability. Composite scores of input and output processes are calculated per period and available on the dashboard.
VAN TECH STRATEGY

**IMPORTER**
- Receives submissions
- Reads according to structures
- Flags missing fields
- Validates entries
- Responds to user to fix errors

**NORMALIZED DATA STORE**
- Master Data Record relates data to facility and process objects
- Calculates KPI
- Notify VAN managers
- Returns consolidated reports to update third-party services

**INTERACTIVE DASHBOARDS**
- KPI status within each domain by facility, store, geography, and process
- By reporting period and longitudinally
- Integrated database for IRP and other functions.

**VAN MANAGEMENT**
- Supply, Demand, Transport, and Data Managers
- Reviewing regularly
- Acting on changes
- Drilling down for RCA
- Exporting data for review
It’s time for a song...
Here are the lyrics if you’d like to sing along...

It has to VAN! It has to be VAN!
The data it flows, to a dashboard it goes
To an aspirational plan, and fina’ly you can
Get all vaccines there, not lost in the air, and not Disneyland
Some centers we’ve seen, excellent and clean
Puts us on track, there’s no turning back
We’ll land and expand!
For nothing else gives visibility
Please David help, it’s not going to be free
It has to be VAN, analytical VAN
Fabulous VAN!!