EVOLUTION OF THE VISIBILITY AND ANALYTICS NETWORK IN SOUTH AFRICA

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AGENDA

- The South African context
- Visibility & Analytics Network
- VAN Implementation
- Challenges and priorities
- What has been achieved?
- What has been learned?
- What is next?

THE SOUTH AFRICAN CONTEXT

56 million

the population of South Africa

82%

of population dependent on public health (**46 million people**)

4.1%

Of GDP spent on public healthcare

+3,900

Healthcare establishments in the public sector

134 million

units of medicine delivered per annum

R16,7 billion

Spent on medicines annually

4.2 million

Patients receiving treatment for HIV

7.1 million

Patients are HIV positive

VISIBILITY & ANALYTICS NETWORK (VAN)

The South African National Department of Health (NDOH) has adopted the Visibility & Analytics Network (VAN) operating model for coordinated implementation of supply chain interventions identified in the Strategy for Improved Medicine Availability (2016).
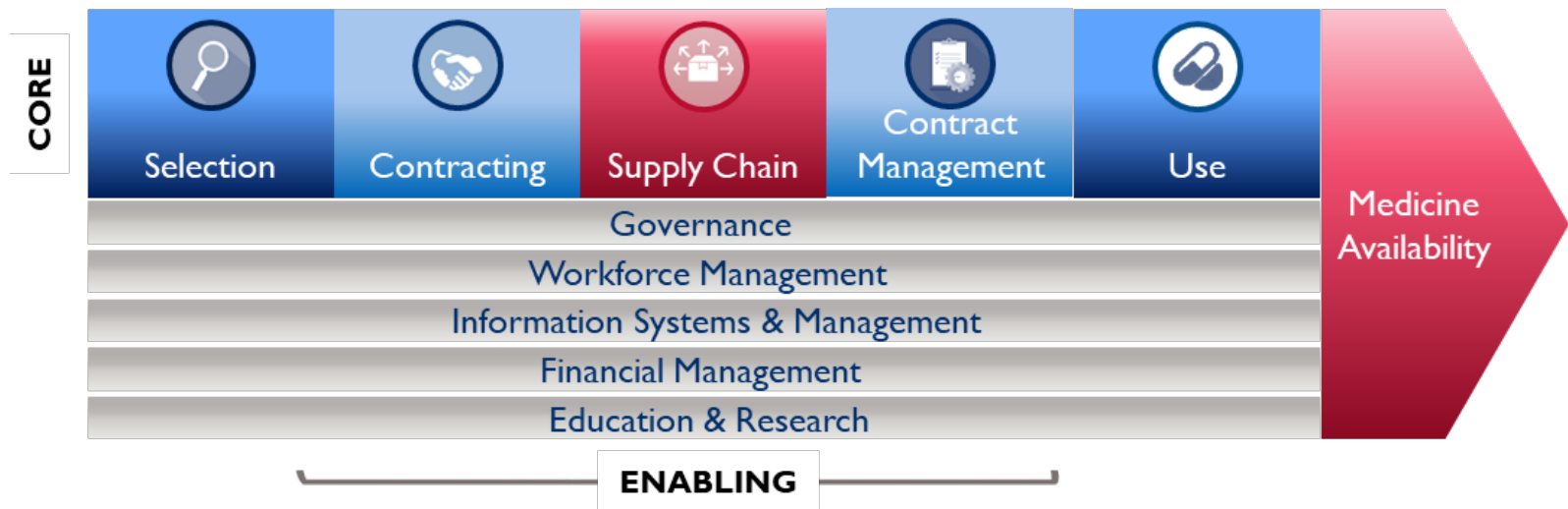
The VAN Blueprint was developed in 2015 through the Bill & Melinda Gates Foundation and input from multiple global health organizations, implementing partners, private sector, donors and African governments.

VISIBILITY & ANALYTICS NETWORK (VAN)

The name VAN is based on the following key features of the model:

Visibility - Specialized Supply Chain planners require data visibility across the entire medicine supply chain to maximize availability and cost effectiveness

Analytics: Analytical processes to make ordering recommendations, analyse performance, conduct root cause analyses of issues, make optimisation decisions and continuously improve processes.
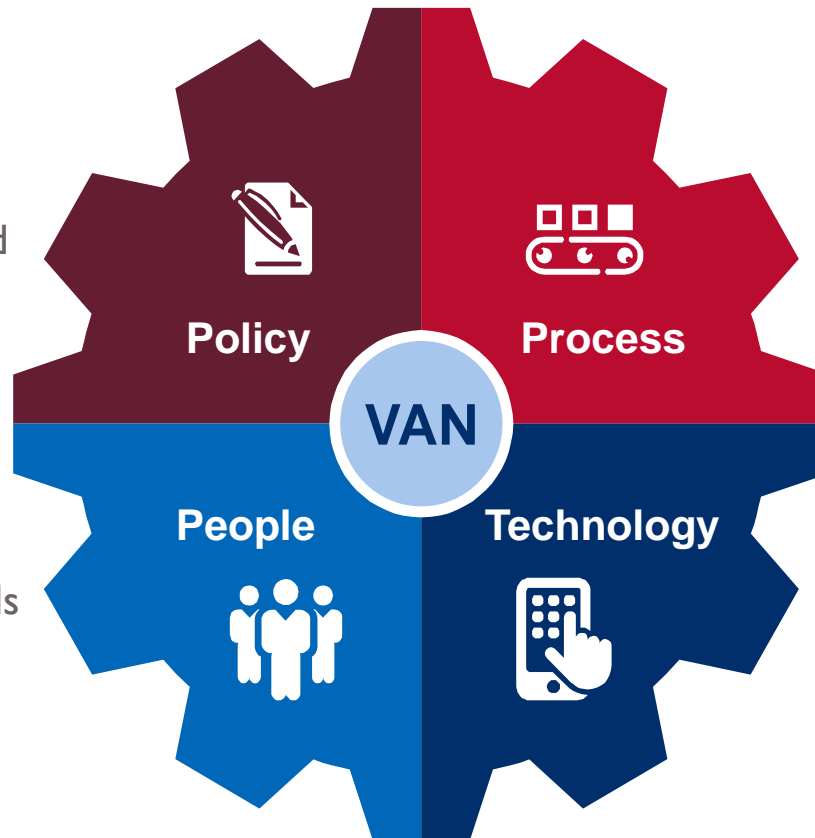
Network: A network of interlocking roles and responsibilities that links National, Provinces, Districts and Facilities in clear terms of what individuals are responsible for, and the IT systems that facilitate structured communication across the network.

VISIBILITY & ANALYTICS NETWORK (VAN)

The VAN is an Operating Model, is a coherent combination of Policy, Process, People and Technology

A cross-cutting governance framework with clear responsibilities and accountability to empower decision makers with defined 'spans of control' across the value chain.

Data driven processes that use analytical methods to continually plan, proactively respond to, and recommend improvements.

A team of professionals with defined roles and responsibilities, the right skills and knowledge, and a patient-centred, proactive approach to evidence-based quality improvement.

The integration of multiple data systems to generate alerts and actionable insight across the value chain with automation wherever possible.

Policy · **Process** · **People** · **Technology**

VAN

VAN IMPLEMENTATION

The aim was to adapt proven private sector operating model approaches in the interest of improved public sector medicine availability.

AIM

- Data driven decision making

- Improved planning processes

- Improved efficiencies

- Reduced cost and wastage

- Improved medicine availability

Implementation of the VAN Operating Model will be in two phases:

1. Core supply chain functions

2. Expanding the scope across the health product value chain including product selection and rational use of medicine

VAN IMPLEMENTATION

Improved Planning Processes

> *"Supply chain planning functions are performed to ensure uninterrupted medicine availability in the right place, at the right time and in the right quantity, using models that are effective, agile, sustainable and resilient."[1]*

Supply chain planning features three separate but interrelated planning activities:

Demand

Demand Planning: Combining statistical forecasting techniques and judgment to construct demand estimates for health products or services to fulfil forecasted patient needs

Supply

Supply Planning: Coordinating inventory and orders to optimize the delivery of health products to meet patients' needs

Distribution

Distribution Planning: Planning for physical movement and storage of stock to meet the Supply Plan
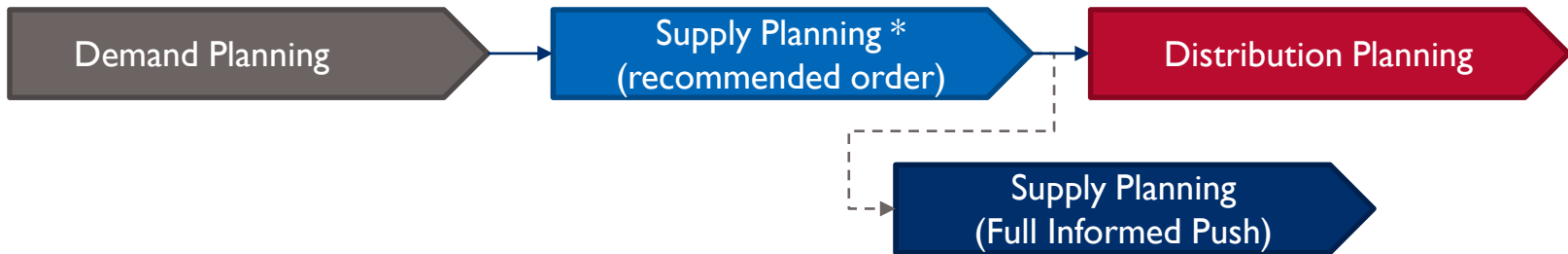
[1] National Department of Health, Draft Strategy to Improve Medicine Availability, 2016-2021, v7

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VAN IMPLEMENTATION

Improved Efficiencies

The VAN operating model that will move South Africa's pharmaceutical supply chain from an **'Uninformed Pull'** system, to **'Informed Push'**.

- **Pull** – health facility creates the replenishment order

- **Push** – a centralised unit creates a recommended replenishment order on behalf of the health facility

- **Uninformed** – based on limited to no information

- **Informed** – based on stock levels, consumption data and supply plans and associated forecast of demand. Enabled by technology.

Demand Planning → Supply Planning * (recommended order) → Distribution Planning

Supply Planning (Full Informed Push)

VAN IMPLEMENTATION

Improved Efficiencies – Direct Delivery

- Multiple tiers in the supply chain with a lack of visibility to the lower tiers

- Long lead-times

- Aging infrastructure with insufficient ability to scale warehousing and distribution

- Outdated, inappropriate processes and systems

Supplier	Distributor	Depot	Sub-Depot	Hospital	Clinic

Design

- Provincial Medicine Procurement Units places orders for healthcare facility on the supplier.

- Supplier delivers directly to facility, bypassing the traditional provincial warehouse.

Benefits

- Reduce infrastructure requirements

- Reduces inventory and wastage

- Leveraging existing private sector
  - Infrastructure
  - Capacity
  - Resources

- Free capacity in provincial warehouse

Supplier	Distributor	Hospital

VAN IMPLEMENTATION

Regimen Changes or New Medicine Introductions

- Phase-in of new regiment and phase-out of old regimen
- Improved visibility and monitoring to effect the change
- Improved planning minimizes risk – forecasting, demand and supply planning
- Informed decision making
- Phased approach to regimen change
- Centralized or decentralized replenishment options
- Avoid wastage through monitoring of stock levels and patient switching
  - Stock on hand data
  - Clinical data
- *Ensure patients receive treatment*

CHALLENGES AND PRIORITIES

Adopting the VAN Operating Model requires significant change, and requires certain enablers to be in place before roll-out.

Key challenges and priorities for South Africa:

- *Fragmented IT landscape* – the VAN operating model and informed push requires stock and consumption visibility. Implementation will need to overcome challenges of a fragmented and incomplete IT landscape to improve data acquisition.

- *Master data management –* consistent use of master data to identify medicines and healthcare facilities. This will assist in improving data quality and reliability.

- *Capacity building of staff* - training and retention of specialized skills in the workforce to undertake complex analytical work. Implementation will need to build on existing skills and raise the status and professionalism of supply chain management to retain the best talent

- *Key Performance Indicators –* standardized, agreed and approved KPIs used to visualize the data received to enable informed decision making.

- *Governance* - The VAN will be implemented in a complex context with multiple stakeholders and against a backdrop of multiple existing interventions. Strong governance will be necessary with appropriate oversight. Operational units will need to be strengthened or created to support the operating model.

VISIBILITY & ANALYTICS NETWORK OPERATING MODEL
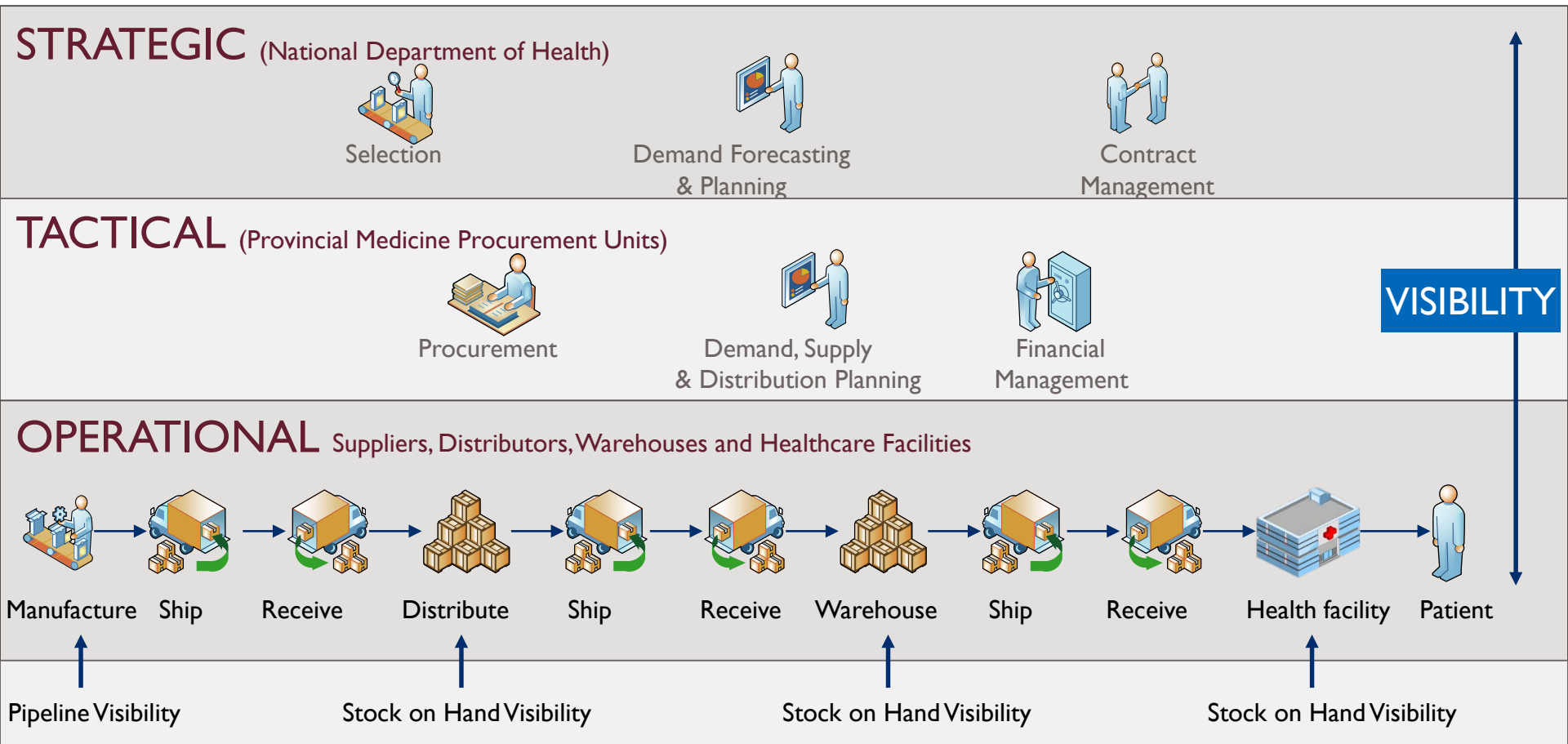
ACHEIVEMENTS

End to End Visibility

- Supplier stock on hand and production pipeline data – Pipeline Analysis Tool (PAT)

  – Compared to forecasted demand providing and early warning system of potential supply issues

- Supplier transactional data – RSA Pharma Database

- Healthcare facility data:

  – Provincial warehouse stock on hand data

    • Implementing and improved, networked warehouse management system across provincial warehouses;

  – Hospital stock on hand data using Electronic Stock Management Systems

  – Primary healthcare clinic stock on hand data using the Stock Visibility System (SVS)
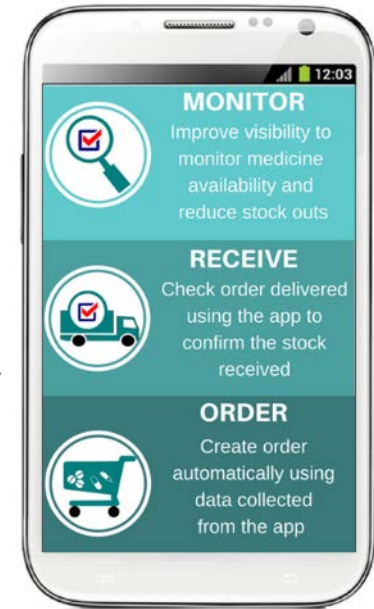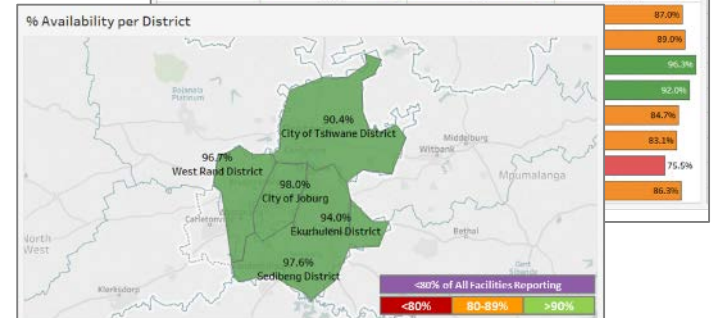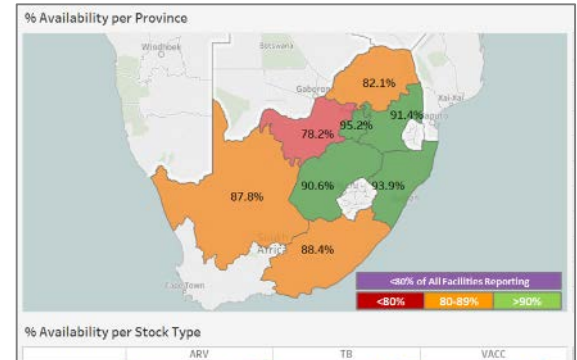
ACHIEVEMENTS

Analysis and Insight

- Data acquired from multiple sources is visualized, using key performance indicators;

- Dashboards provide drill down capabilities from national to provincial, district and healthcare facility level.

- Dashboards:

  - Medicine availability (warehouses, hospitals and clinics;

  - Supplier performance management;

  - Pipeline analysis tool;

  - Supplier age analysis;

- Reports – available via login and password and PDF for sites with connectivity constraints

- Dashboards published to a mobile application

ACHIEVEMENTS

Analysis and Insight

- Demand forecasting and planning processes developed;

- An appropriate tool has been identified for demand forecasting and planning;

- Demand forecasting processes are being applied to inform the tendering for medicines;

- Proof of concept for demand planning implemented;

- Supply planning processes developed;

- Stock Visibility System (SVS) is being enhanced to include receiving functionality and the ability to support informed push replenishment.
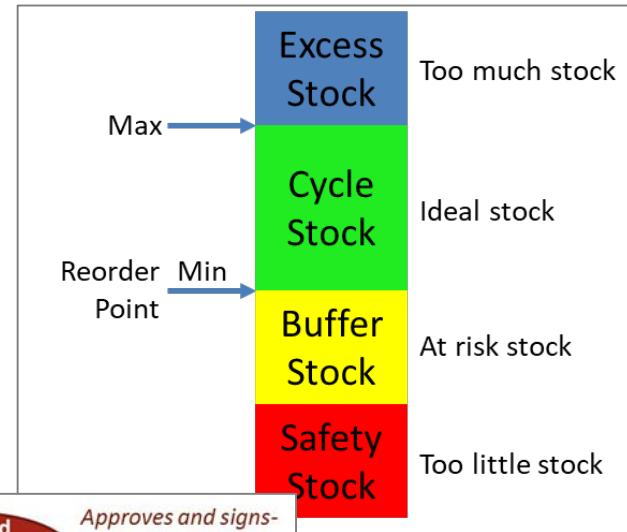
ACHIEVEMENTS

Provincial Medicine Procurement Units designed to provide an efficient, shared service managing transactions relating to orders and payments as well as a single point of contact for suppliers and healthcare facilities.

Key Supply Chain Unit Activities

- Contribute to forecast and generate demand plan
- Review inventory management and generate supply plan
- Place orders on suppliers and follow up
- Collate all documentation to create payment packs
- Manage healthcare facility and supplier performance
- Manage distribution planning

RESULTS

89% essential medicine availability at primary healthcare clinics

3,504 health establishments connected to the network

13.8 days order cycle time

88% of hospitals* providing weekly medicine availability data

92% average ARV medicine availability in primary healthcare clinics

80% On Time & In Full deliveries from suppliers

90% of clinics providing weekly medicine availability data

45% improvement in order cycle time

102 dashboard views with drill downs and reports

*Excluding specialist hospitals

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LESSONS LEARNED

Visibility

- Work to correct master data as a foundation and standardise on master data elements to improve data sharing capabilities
- Use whatever data you have – some visibility is better than nothing, but be aware of the limitations and potential quality issues
- Use proxy data where necessary i.e. previous procurement data vs consumption data
- Consider non-traditional data sources – supplier collaboration
- Work to improve on data quality issues
- Triangulate data to arrive at a single version of the truth

Analytics

- Understand what you are trying to measure – KPIs agreed by all parties – making interpretation easier
- Standardise KPIs – national, provincial, district and facility levels

Network

- Do not allow limited connectivity to hamper progress – USBs, manual reports, email, etc
- Not everyone can access the dashboards online – but can develop reports for email purposes

LESSONS LEARNED

Policy

– Develop relevant policy to enable the VAN

People

– Multi-disciplinary team – contract management, selection, use, suppliers, demand planners, supply planners, budget holders, financial management

– Avoid letting increased visibility becoming punitive

– Celebrate the successes

– Do not under estimate communication and change management

– Make sure that data submitter can see an improvement in service delivery and patient benefits

– Do not be afraid of sharing the data, even if you know it has some data quality issues – peer pressure works wonders to get people to improve their reporting and data

– Let the VAN become part of the culture – use visualizations as the main source of information

Process

– Build sustainable processes

– Foster a culture of root cause analysis and continuous improvement

Technology

– Use whatever technology may exist or manual data collection until requirements are clear

– Allow technology to enable processes, not the other way around

LESSONS LEARNED

- **General**

    - Keep it simple and develop complexity over time

    - Do not try and boil the ocean, start small and build on it – use pockets, centers of excellence and proofs of concept

    - Communicate, communicate, communicate…

    - Demonstrate the benefits to key stakeholders
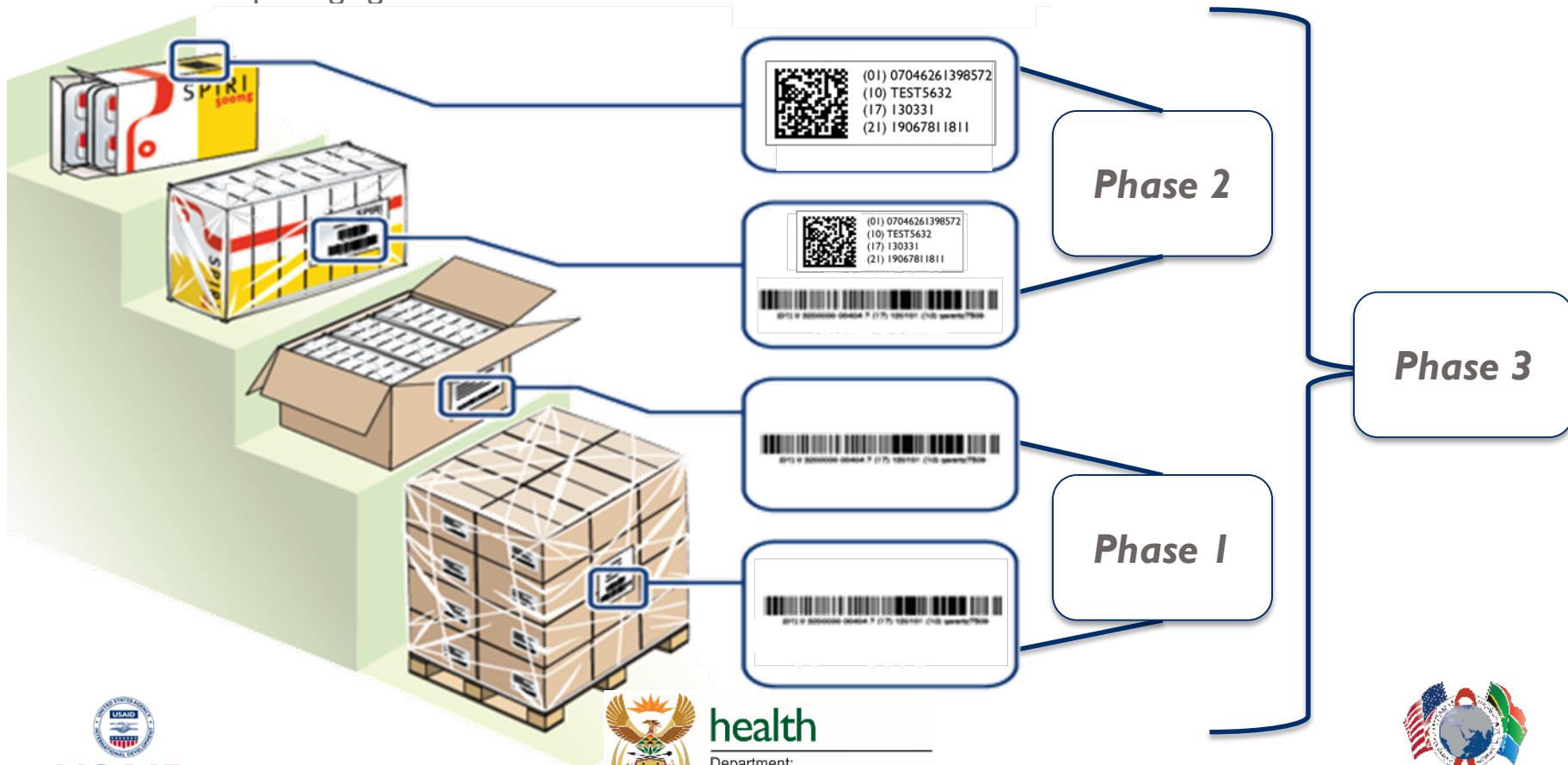
    - *Marathon not a sprint*

NEXT STEPS

- Alternatives to pack sizes, strengths and therapeutic substitution – supply chain availability vs patient experience

- Consumption data vs previous procurement data

- Electronic prescribing – best source of actual demand

- Improved data use and linking population, epidemiology, disease prevalence and medicine availability

- Early warning signals and alerts

- Improved integration of technologies

- Implement Supply Planning with recommended orders

- Operating model applied to other health commodities

- Track and traceability using GS1 standards

TRACK AND TRACEABILITY

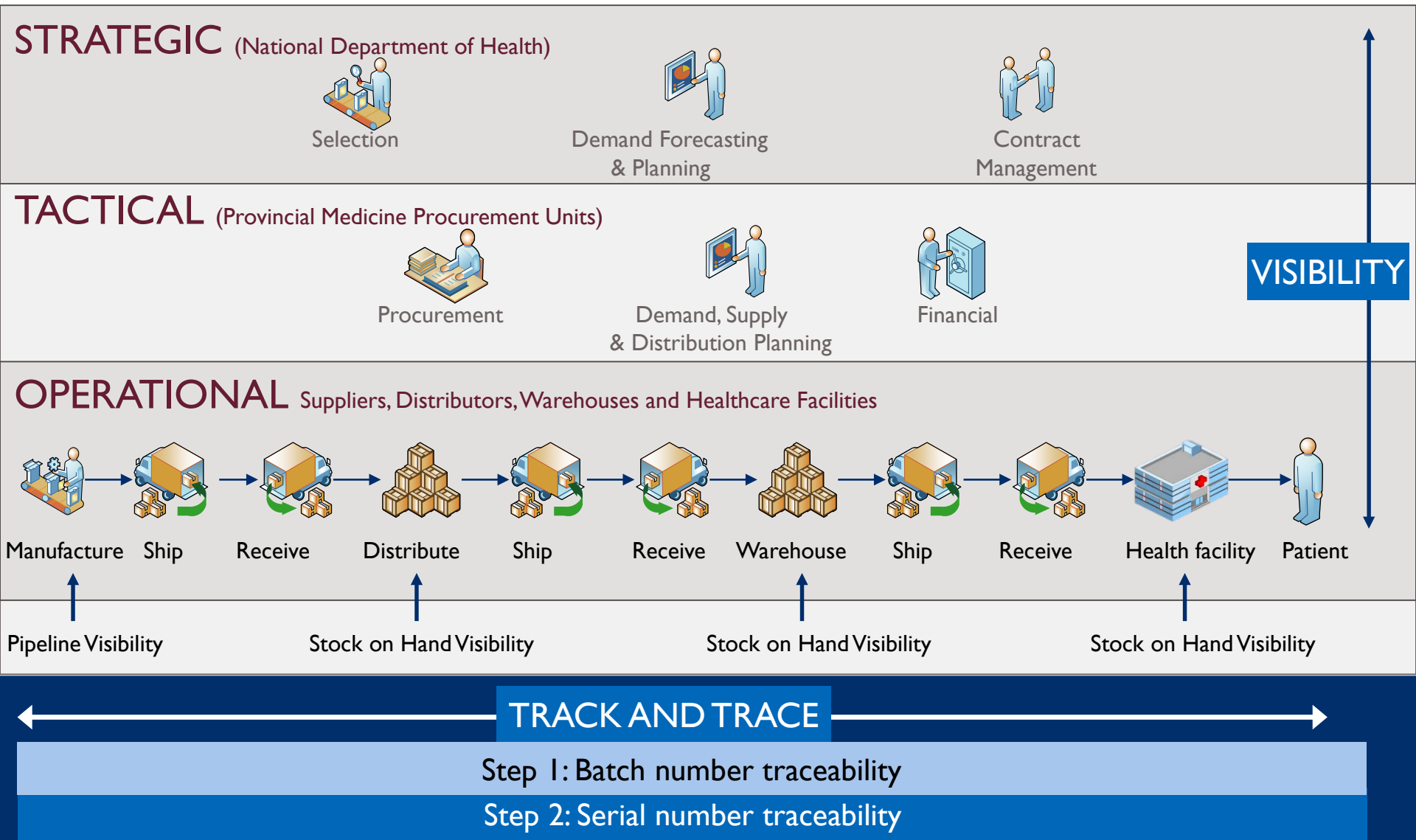The National Department of Health has initiated processes to implement a product identification, labelling, and data exchange requirement for medicines procured in the public sector. Using the Global Trade Item Identification Number (GTIN^{TM}) for the unique identification of medicines, applying GS1 standards and the introduction of the data matrix or 128-linear barcodes and serial numbers on packaging.

VISIBILITY & ANALYTICS NETWORK OPERATING MODEL

STRATEGIC (National Department of Health)

Selection

Demand Forecasting & Planning

Contract Management

TACTICAL (Provincial Medicine Procurement Units)

Procurement

Demand, Supply & Distribution Planning

Financial

VISIBILITY

OPERATIONAL Suppliers, Distributors, Warehouses and Healthcare Facilities

Manufacture → Ship → Receive → Distribute → Ship → Receive → Warehouse → Ship → Receive → Health facility → Patient

Pipeline Visibility | Stock on Hand Visibility | Stock on Hand Visibility | Stock on Hand Visibility

TRACK AND TRACE

Step 1: Batch number traceability

Step 2: Serial number traceability

THANK YOU!