



सत्यमेव जयते

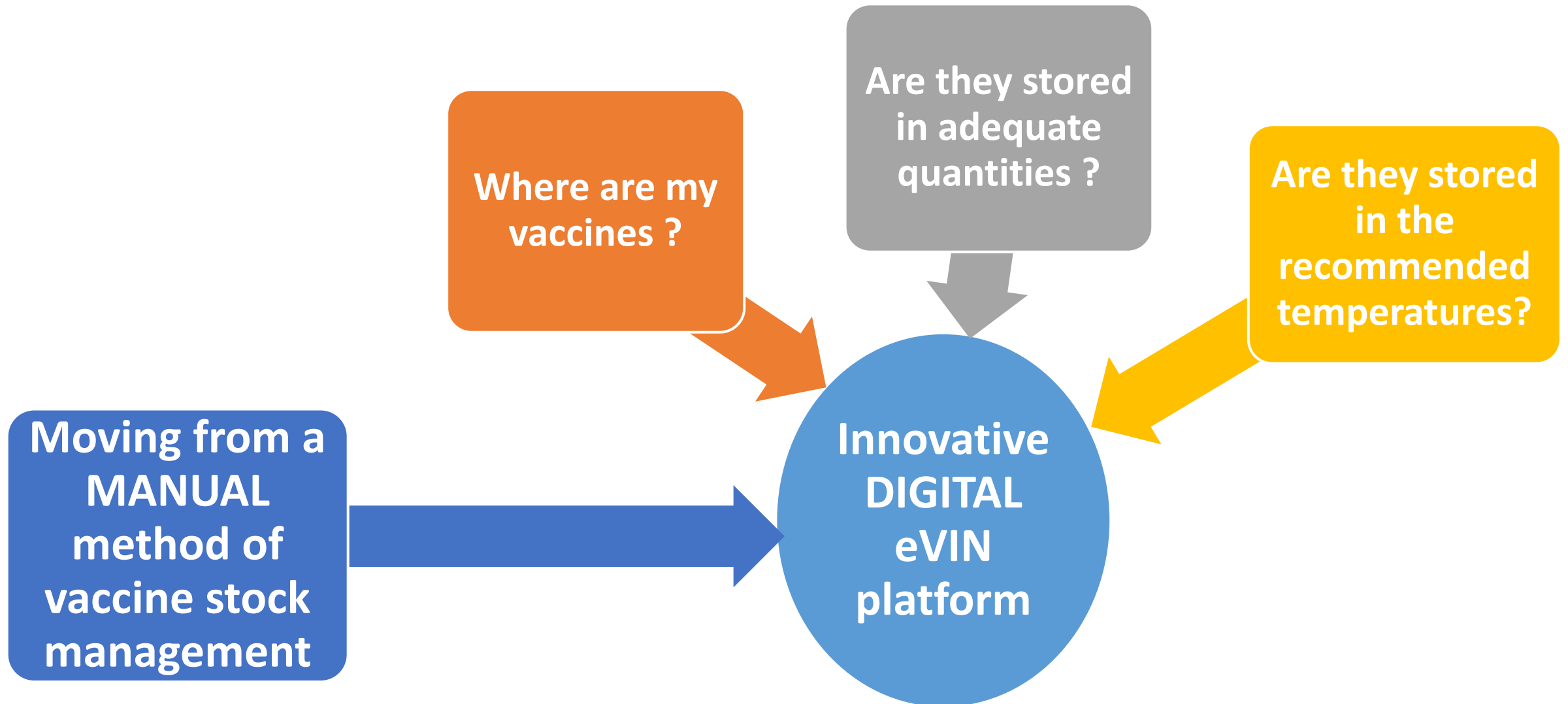
evin

ELECTRONIC VACCINE
INTELLIGENCE NETWORK



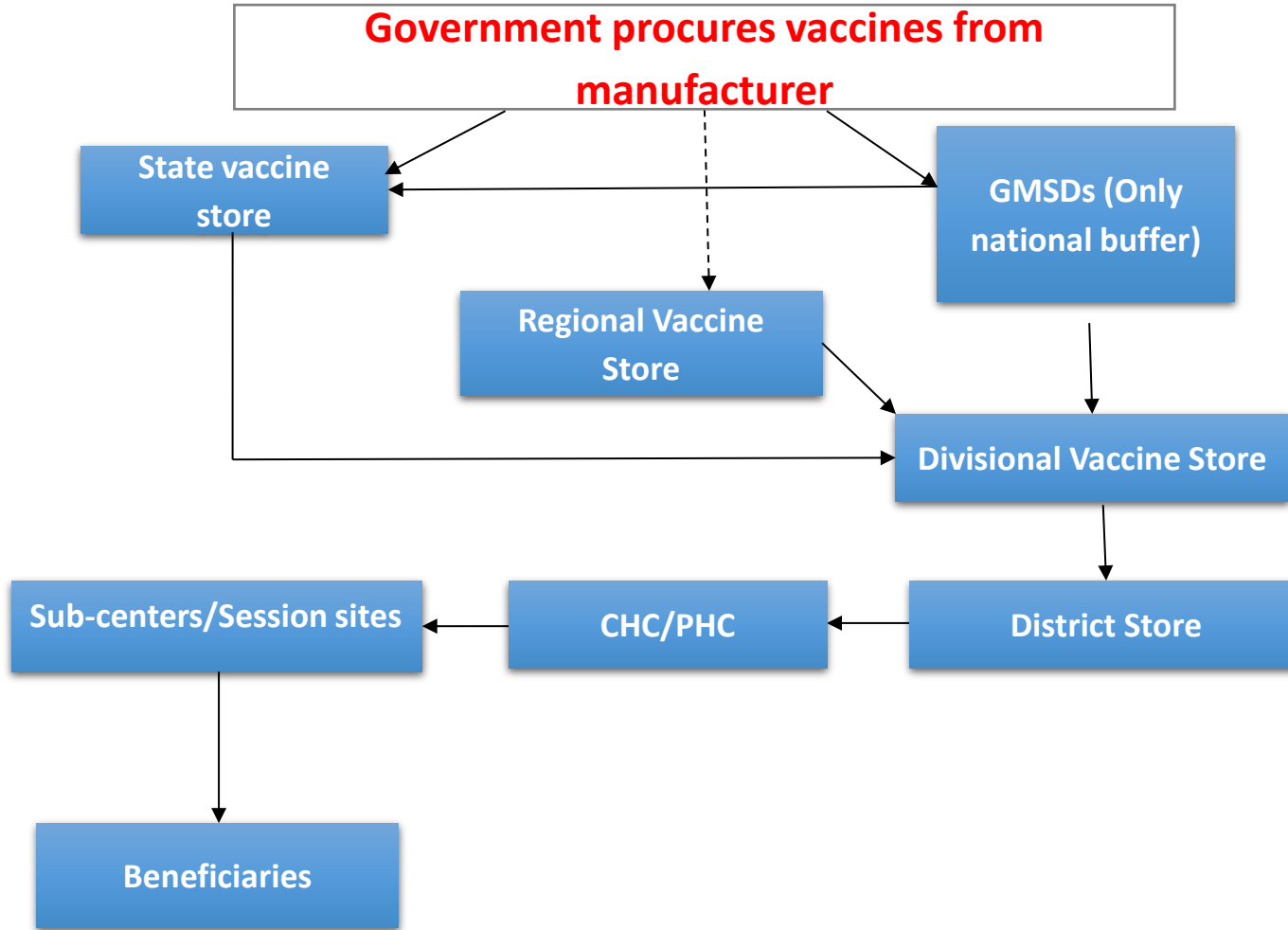
Empowered lives.
Resilient nations.

Fundamental Questions for a Program Manager



Introduction to vaccine logistics management in India

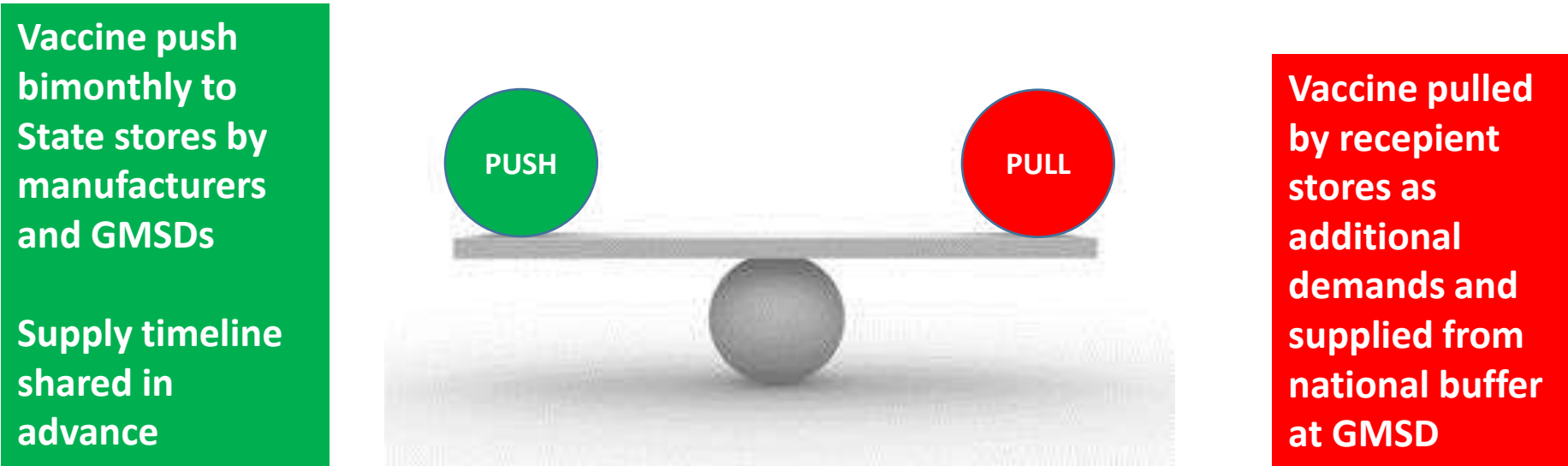
Vaccine Logistics System in the Country



Basis of vaccine supply: Distribution of vaccines from upper nodes to the lower nodes are supplied based on any of the following:

- Monthly targets
- Stock outs
- Low stocks
- Large quantity of stocks received
- Proximity to State/District store
- Low supply from Manufacturer

Vaccine supply mechanism in India



Supply chain equilibrium maintained through push pull
Stock oscillates between 1-3 month

Challenges in Vaccine Supply Chain Management

- Manual methods are time consuming, take time to collate and preclude real time knowledge of stock position
- Vaccines have a short shelf life as opposed to medicines
- Not possible to stock large quantities of vaccines – 2 months supply at State/Regional/District level and 1 month at primary health Centre (PHC) level
- There is a constant requirement to prevent stock out or vaccine expiry
- This requires a need for day to day management of vaccine stocks hence the role of human resources is essential
- Defining optimal buffer stock at all cold chain points is challenging

Challenges in Vaccine Supply Chain Management

- Vaccine storage at all levels is linked to the available cold-chain space
- The availability of vaccines is linked to the production capacity of the manufacturer and emergency procurements are challenging
- Vaccine distribution relies on push (National to State level) and pull mechanism (State to National) which is affected by campaigns
- Temperature monitoring for vaccine storage very important (2-8C) including vaccine vial monitor (VVM), temperature loggers
- Challenges of open vial policy to minimize wastage also need to be considered

eVIN Pilot

Digitalizing Vaccine Stock Management: System Challenges



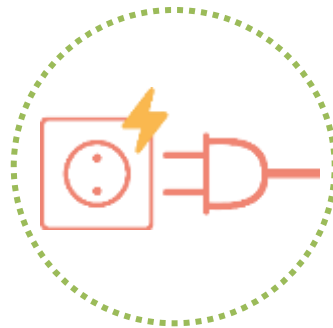
**Availability of
'Functional'
Computer**



**Internet
Access**



**Availability of
Data Entry
Operator**



**Electricity
Supply**

Temperature monitoring in Cold Chain Point: System Challenge



eVIN Solution - System Strengthening & Improving Program Governance

Standardizing
stock keeping
and
distribution
procedures



| Item | Quantity | Location | Batch | Expiry | Status |
|------|----------|----------|-------|--------|--------|
| ... | ... | ... | ... | ... | ... |

Use of simple
mobile based
application



Innovative
use of
technology
for temp.
monitoring



Cloud-based
server for
hosting data
from all cold
chain points



Real time
stock and
temp
visibility



Empowering
vaccine
logistics
manager



eVIN Platform

✓ **Replicable, Expandable and Sustainable**

✓ Will **not disrupt the existing system of manual documentation** but will support the system with better and uniform registers and format.

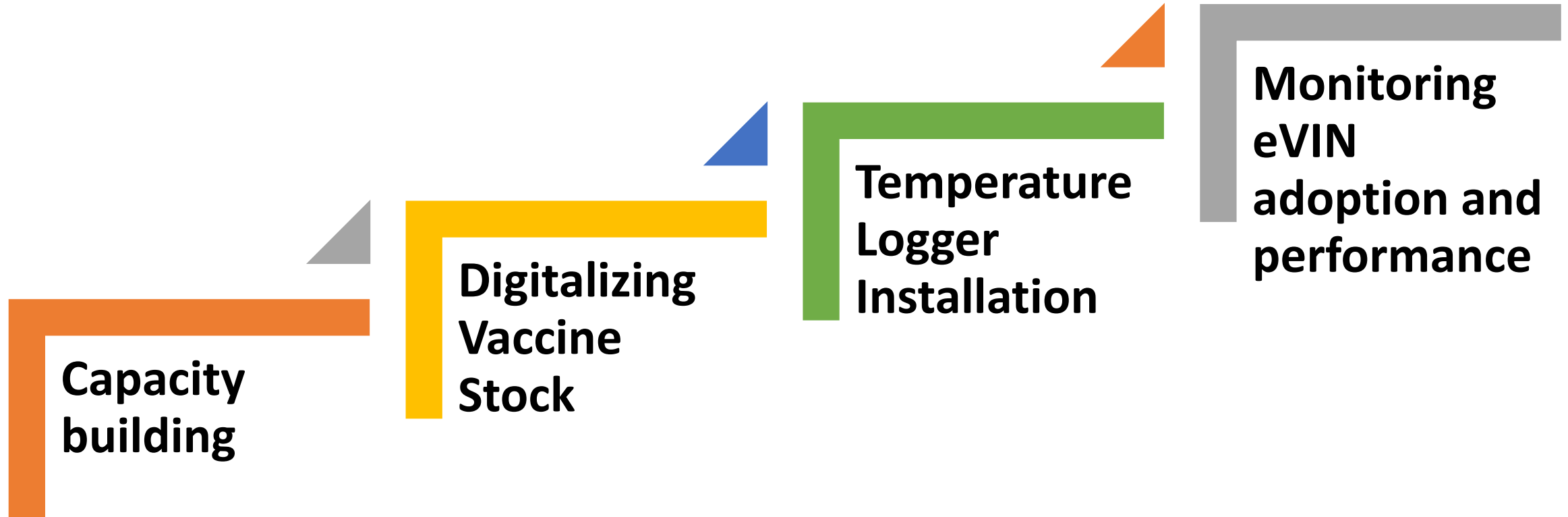
✓ Will **support the system by capacity building** rather than taking away the duties and responsibilities

✓ Will have highly **simplified input methodology and output** results

✓ System can be operated by personnel having **10+ education status and very little IT skills**

eVIN Scale up: Stages of Implementation

Steps in Rolling-Out eVIN



eVIN Training

Training to date

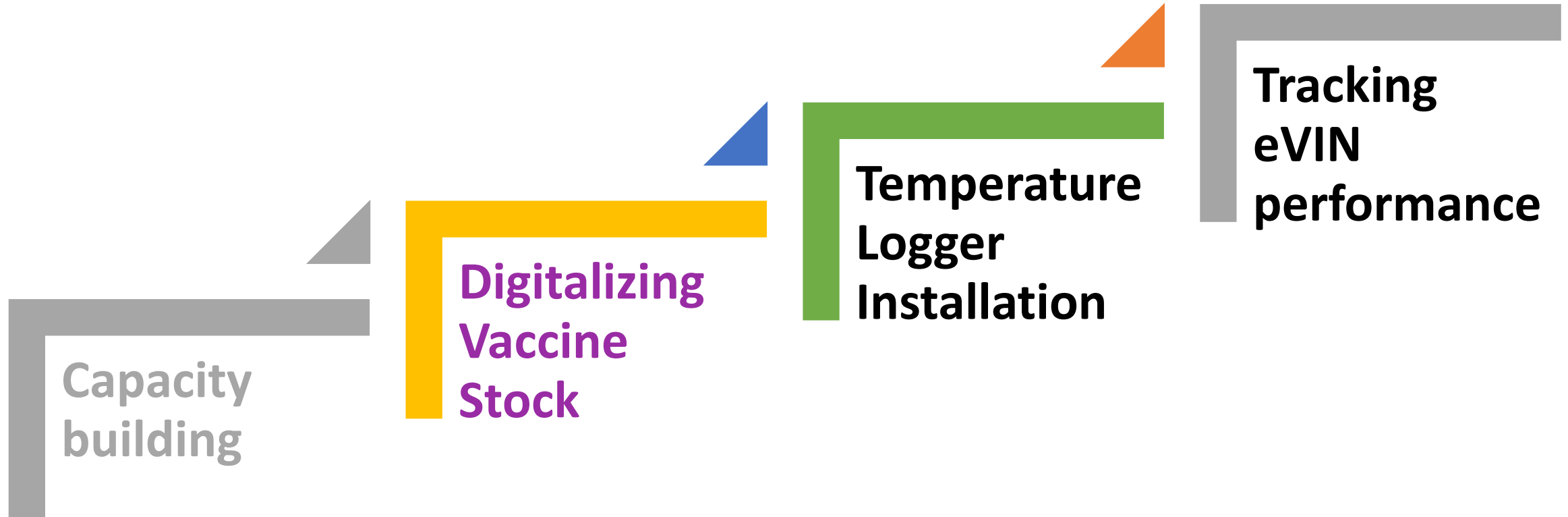
- 3 States - Uttar Pradesh, Rajasthan & Madhya Pradesh 4 GMSD's
- 4476 cold chain points
- 7127 cold chain staff trained

Jul-Dec 2016

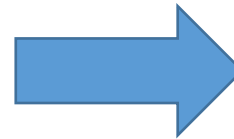
- 9 States – Assam, Nagaland, Manipur, Bihar, Jharkhand, Chhattisgarh, Odisha, Gujarat and Himachal Pradesh
- 6000 cold chain points
- 10,000 cold chain staff to be trained



Steps in Rolling-Out eVIN



Digitalizing Vaccine Stock Keeping through Smartphone

[illegible]

The screenshot shows the 'Operations' menu in the eVIN application. The menu is titled 'Operations' and has a user identifier 'cyphc001'. The menu items are:

- Inventory
 - View stock
 - Enter issues/net utilization
 - Enter receipts (highlighted with a yellow circle and a hand cursor)
 - Enter stock count
 - Enter discards
 - Export Inventory
 - Transaction History
- Profile

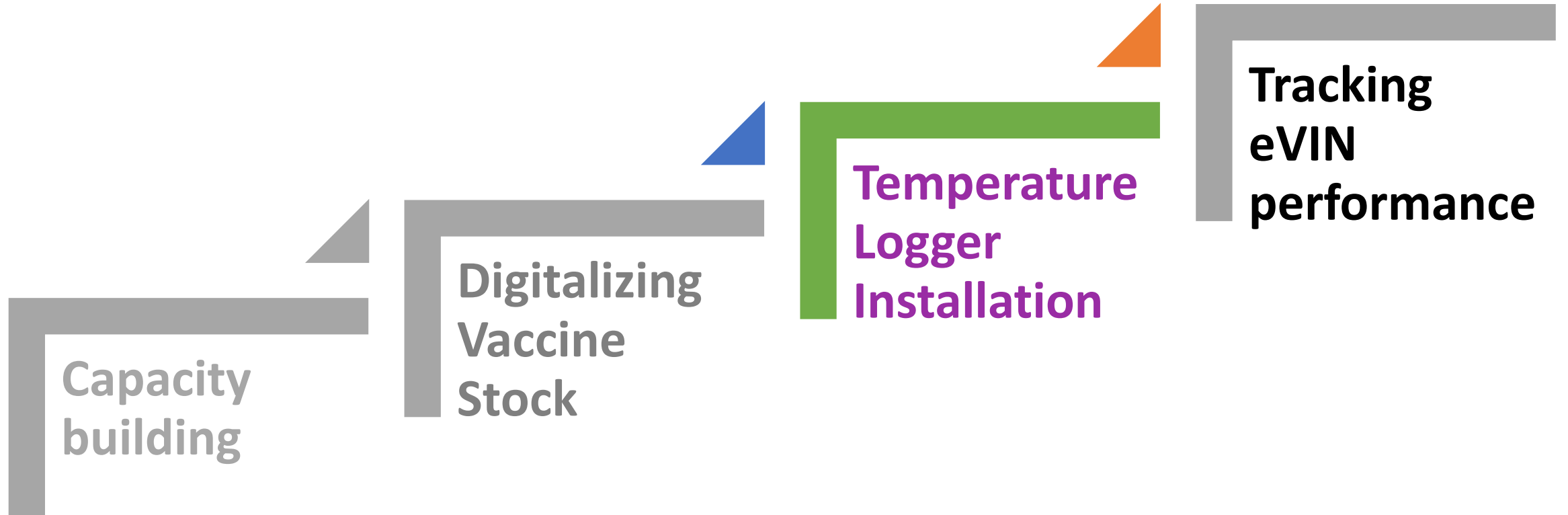
At the bottom, there is a 'Need help?' section with icons for a phone and an email. The bottom of the screen features a watermark for 'RECORDED WITH SCREENCAST MATIC' and the URL 'evinonline.in/m/index.html'.

Collating Vaccine Stock data: eVIN Technology

eVIN data gets automatically captured in eVIN cloud server and can be viewed in real time at District, State and National level



Steps in Rolling-Out eVIN

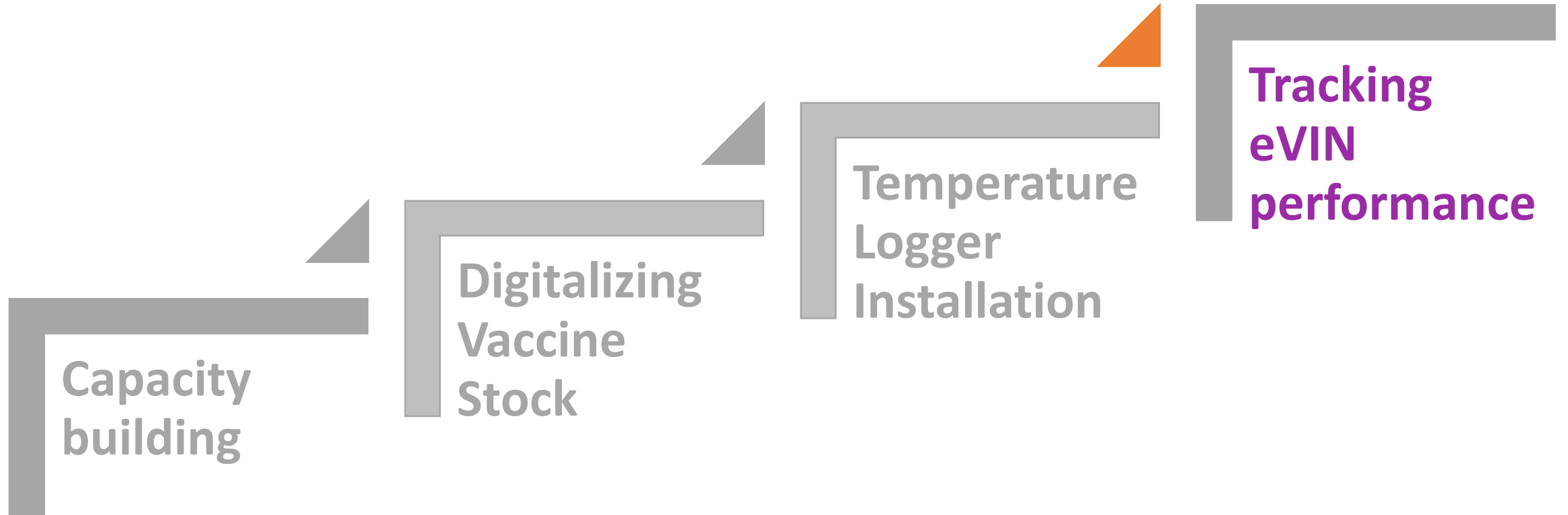


Remote Temperature Monitoring

- A low cost, SIM-based remote temperature monitoring system, with 4 sensors
- Sensor unit collects temperature data every 10 minutes and updates eVIN server every 30 minutes
- Three types of alarms- **device**, **SMS** and **email** sent immediately to any 5 concerned authorities upon sensing temperature breach
- 3600 temperature loggers have been installed till date
- Installation to be completed for all vaccine storing equipment by August, 2016 in UP, MP and Rajasthan



Steps in Rolling-Out eVIN



Real-time vaccine stock monitoring

| Sl.No. | Store | BCG (dose) | BCG diluent (dose) | DPT (dose) | Hepatitis B (dose) | IPV (dose) | JE (dose) | JE diluent (dose) | Measles (dose) | Measles diluent (dose) | OPV (dose) |
|--------|--|------------|--------------------|------------|--------------------|------------|-----------|-------------------|----------------|------------------------|------------|
| 1 | Allahabad DVS Allahabad, Allahabad, Uttar Pradesh | 17,000 | 11,040 | 9,820 | 58,430 | 11,600 | 30,110 | 16,110 | 5,210 | 5,710 | 14,820 |
| 2 | Baharia Baharia, Allahabad, Uttar Pradesh | 150 | 170 | 3,500 | 2,000 | 2,000 | 1,000 | 1,000 | 500 | 500 | 4,500 |
| 3 | Chaka Chaka, Allahabad, Uttar Pradesh | 3,450 | 3,450 | 5,060 | 9,710 | 990 | 1,620 | 1,620 | 2,520 | 2,520 | 4,220 |
| 4 | Dhanupur Dhanupur, Allahabad, Uttar Pradesh | 3,120 | 3,120 | 750 | 760 | 0 | 1,510 | 1,510 | 720 | 720 | 0 |
| 5 | Dufferin Allahabad, Allahabad, Uttar Pradesh | 1,770 | 1,770 | 90 | 780 | 510 | 1,645 | 1,645 | 510 | 510 | 1,180 |
| 6 | ESIC Naini Allahabad, Allahabad, Uttar Pradesh | 350 | 350 | 120 | 140 | 10 | 0 | 0 | 0 | 0 | 150 |
| 7 | Handia Handia, Allahabad, Uttar Pradesh | 5,960 | 5,960 | 3,260 | 9,660 | 1,010 | 5,755 | 5,755 | 1,860 | 1,860 | 4,500 |
| 8 | Holagarh Holagarh, Allahabad, Uttar Pradesh | 7,190 | 7,190 | 2,132 | 1,080 | 0 | 2,490 | 2,490 | 100 | 100 | 0 |
| 9 | Jasra Jasra, Allahabad, Uttar Pradesh | 3,370 | 3,370 | 2,160 | 3,400 | 1,230 | 1,760 | 1,760 | 2,400 | 2,400 | 1,500 |
| 10 | K.N.M.H. Allahabad, Allahabad, Uttar Pradesh | 1,320 | 1,320 | 1,210 | 920 | 216 | 870 | 870 | 765 | 765 | 1,040 |
| 11 | Karchhana Karchhana, Allahabad, Uttar Pradesh | 3,060 | 3,060 | 2,000 | 1,630 | 1,260 | 1,820 | 1,820 | 500 | 500 | 500 |
| 12 | Kaudhiyara Kaudhiyara, Allahabad, Uttar Pradesh | 4,050 | 4,050 | 2,770 | 3,370 | 530 | 1,665 | 1,665 | 775 | 775 | 500 |
| 13 | Kaurihar Kaurihar, Allahabad, Uttar Pradesh | 4,760 | 4,760 | 4,400 | 1,950 | 880 | 2,250 | 2,250 | 860 | 860 | 1,040 |

Real time temperature, asset and power monitoring

eVIN
ELECTRONIC VOUCHER
INTELLIGENCE NETWORK
India - eVIN | Apoorva Sharan ▾

[Dashboards ▾](#)
[Inventory ▾](#)
[Reports ▾](#)
[**Assets**](#)
[Configuration ▾](#)
[Setup ▾](#)

India - eVIN ▾

Assets

Store

Serial Number

[Reset](#)

Type: ILR ▾
Working Status: All ▾
Alarms: All ▾

| SI No. | Asset | Working status | Status |
|--------|--|----------------|---|
| | 20102571171 - MK304 (Vestfrost) | Working | <div style="display: flex; justify-content: space-around;"> <div>Bottom: A 3.9 °C <small>8/4/18 5:47 AM</small></div> <div>Middle: B 2.6 °C <small>8/4/18 5:47 AM</small></div> <div>Top: C 3.7 °C <small>8/4/18 5:47 AM</small></div> <div>Ambient: D 32.6 °C <small>8/4/18 5:47 AM</small></div> </div> |
| | Ghaziabad DHS <small>Ghaziabad, Uttar Pradesh, IN</small> | | |
| | 20102771333 - MK304 (Vestfrost) | Working | <div style="display: flex; justify-content: space-around;"> <div>Bottom: A 5.0 °C <small>25/4/18 1:10 PM</small></div> <div>Middle: B 1.0 °C <small>25/4/18 1:10 PM</small></div> <div>Top: C 4.6 °C <small>25/4/18 1:10 PM</small></div> <div>Ambient: D 36.3 °C <small>25/4/18 1:10 PM</small></div> </div> |
| | Ghaziabad DHS <small>Ghaziabad, Uttar Pradesh, IN</small> | | |
| | 35113264 - MK142 (Vestfrost) | Working | <div style="display: flex; justify-content: space-around;"> <div>Bottom: A 4.3 °C <small>10/5/18 10:04 AM</small></div> <div>Middle: B 3.8 °C <small>10/5/18 10:04 AM</small></div> <div>Top: C 6.2 °C <small>10/5/18 10:04 AM</small></div> <div>Ambient: D 39.3 °C <small>10/5/18 10:04 AM</small></div> </div> |
| | District Hospital (Satellite) DH <small>Bikaner, Rajasthan, IN</small> | | |
| | BE07F4E0N0082A50059 - HBC70 (Haier) | Working | <div style="display: flex; justify-content: space-around;"> <div>Bottom: A 6.9 °C <small>10/5/18 10:27 AM</small></div> <div>Middle: B 5.7 °C <small>10/5/18 10:27 AM</small></div> <div>Top: C 3.6 °C <small>10/5/18 10:27 AM</small></div> <div>Ambient: D 32.5 °C <small>10/5/18 10:27 AM</small></div> </div> |
| | PBM Medical College and Hospital MC <small>Bikaner, Rajasthan, IN</small> | | |
| | 25116427 - MK142 (Vestfrost) | Working | <div style="display: flex; justify-content: space-around;"> <div>Bottom: A 3.0 °C <small>10/5/18 10:05 AM</small></div> <div>Middle: B 2.3 °C <small>10/5/18 10:05 AM</small></div> <div>Top: C 3.6 °C <small>10/5/18 10:05 AM</small></div> <div>Ambient: D 36.8 °C <small>10/5/18 10:05 AM</small></div> </div> |
| | Deshnok DIC <small>Deshnok, Rajasthan, IN</small> | | |

Station: A 6.4 °C **Mode: S 5.0 °C** **Top: C 4.1 °C** **Ambient: D 25.9 °C**

11/3/18 9:49 AM 11/3/18 2:49 AM 11/3/18 9:49 AM 11/3/18 2:49 AM

Summary Information Relationships

Temperature Day

Temperature scale: 9.0°C, 5.0°C, 0.0°C, -5.0°C, -10.0°C, -15.0°C, -20.0°C, -25.0°C, -30.0°C, -35.0°C, -40.0°C, -45.0°C, -50.0°C, -55.0°C, -60.0°C, -65.0°C, -70.0°C, -75.0°C, -80.0°C, -85.0°C, -90.0°C, -95.0°C, -100.0°C, -105.0°C, -110.0°C, -115.0°C, -120.0°C, -125.0°C, -130.0°C, -135.0°C, -140.0°C, -145.0°C, -150.0°C, -155.0°C, -160.0°C, -165.0°C, -170.0°C, -175.0°C, -180.0°C, -185.0°C, -190.0°C, -195.0°C, -200.0°C, -205.0°C, -210.0°C, -215.0°C, -220.0°C, -225.0°C, -230.0°C, -235.0°C, -240.0°C, -245.0°C, -250.0°C, -255.0°C, -260.0°C, -265.0°C, -270.0°C, -275.0°C, -280.0°C, -285.0°C, -290.0°C, -295.0°C, -300.0°C, -305.0°C, -310.0°C, -315.0°C, -320.0°C, -325.0°C, -330.0°C, -335.0°C, -340.0°C, -345.0°C, -350.0°C, -355.0°C, -360.0°C, -365.0°C, -370.0°C, -375.0°C, -380.0°C, -385.0°C, -390.0°C, -395.0°C, -400.0°C, -405.0°C, -410.0°C, -415.0°C, -420.0°C, -425.0°C, -430.0°C, -435.0°C, -440.0°C, -445.0°C, -450.0°C, -455.0°C, -460.0°C, -465.0°C, -470.0°C, -475.0°C, -480.0°C, -485.0°C, -490.0°C, -495.0°C, -500.0°C, -505.0°C, -510.0°C, -515.0°C, -520.0°C, -525.0°C, -530.0°C, -535.0°C, -540.0°C, -545.0°C, -550.0°C, -555.0°C, -560.0°C, -565.0°C, -570.0°C, -575.0°C, -580.0°C, -585.0°C, -590.0°C, -595.0°C, -600.0°C, -605.0°C, -610.0°C, -615.0°C, -620.0°C, -625.0°C, -630.0°C, -635.0°C, -640.0°C, -645.0°C, -650.0°C, -655.0°C, -660.0°C, -665.0°C, -670.0°C, -675.0°C, -680.0°C, -685.0°C, -690.0°C, -695.0°C, -700.0°C, -705.0°C, -710.0°C, -715.0°C, -720.0°C, -725.0°C, -730.0°C, -735.0°C, -740.0°C, -745.0°C, -750.0°C, -755.0°C, -760.0°C, -765.0°C, -770.0°C, -775.0°C, -780.0°C, -785.0°C, -790.0°C, -795.0°C, -800.0°C, -805.0°C, -810.0°C, -815.0°C, -820.0°C, -825.0°C, -830.0°C, -835.0°C, -840.0°C, -845.0°C, -850.0°C, -855.0°C, -860.0°C, -865.0°C, -870.0°C, -875.0°C, -880.0°C, -885.0°C, -890.0°C, -895.0°C, -900.0°C, -905.0°C, -910.0°C, -915.0°C, -920.0°C, -925.0°C, -930.0°C, -935.0°C, -940.0°C, -945.0°C, -950.0°C, -955.0°C, -960.0°C, -965.0°C, -970.0°C, -975.0°C, -980.0°C, -985.0°C, -990.0°C, -995.0°C, -1000.0°C.

Time

Select a portion of the chart to zoom in

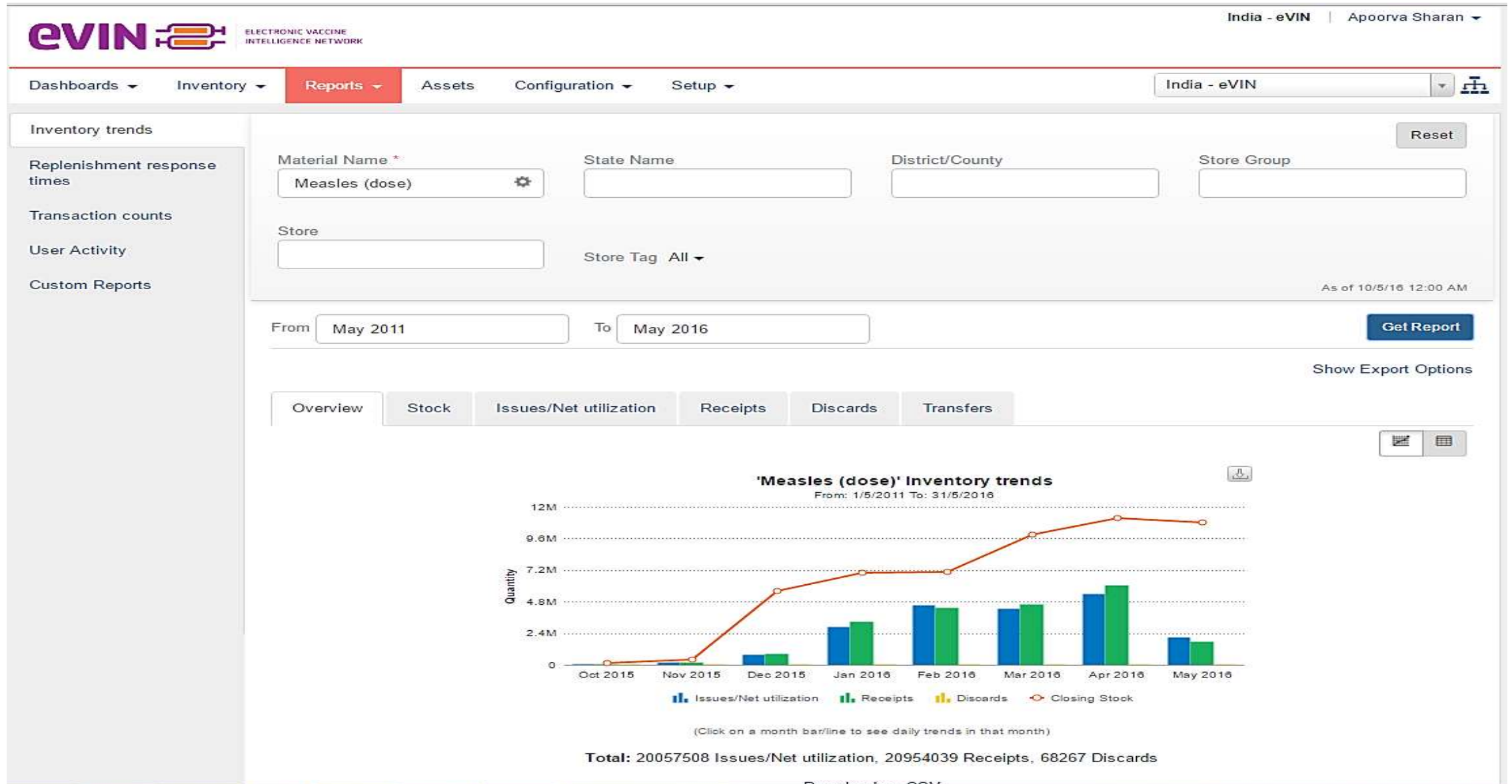
Power availability

Available

Outage

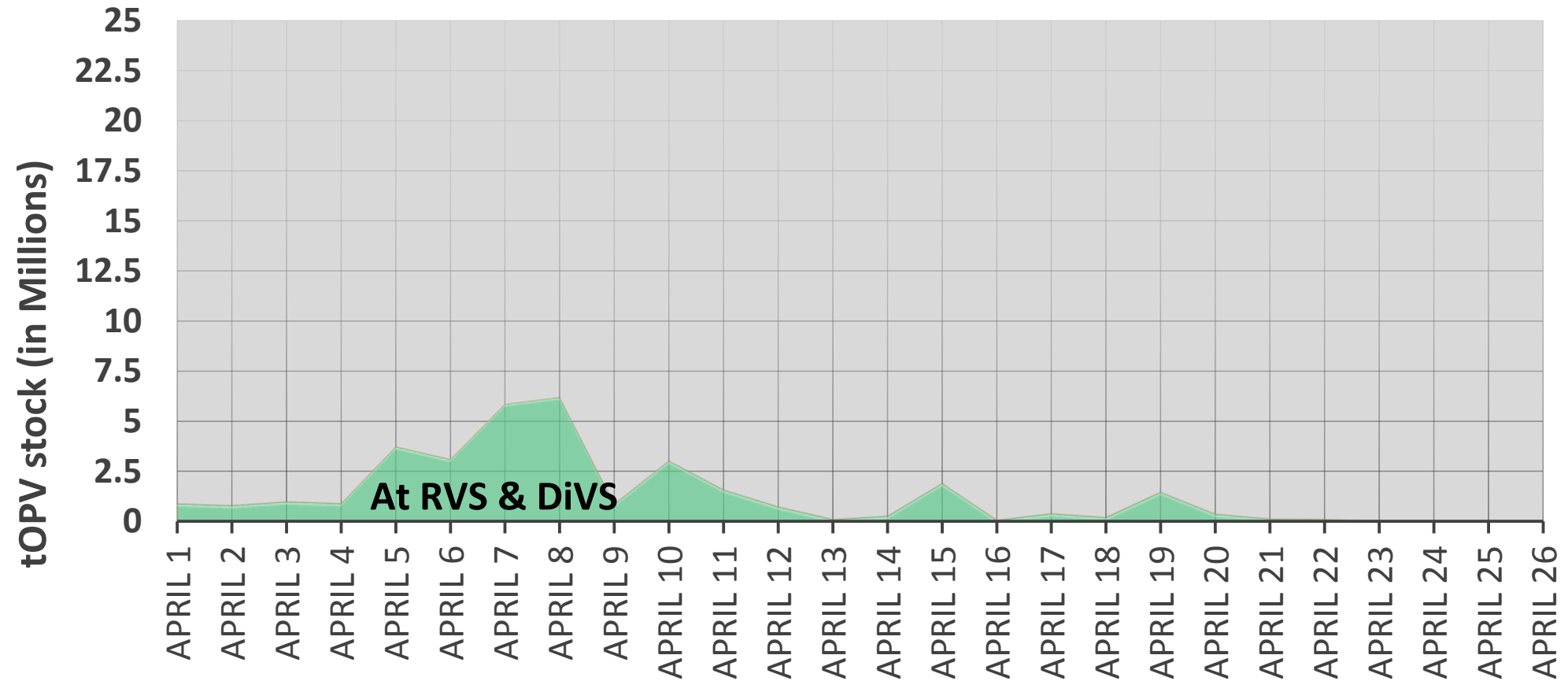
Time

Enhanced forecasting, stocking and replenishment



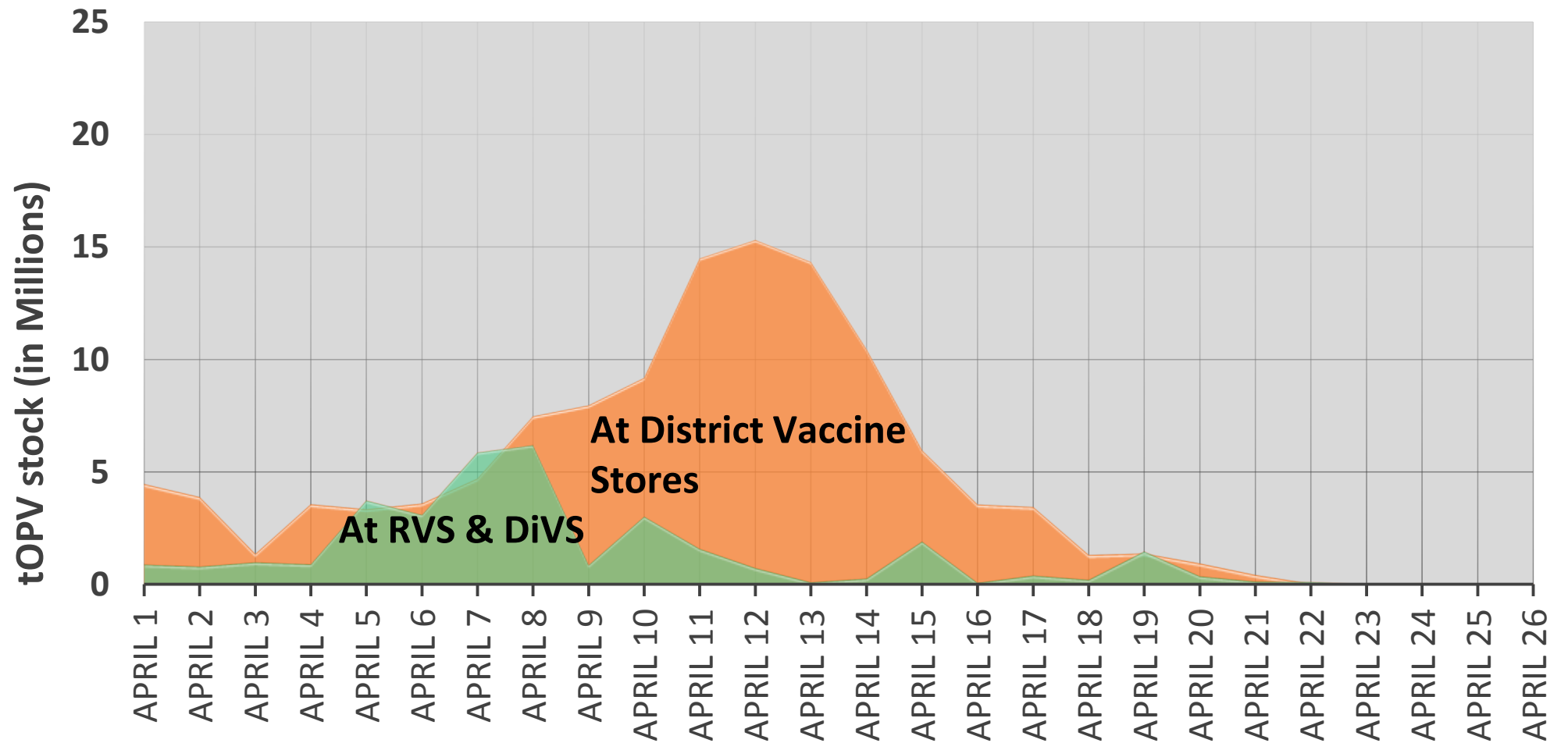
Monitoring programme performance

tOPV Stock Movement, during April 2016

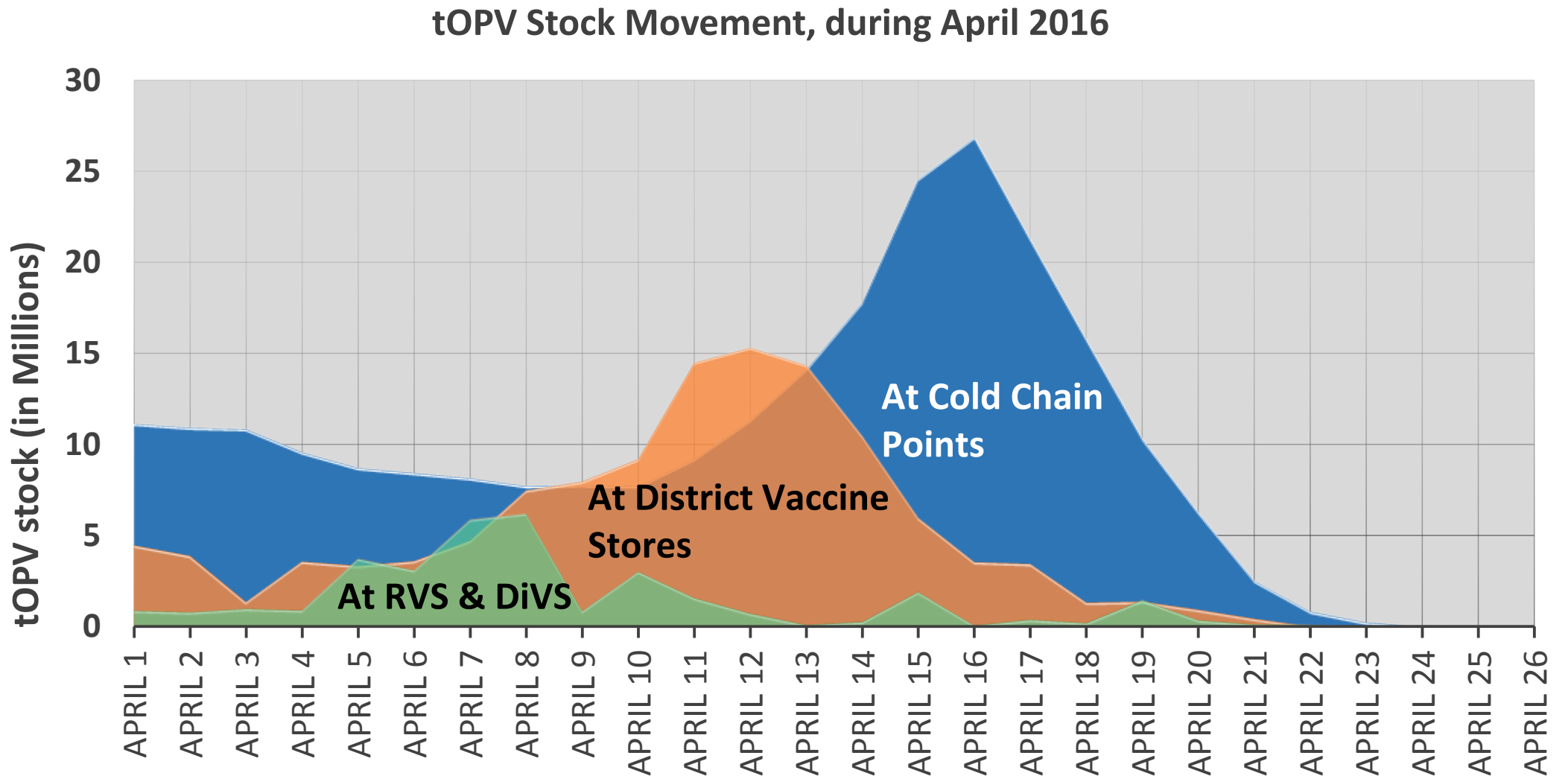


Monitoring programme performance

tOPV Stock Movement, during April 2016



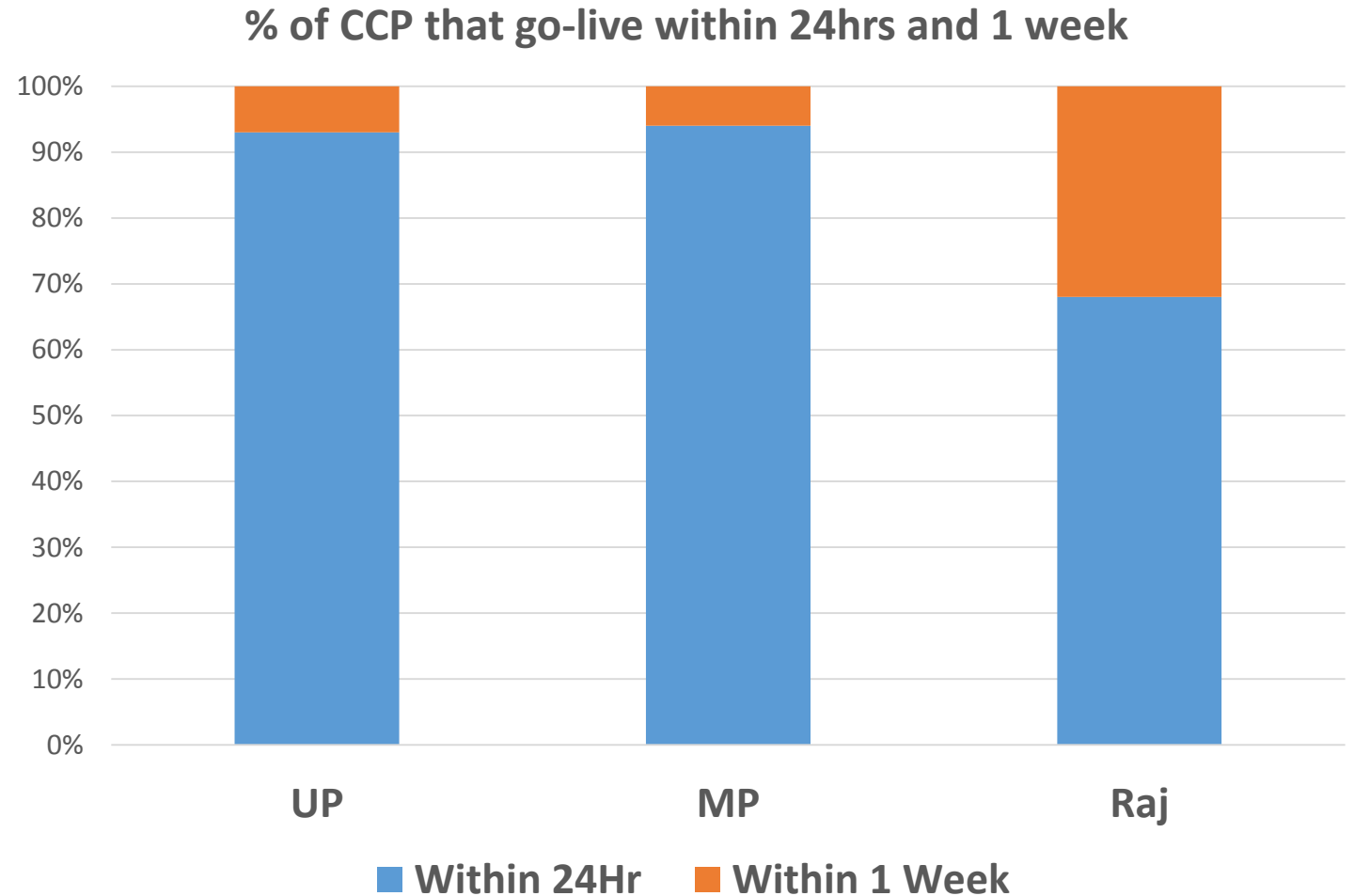
Monitoring programme performance



Early eVIN Success in 3 States

High Adoption Rates

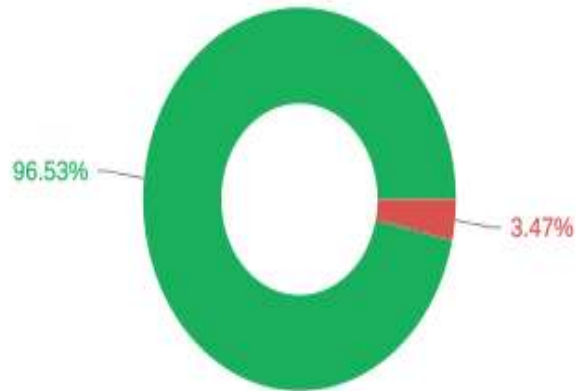
- All centres 'go-live' within a week of training the vaccine handlers
- eVIN trainings have had **100% attendance** of cold chain handlers so far



High Adherence Rates

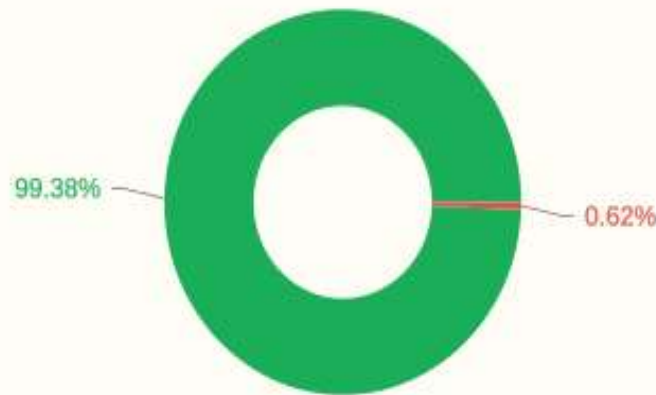
Most cold chain points are updating their vaccine data on eVIN regularly

Rajasthan



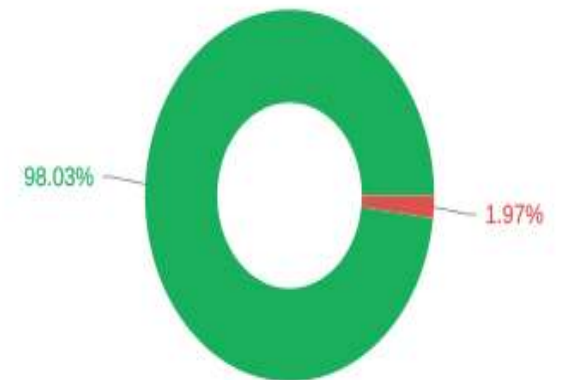
Active Inactive

Madhya Pradesh



Active Inactive

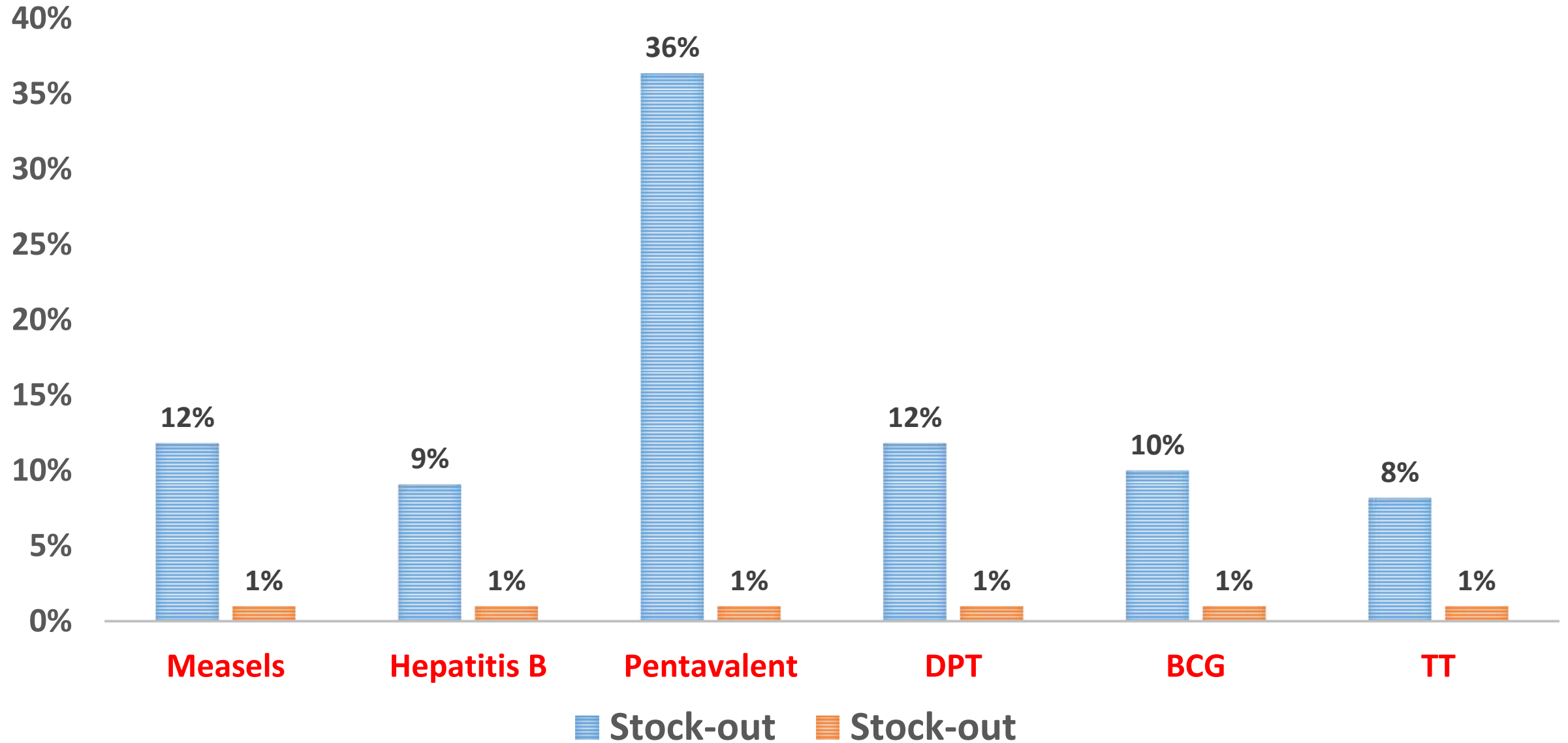
Uttar Pradesh



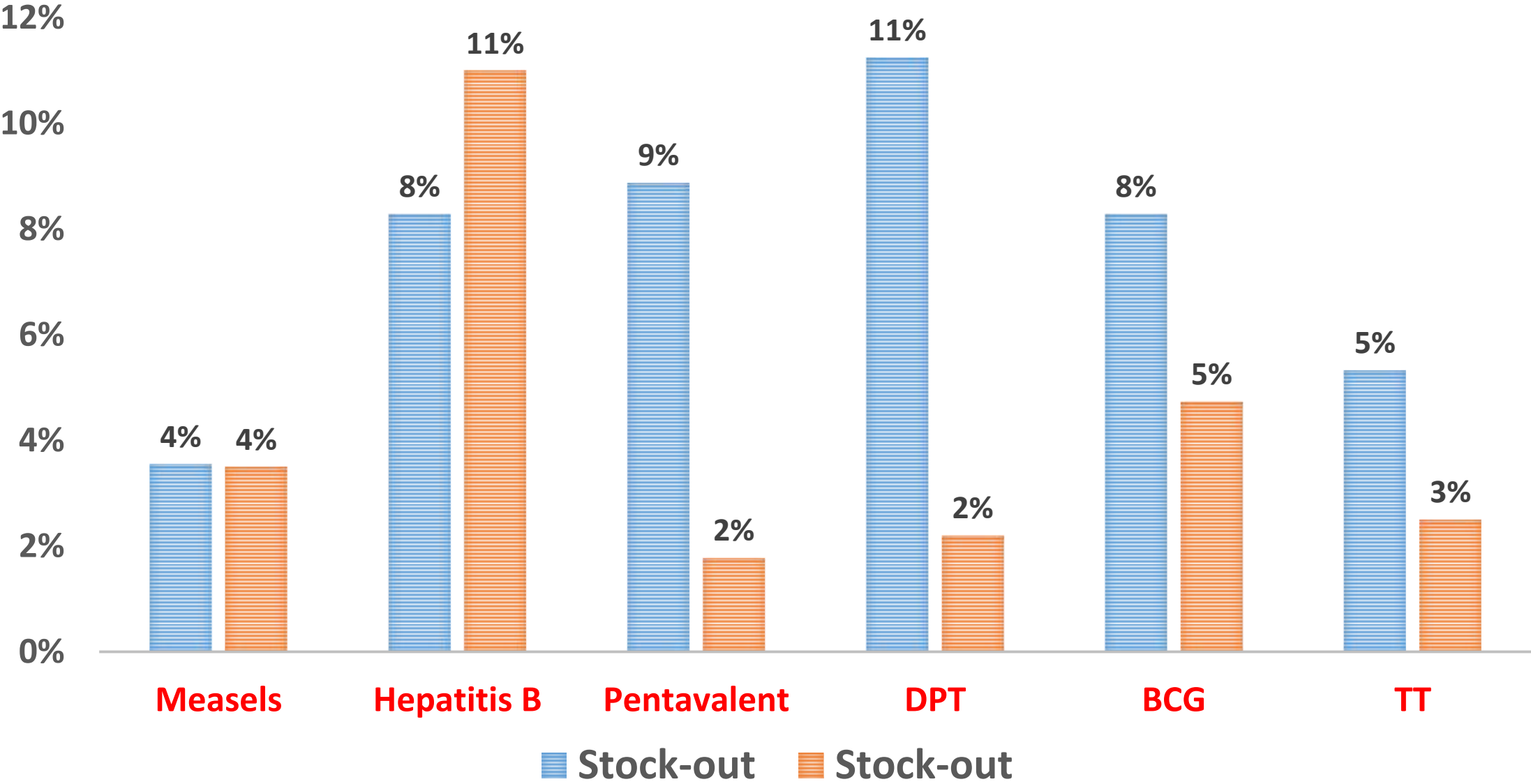
Active Inactive

A simplified model with mobile enablement has been the key to success

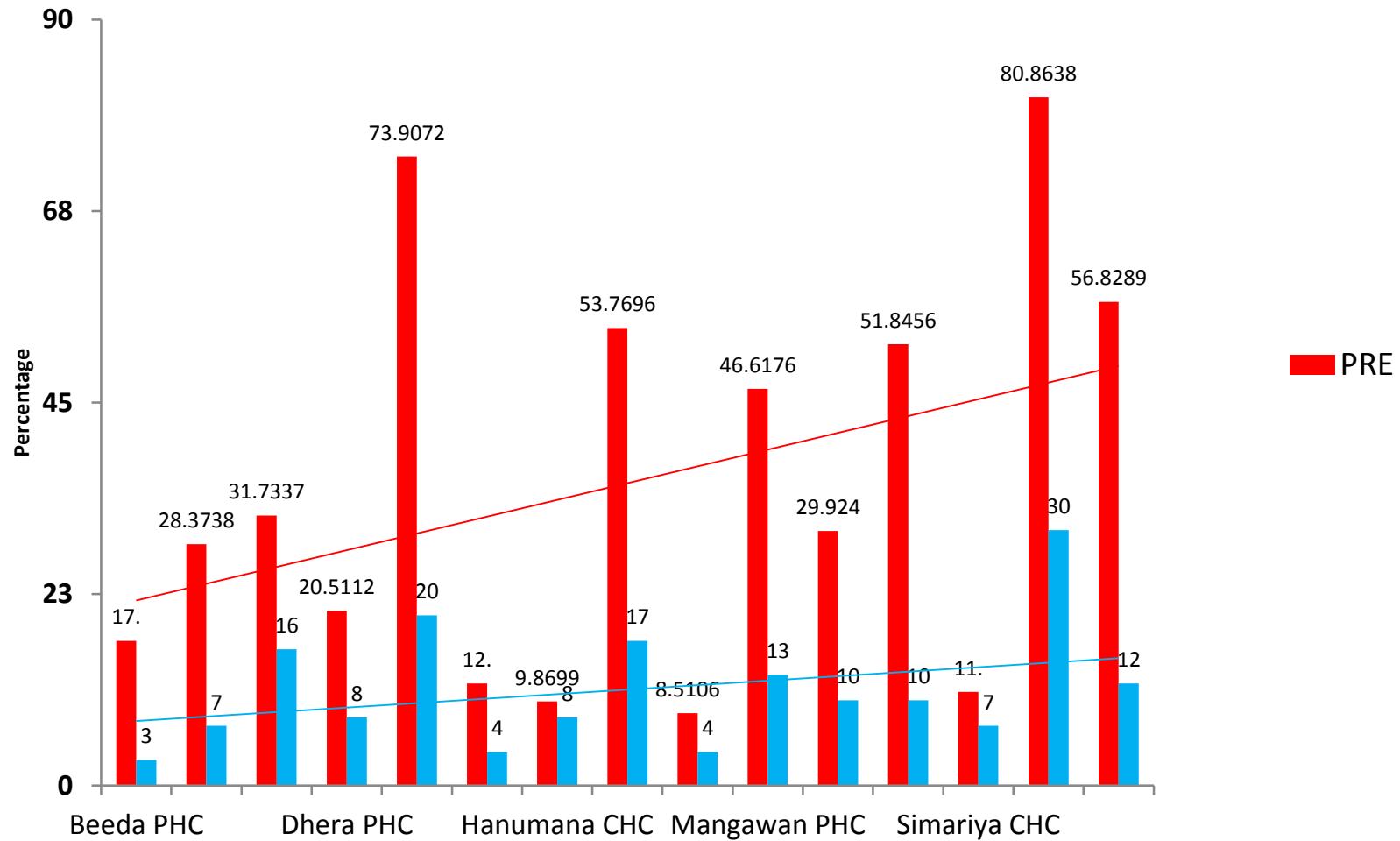
Vaccine Stock out: Uttar Pradesh



Vaccine Stock out: Rajasthan



Pentavalent Wastage – Madhya Pradesh



Post eVIN Vaccine wastage prevention for Rewa district (Oct 2015 -March 2016)

| | Wastage prevented (Doses) | Cost saved (INR) |
|--------------------|--------------------------------------|-------------------------|
| BCG | 47307 | 70,960 |
| DPT | 35042 | 45,554 |
| Measles | 36379 | 3,83,599 |
| Pentavalent | 37170 | 48,32,100 |

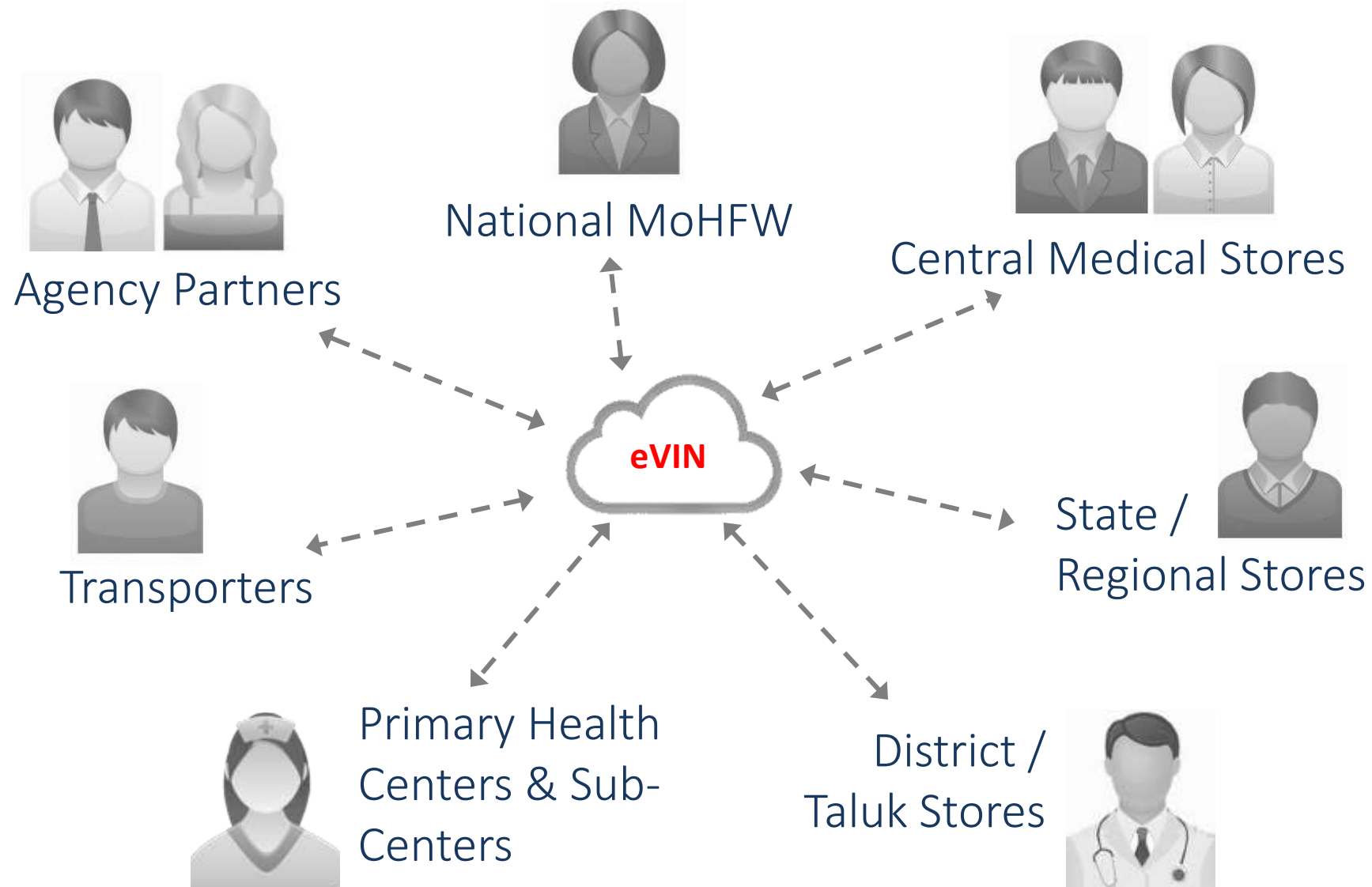
Early eVIN benefits

- Monthly physical stock count now being done in most cold chain points (CCP)
- Streamlined distribution of vaccines from district stores to CCP due to real time stock visibility on eVIN
- Greater ownership of the eVIN by state immunization officers leading to visible improvements in cold chain facilities
- Enhanced clarity on the vaccine flow and cold chain network in all the three states from state to cold chain point level
- More open vials are now getting returned from session sites contributing to reduced vaccine wastage
- Positive local media coverage in several districts

Importance of Real Time Stock Management under Universal Immunization Program

Coordinating the value chain

Optimized decision making, Accountability and HR Performance across organizations



Importance of real-time stock management under UIP

- Reduces vaccine wastage due to systemic issues- e.g. expiry dates, poor temperature control, not following open vial policy.
- Newer vaccines are expensive, thus eVIN helps save costs
- Improves stock distribution pattern across the vaccine pipeline which is essential to maintain the availability of the right quantity of vaccine as session sites
- Provides the basis to manage the supply side of vaccines, perform course corrections or ensure accountability from those further down the chain.
- Improves accountability and performance.

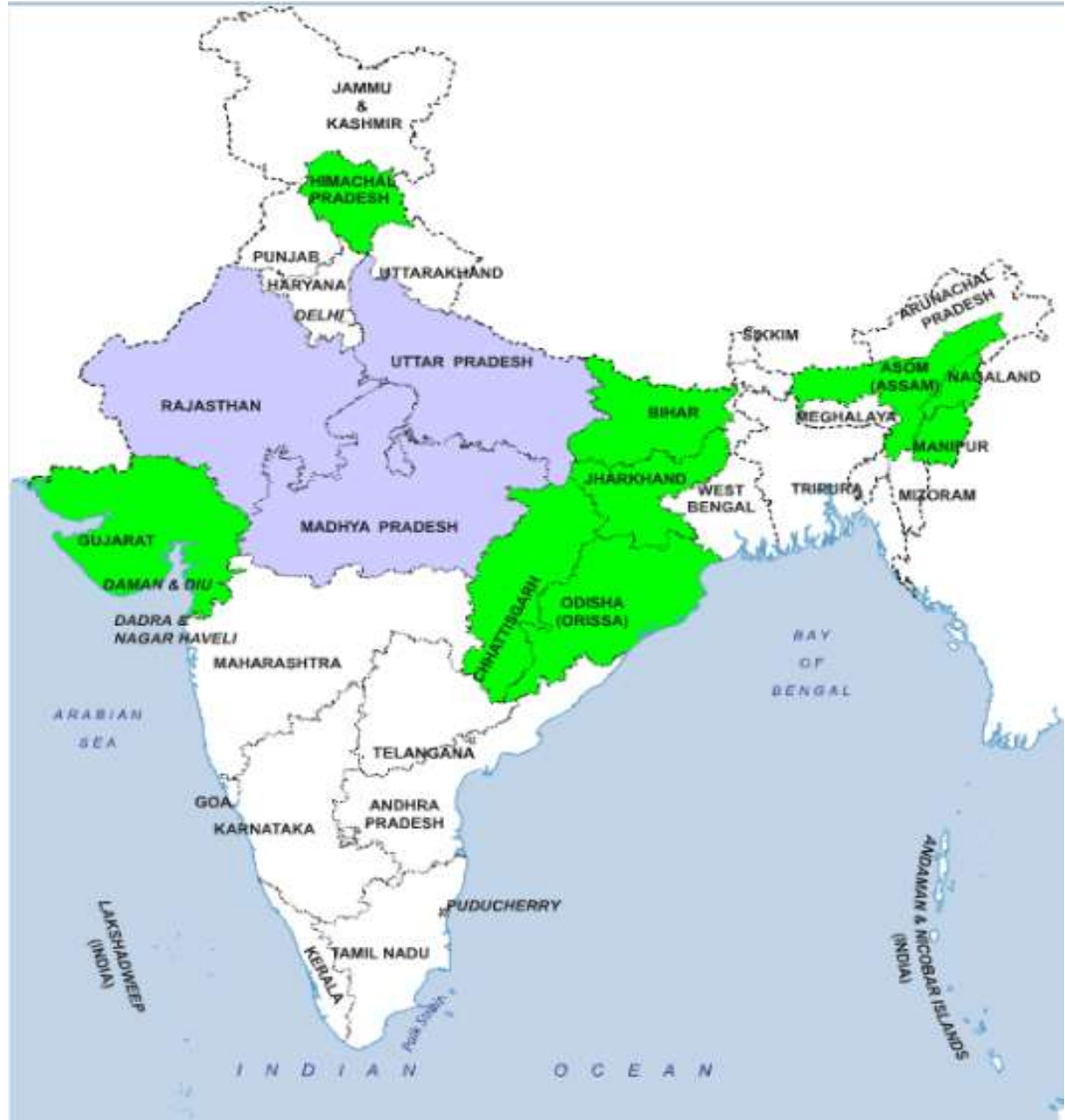
eVIN Scale up Plan

Phase 1 (2015-16)

MP, UP and Rajasthan – **March 2016**

Bihar, Chhattisgarh, Gujarat, Jharkhand, Odisha, Assam, Manipur, Nagaland and Himachal Pradesh – **December 2016**

11,000 Cold Chain Points in 376 districts



Thank You

