





## EVM Assessment



## EVM Dataset



## EVM Results

- **Criterion Scores**
- **Sub-indicator results**

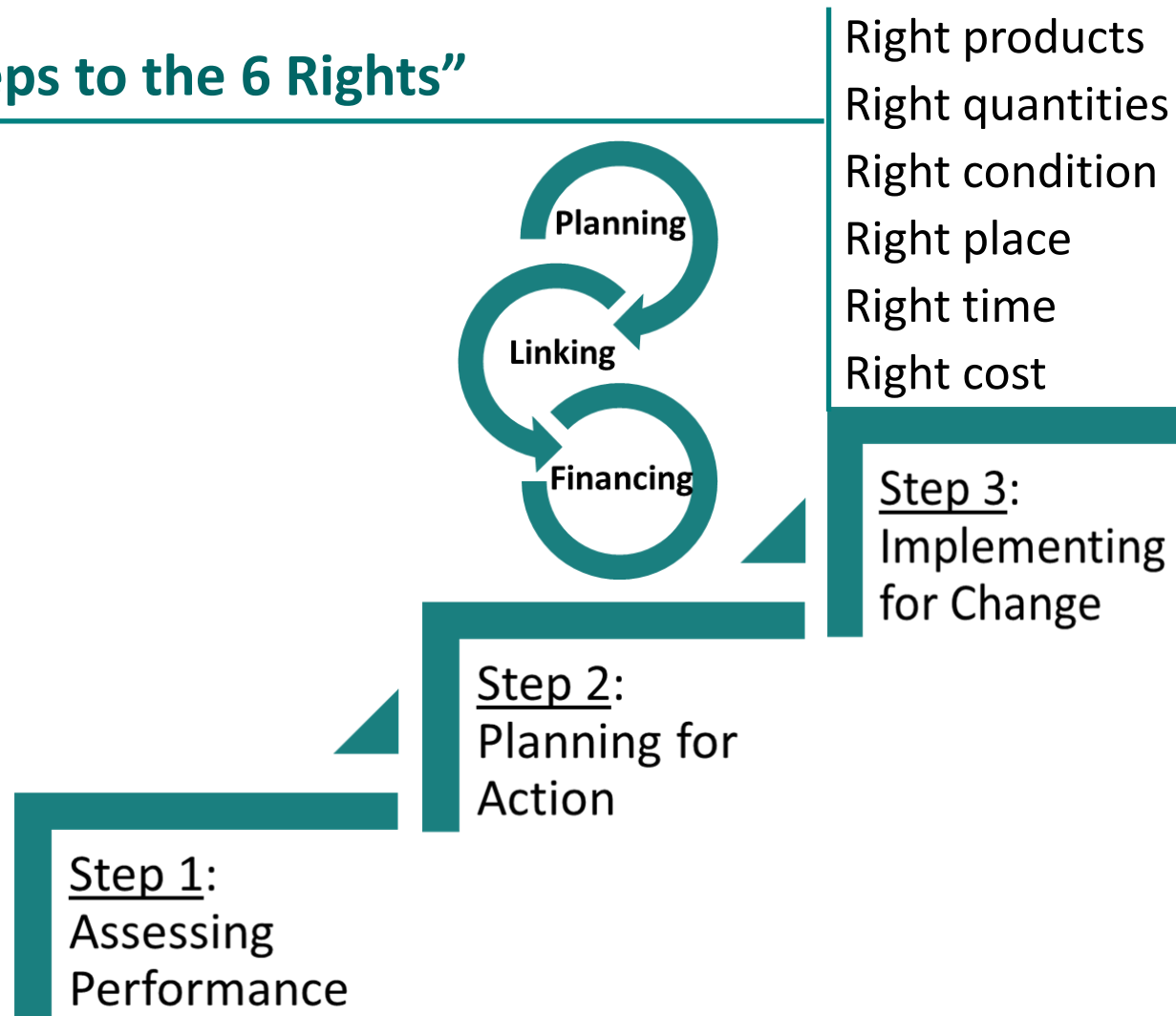


## EVM Improvement

# The EVM Continuous Improvement Process

An essential component of the WHO/UNICEF strategy for strengthening in-country immunization supply chains:

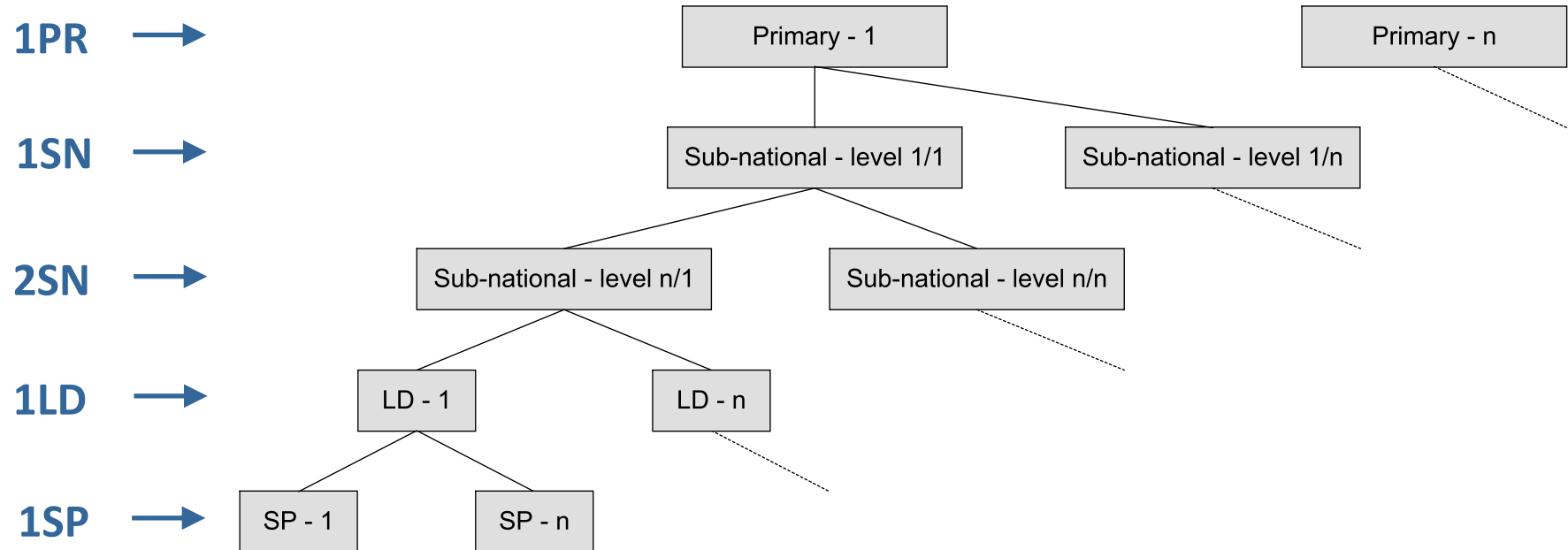
## “The 3 Steps to the 6 Rights”



## EVM Assessment

# EVM Assessment: What does it assess?

EVM assesses each level of the supply chain:



**Primary level (PR):**

Vaccine stores that receive vaccine direct from an international vaccine manufacturer or distributors or a local vaccine manufacturer.

**Sub-national level (SN):**

Vaccine stores that receive vaccine from a primary or higher level sub-national store.

**Lowest distribution level (LD):**

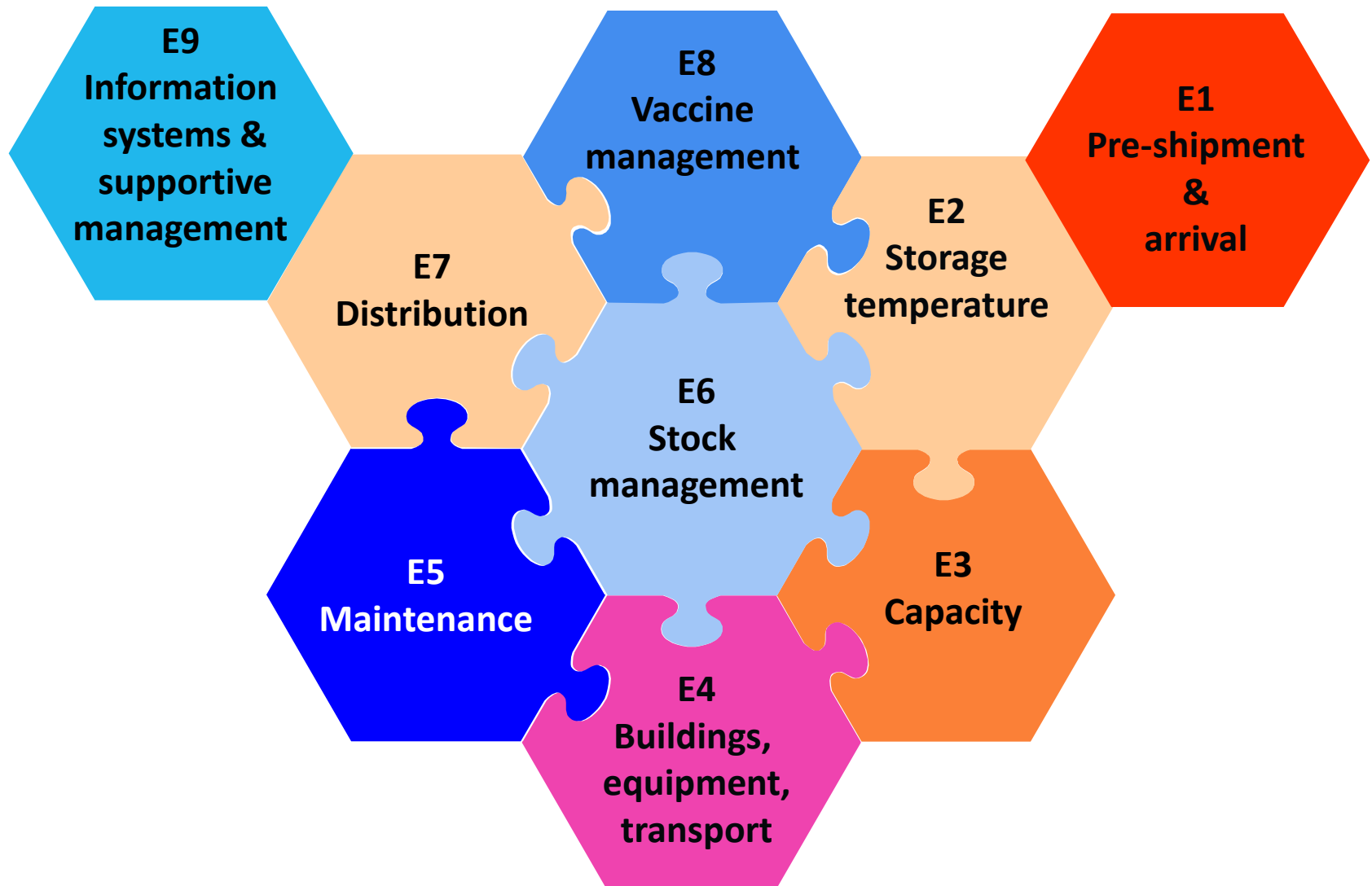
Vaccine stores that receive vaccine from a primary or a sub-national store and supply vaccine to one or more health facilities.

**Service point level (SP):**

Facilities that receive vaccine from any higher level store and supply immunization services.

# EVM Assessment: What does it assess?

EVM assesses 9 areas of vaccine management – the 9 EVM Criteria:



# EVM Assessment: How does it assess?

## Criteria are assessed by inspection and interview

- Inspection of cold chain equipment, transport vehicles and buildings
- Inspection of records (temperature, stock, wastage, ...) for the previous 12 months
- Interview of responsible staff to assess knowledge, understanding and practice

## The EVM questionnaire has ~ 400 questions (sub-indicators)

- ~ 400 at PR level, 300 at SN, 200 at LD, 150 at SP
- 75% of the questions are binary [Y, N], 25% numerical.

## Sub-indicator responses are combined to form ~ 150 indicator scores:

- ~ 150 at PR level, 100 at SN, 75 at LD, 60 at SP
- Indicators can be turned off if not relevant (ex: no cold room questions if no cold rooms)

## The 9 Criteria scores are weighted averages of relevant indicator scores

- Indicators considered critical are given a weight of 5.
- Target criteria score set at 80% - an effective incentive


# EVM Assessment: Sample Selection

EVM Assessment is used to identify areas for improvement (systemic weaknesses)

- A sample of sites are selected at each level of the supply chain
- Sample indicator and sub-indicator scores are used to identify areas for improvement and prioritize improvement activities

Given a limited assessment budget, how to be *confident* that sample scores *represent* the national picture?

- Country chooses precision and confidence level for **Binary** sub-indicator scores (% Yes) at the Lowest Distribution level (LD)
- LD sample size determined by chosen precision and confidence level (hypergeometric statistics)
- LD sample randomly selected from all LD stores
- One or two Service Point (SP) facilities are randomly selected for each of the selected LD stores
- Supply chain followed back to primary level to determine sample of sub-national (SN) stores

International vaccine mfr/UNICEF 			
National store			
Number of LD stores for sample selection	Option 1: 80% Confidence level and Precision options in %		
	±5%	±10%	±15%
	5	5	4
	10	8	6
	14	10	7
	17	12	8
	21	14	9
	30	17	10
	35	18	10
	44	20	11
75	52	21	11
100	58	22	11
125	62	23	11
150			
(Level SP)			

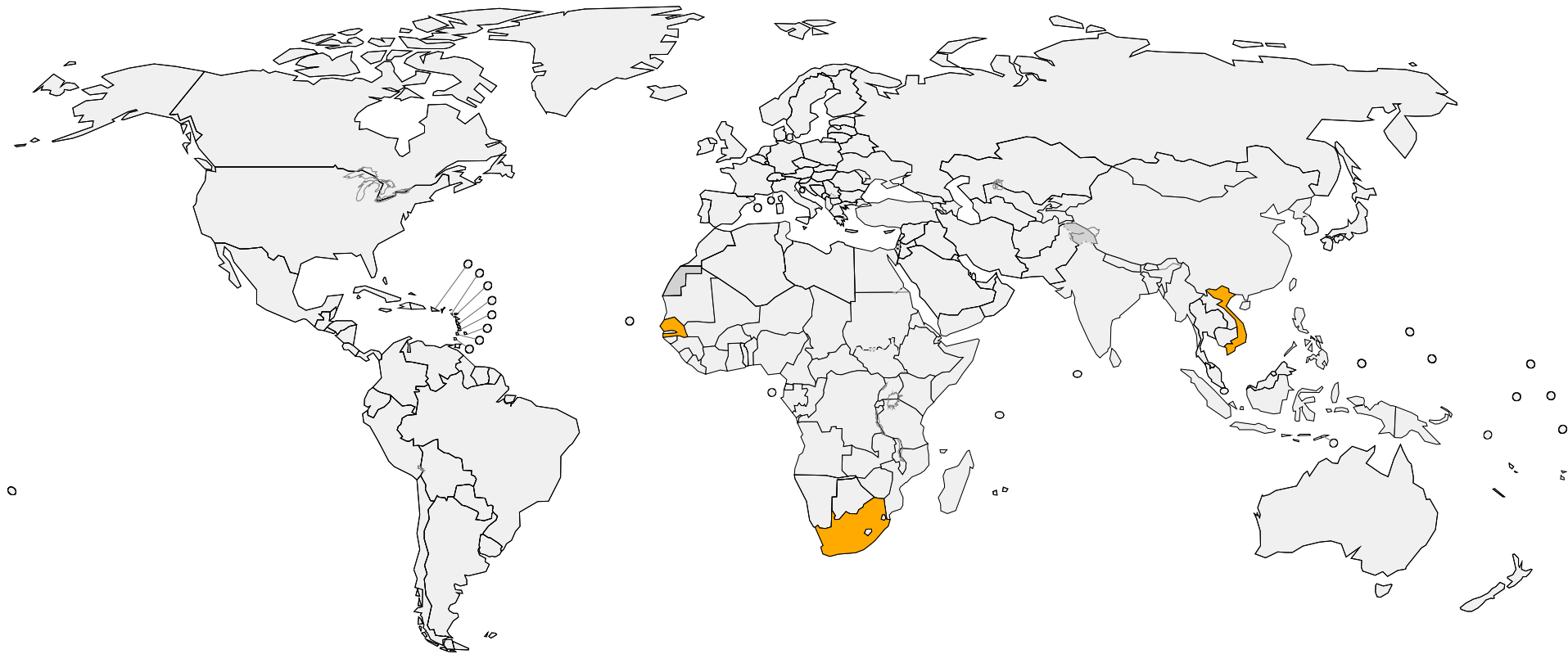


## EVM Dataset

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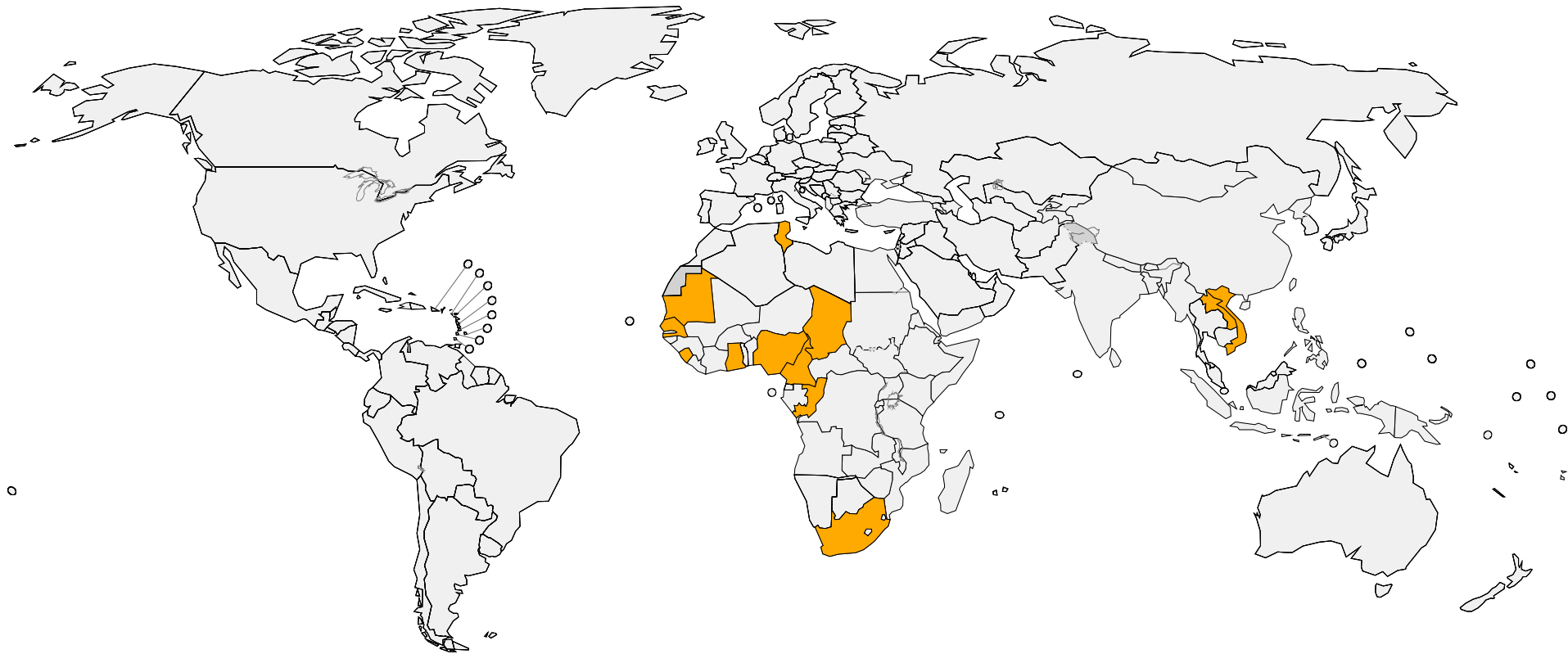


# EVM Dataset



**2009: 3** 1st assessments

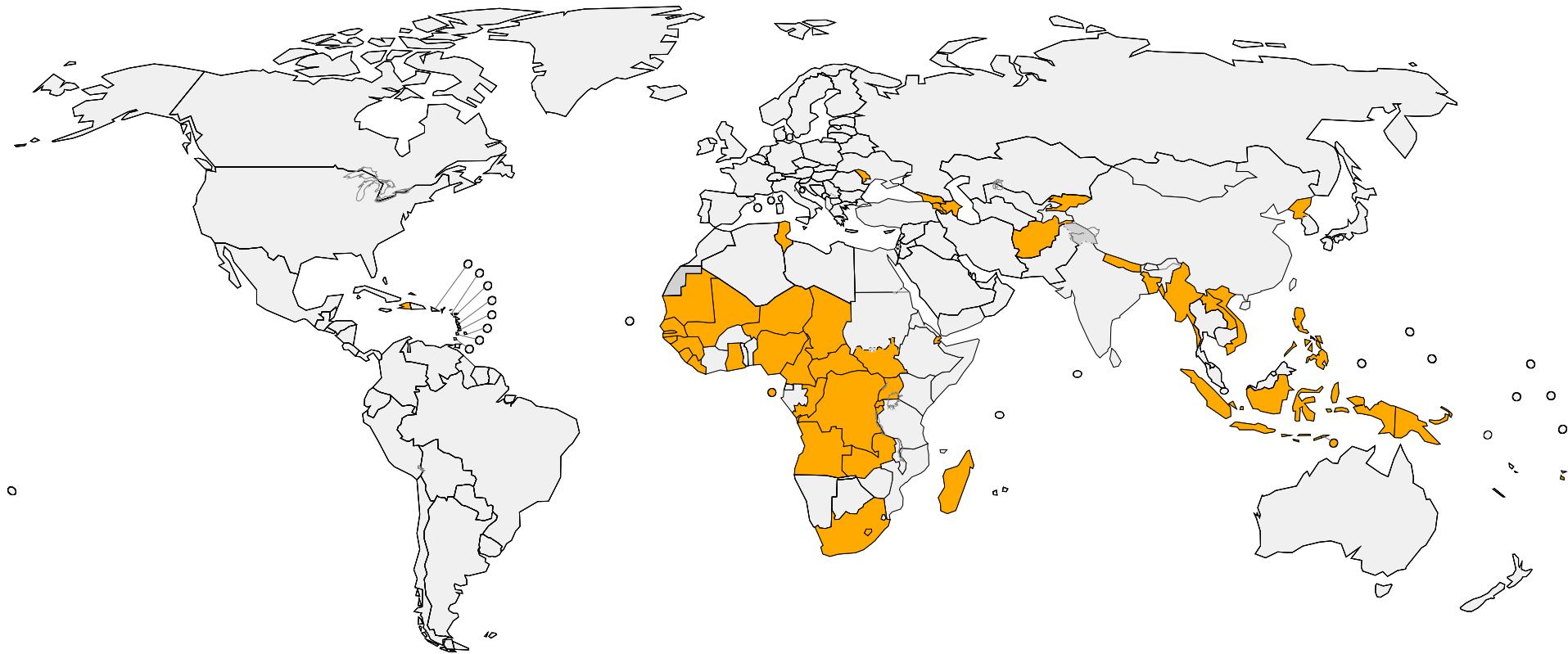
# EVM Dataset



**2009:** 3 1st assessments

**2010:** 10 1st assessments

# EVM Dataset

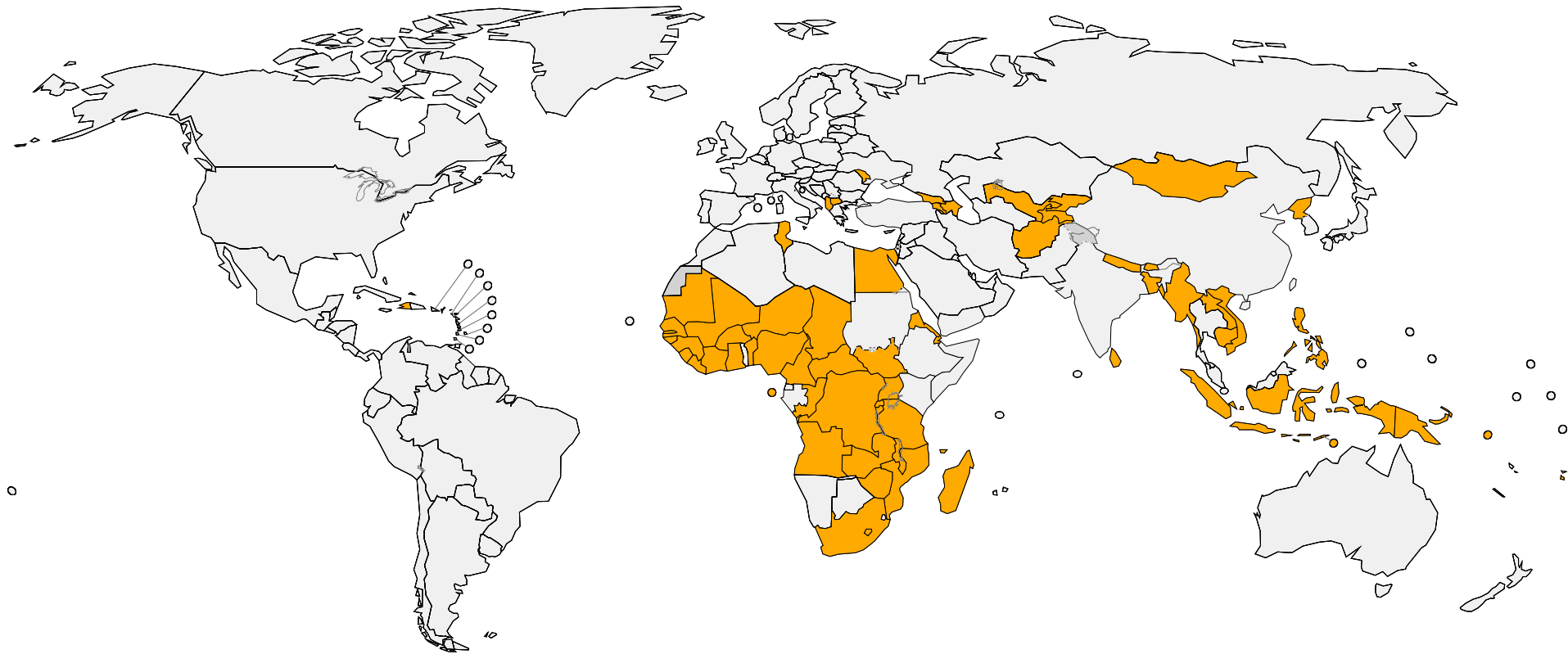


**2009:** 3 1st assessments

**2010:** 10 1st assessments

**2011:** 35 1st assessments

## EVM Dataset



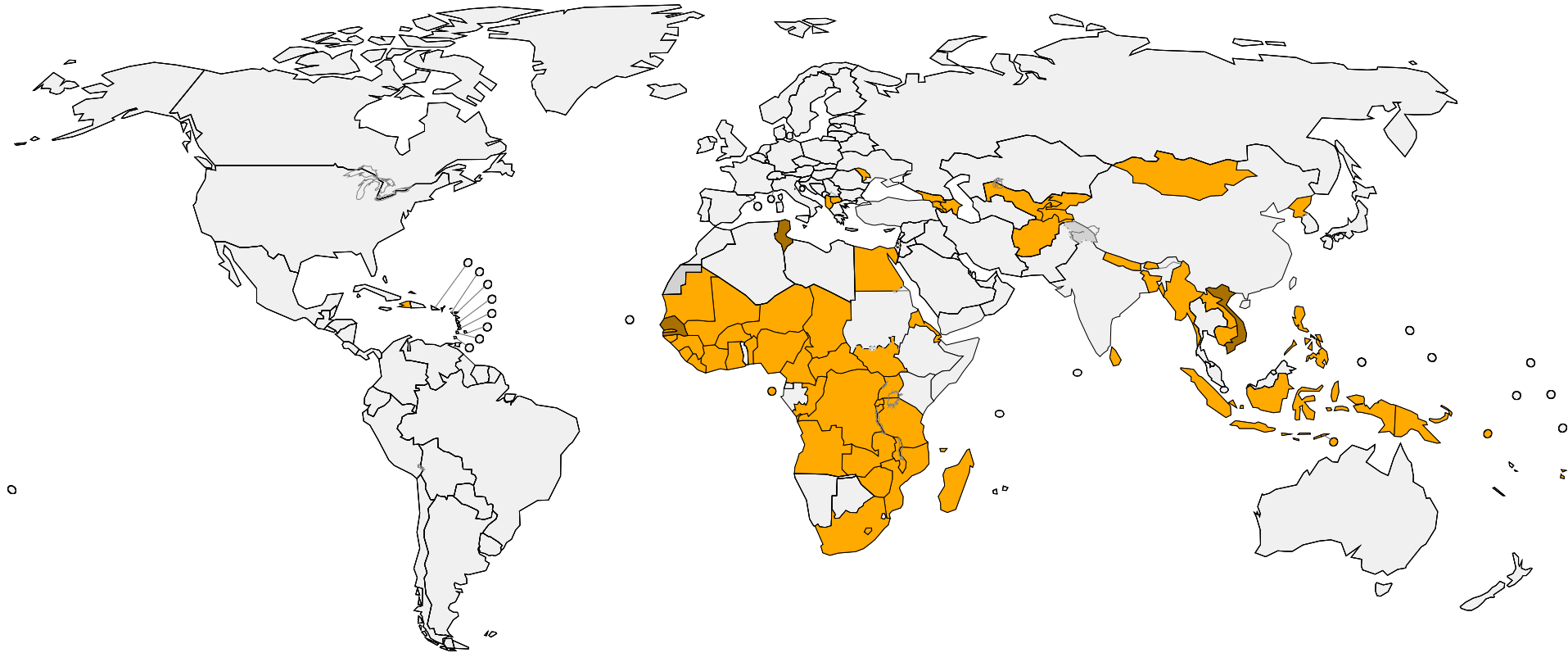
**2009: 3** 1st assessments

**2010: 10 1st assessments**

**2011: 35 1st assessments**

**2012: 19 1st assessments**

# EVM Dataset



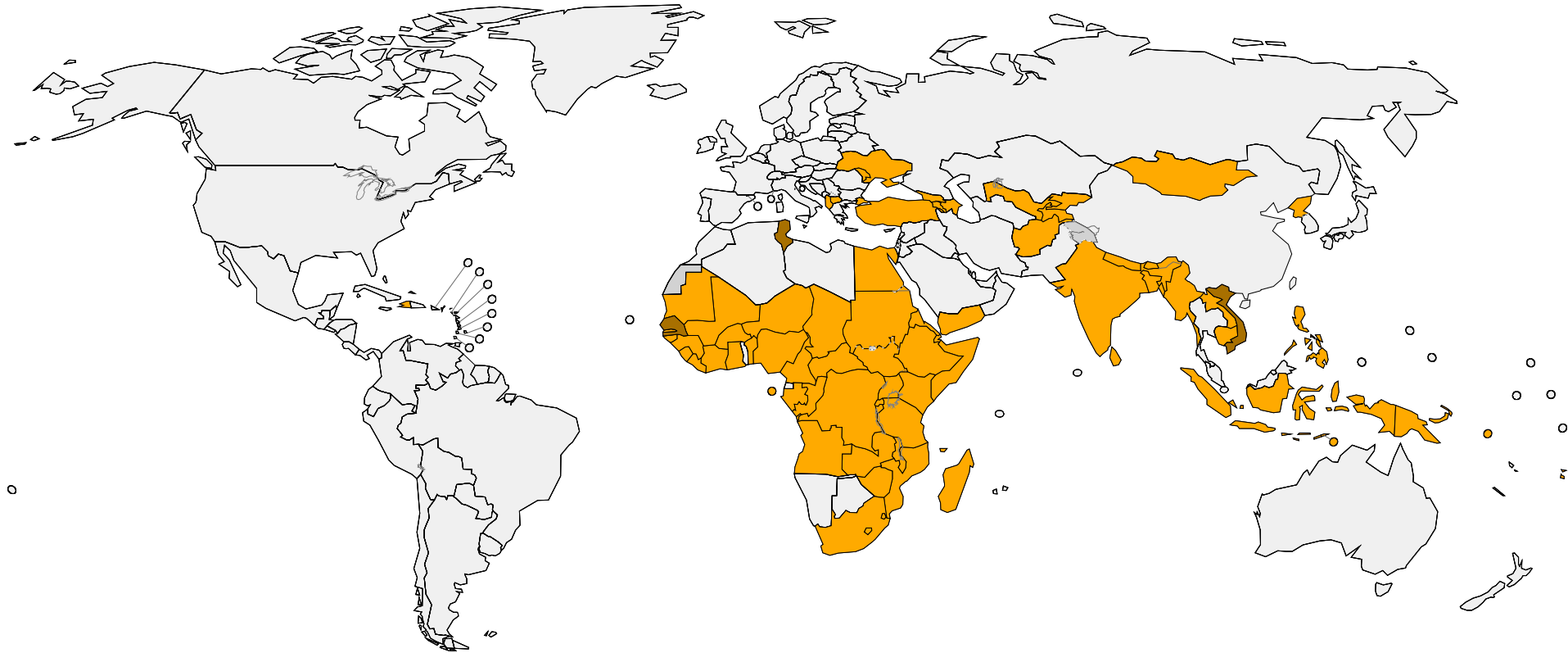
**2009:** 3 1st assessments

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**2011:** 35 1st assessments

**2012:** 19 1st assessments + 3 2nd assessments

# EVM Dataset



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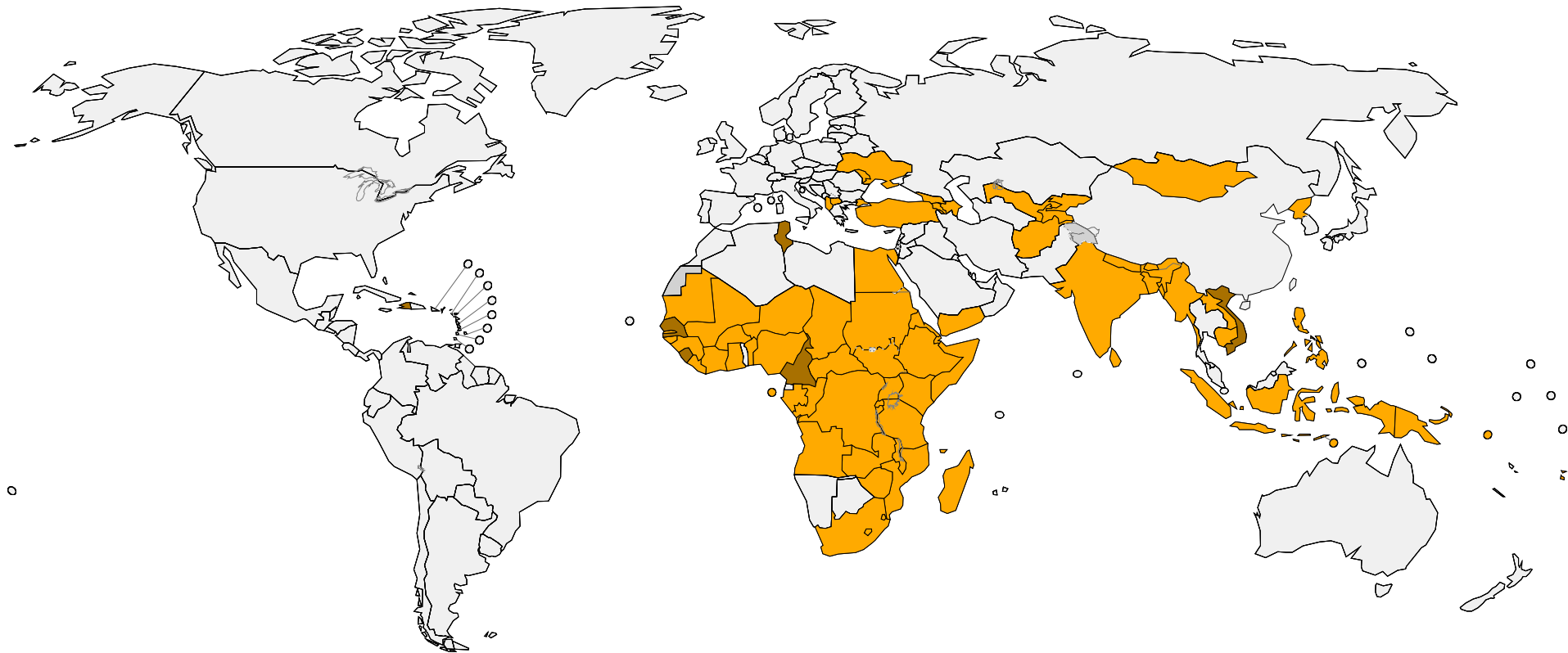
**2011:** 35 1st assessments

**2012:** 19 1st assessments + 3 2nd assessments

**2013:** 13 1st assessments



# EVM Dataset



**2009:** 3 1st assessments

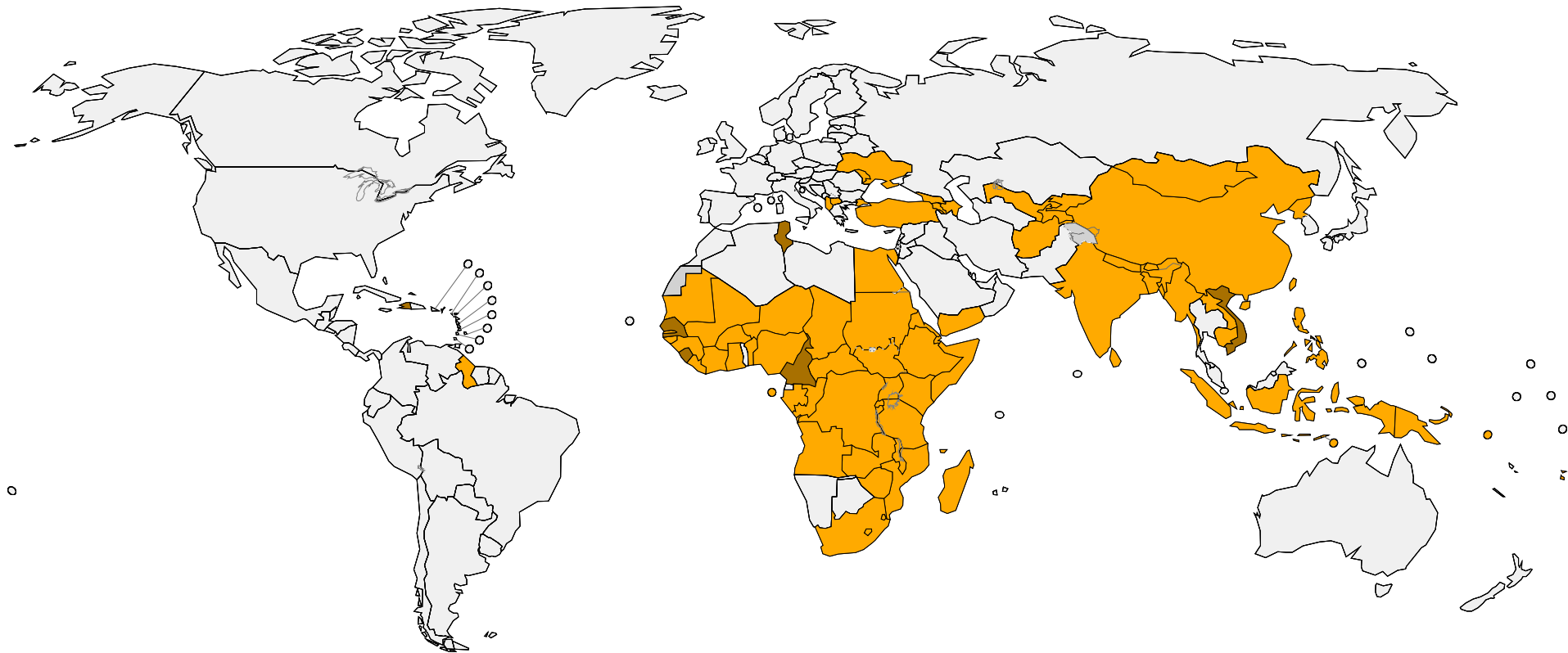
**2010:** 10 1st assessments

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# EVM Dataset



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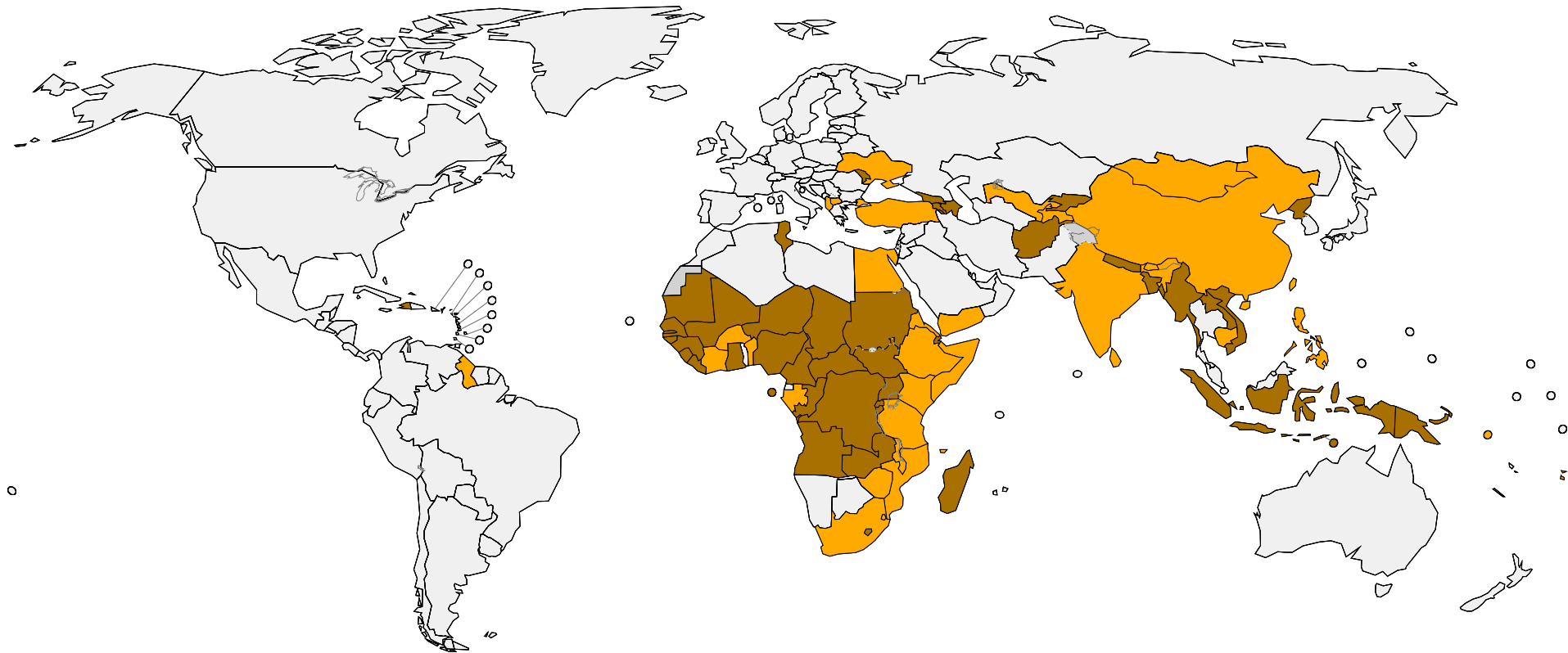
**2011:** 35 1st assessments

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**2014:** 2 1st assessments

# EVM Dataset



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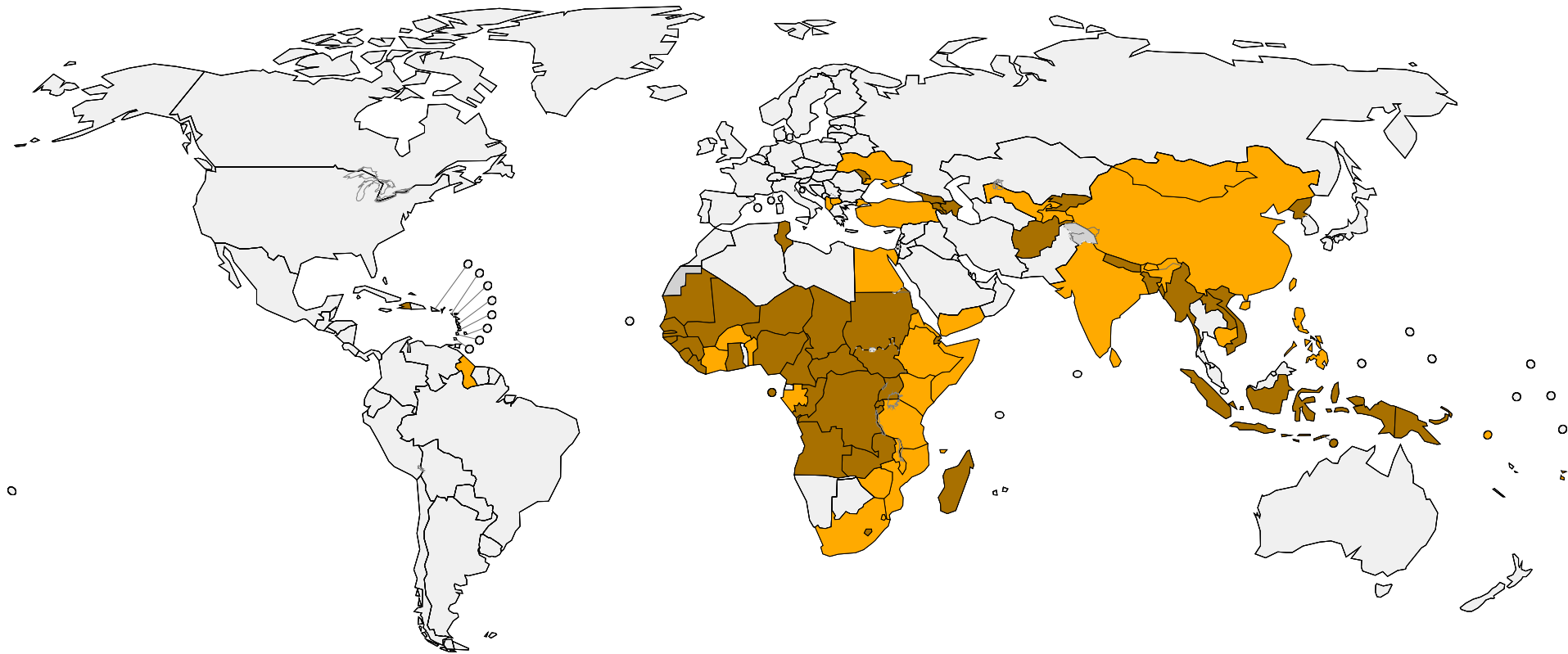
**2011:** 35 1st assessments

**2012:** 19 1st assessments + 3 2nd assessments

**2013:** 13 1st assessments + 3 2nd assessments

**2014:** 2 1st assessments + ? 2nd assessments

# EVM Dataset

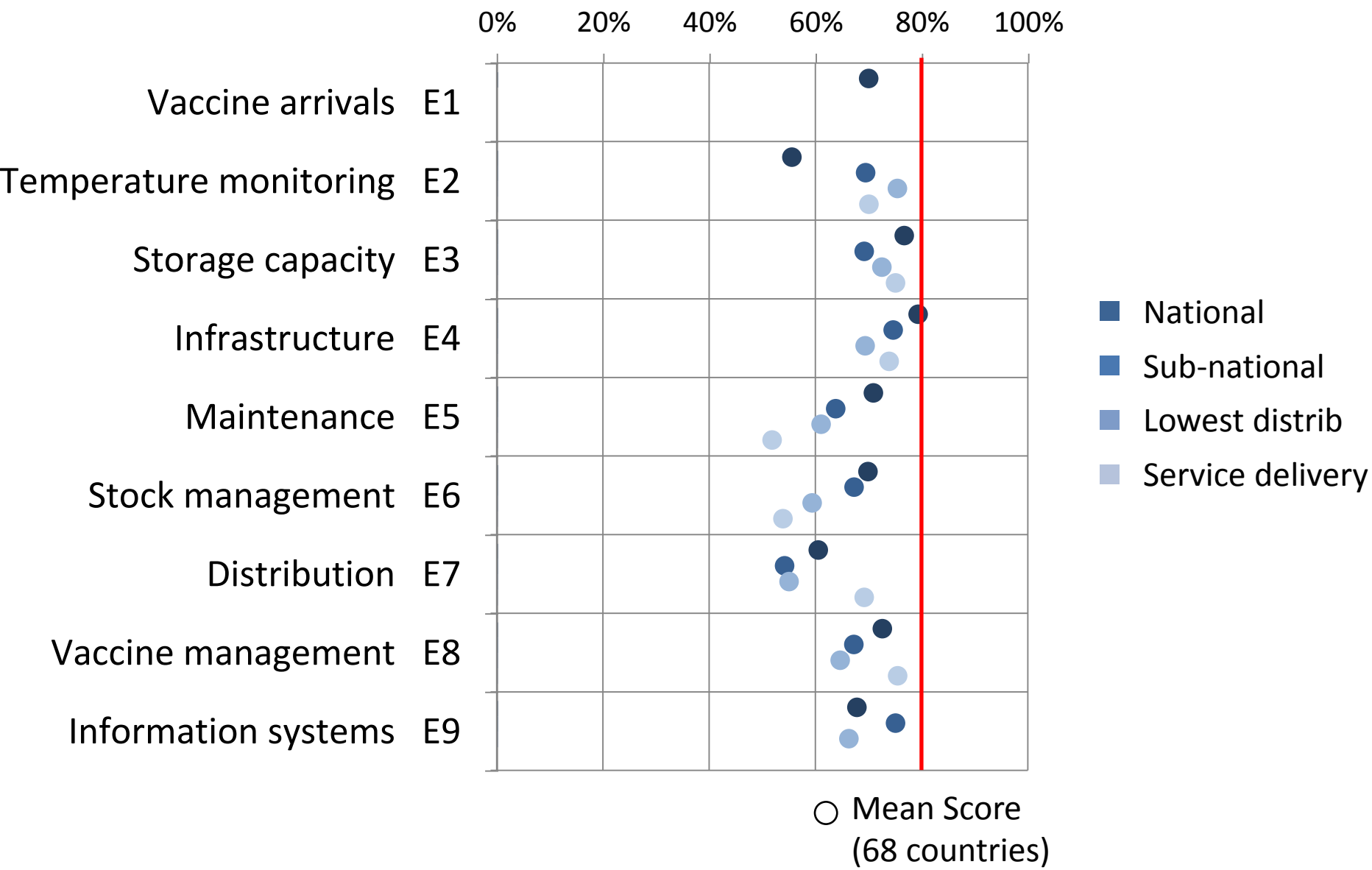


## EVM Dataset

- 73 assessment reports  $\Rightarrow$  Criterion scores for 73 assessments
- 48 assessment datasets  $\Rightarrow$  Sub-indicator responses for 50 PR stores, 337 SN, 729 LD, 864 SP

## EVM Criterion Scores

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## EVM Sub-indicator results

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~ 400 sub-indicators are grouped according to their potential impact on:

**Availability** of vaccines at the service delivery level

- Right quantities
- Right products
- Right place
- Right time

**Quality** of immunization supply chain (to safeguard vaccine potency)

- Right condition

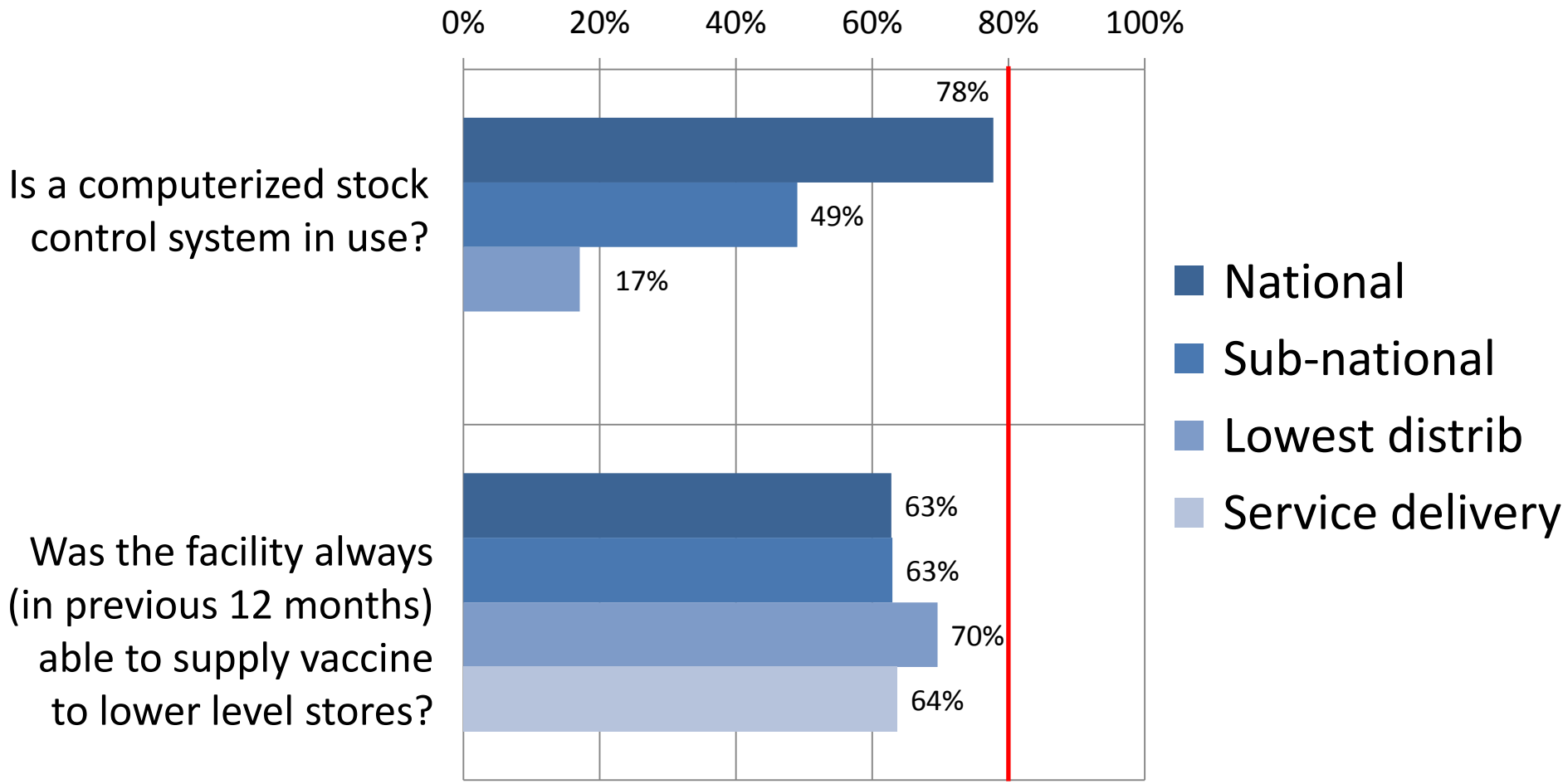
**Efficiency** of immunization supply chain

- Right cost



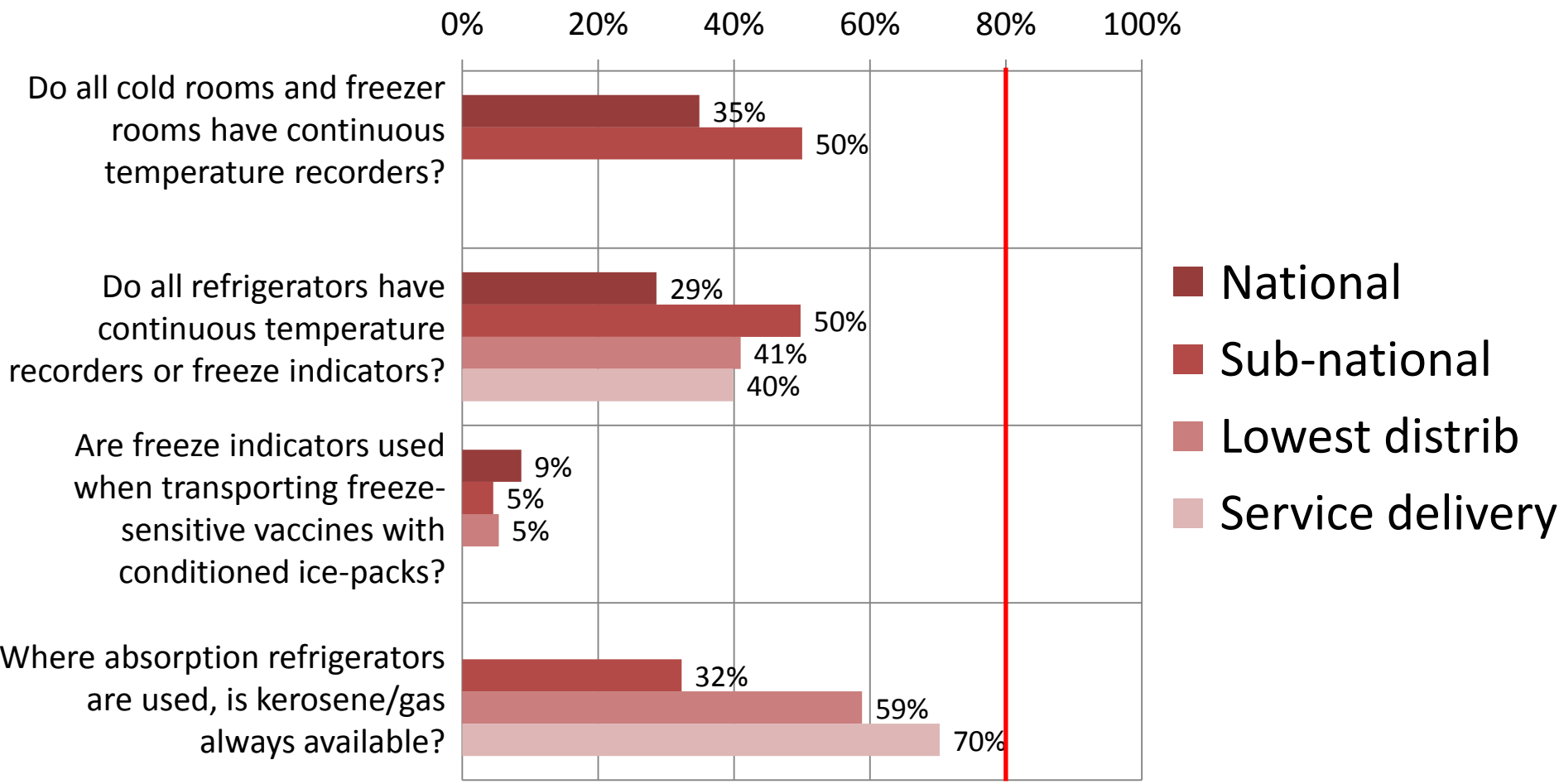
# EVM Sub-indicator results

## Availability



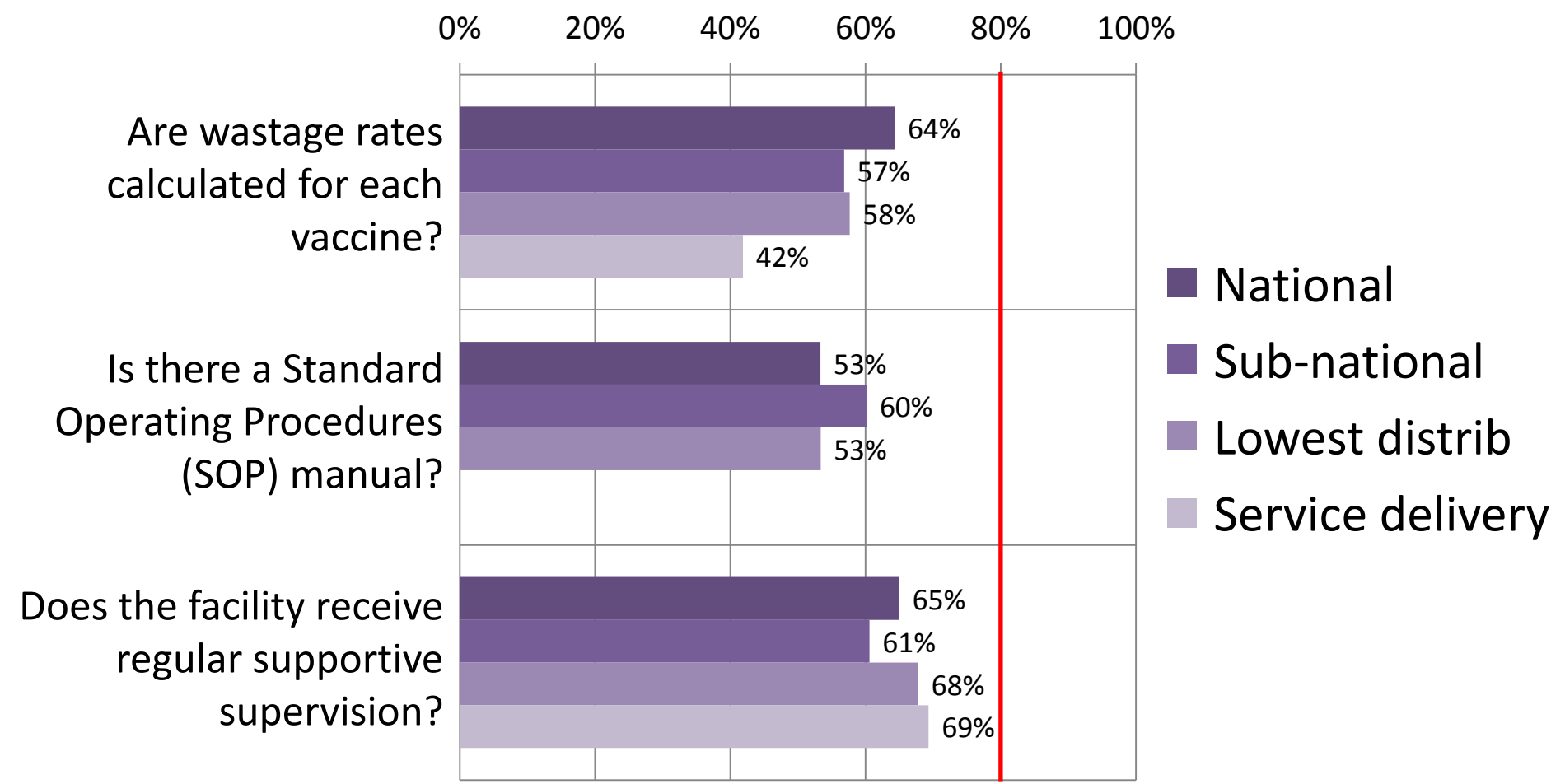
# EVM Sub-indicator results

## Quality



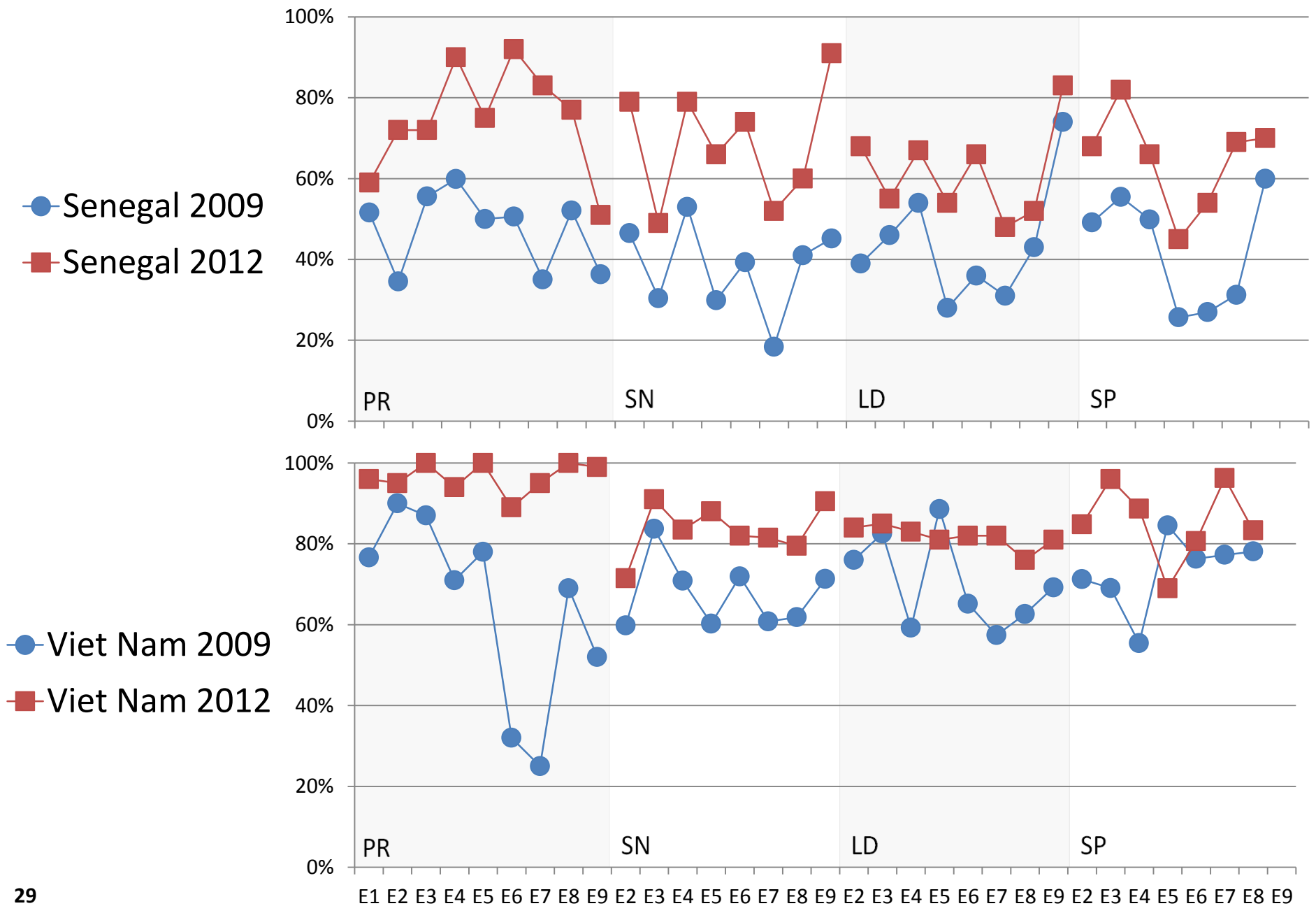
# EVM Sub-indicator results

## Efficiency

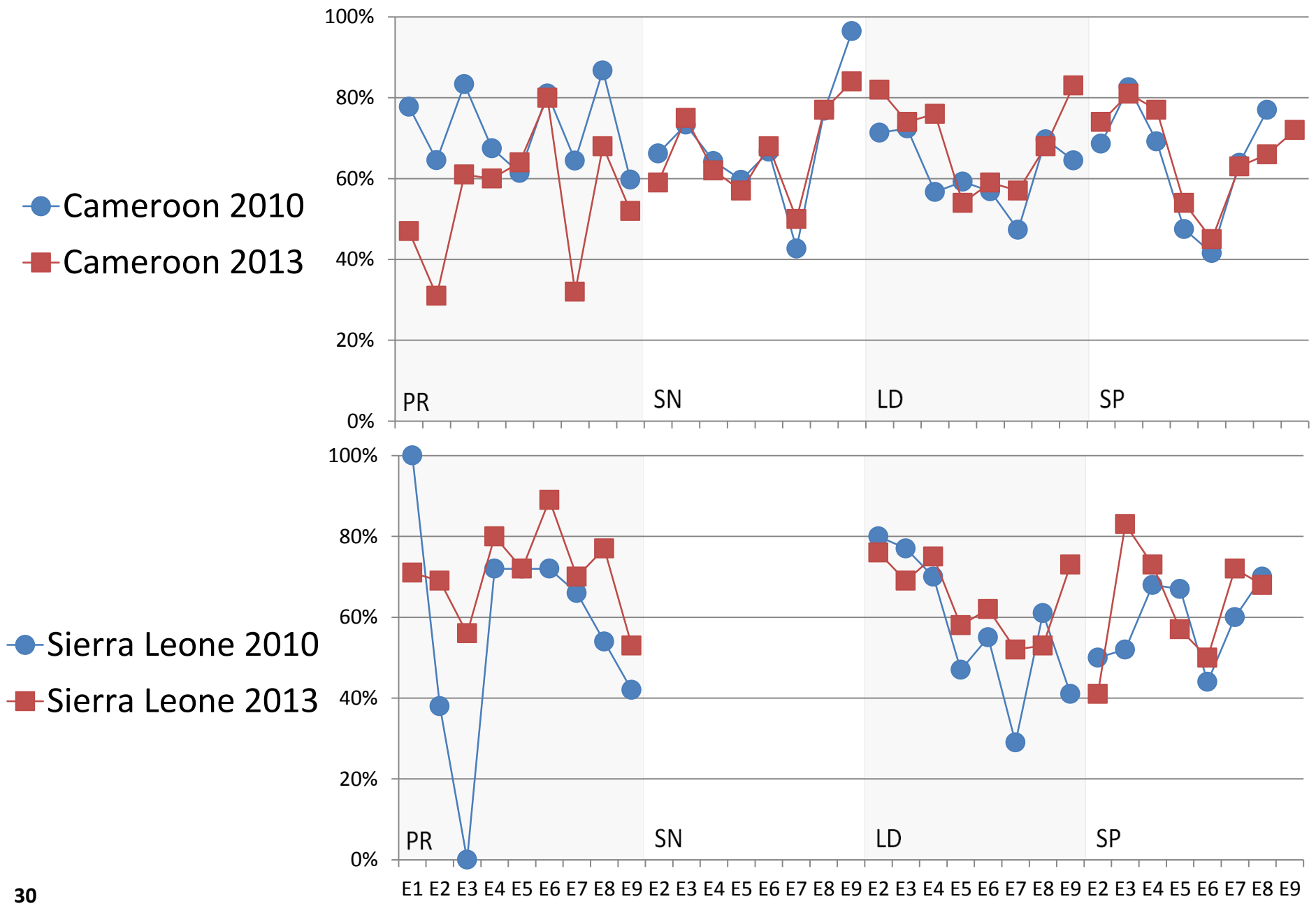


## EVM Improvement

# EVM Improvements



# EVM Improvements



# Conclusion



## EVM Assessments

- Many countries have now conducted EVM assessments, including many non-GAVI eligible countries
- Many countries are scheduled for their 2<sup>nd</sup> assessments in 2014-2016



## EVM Data

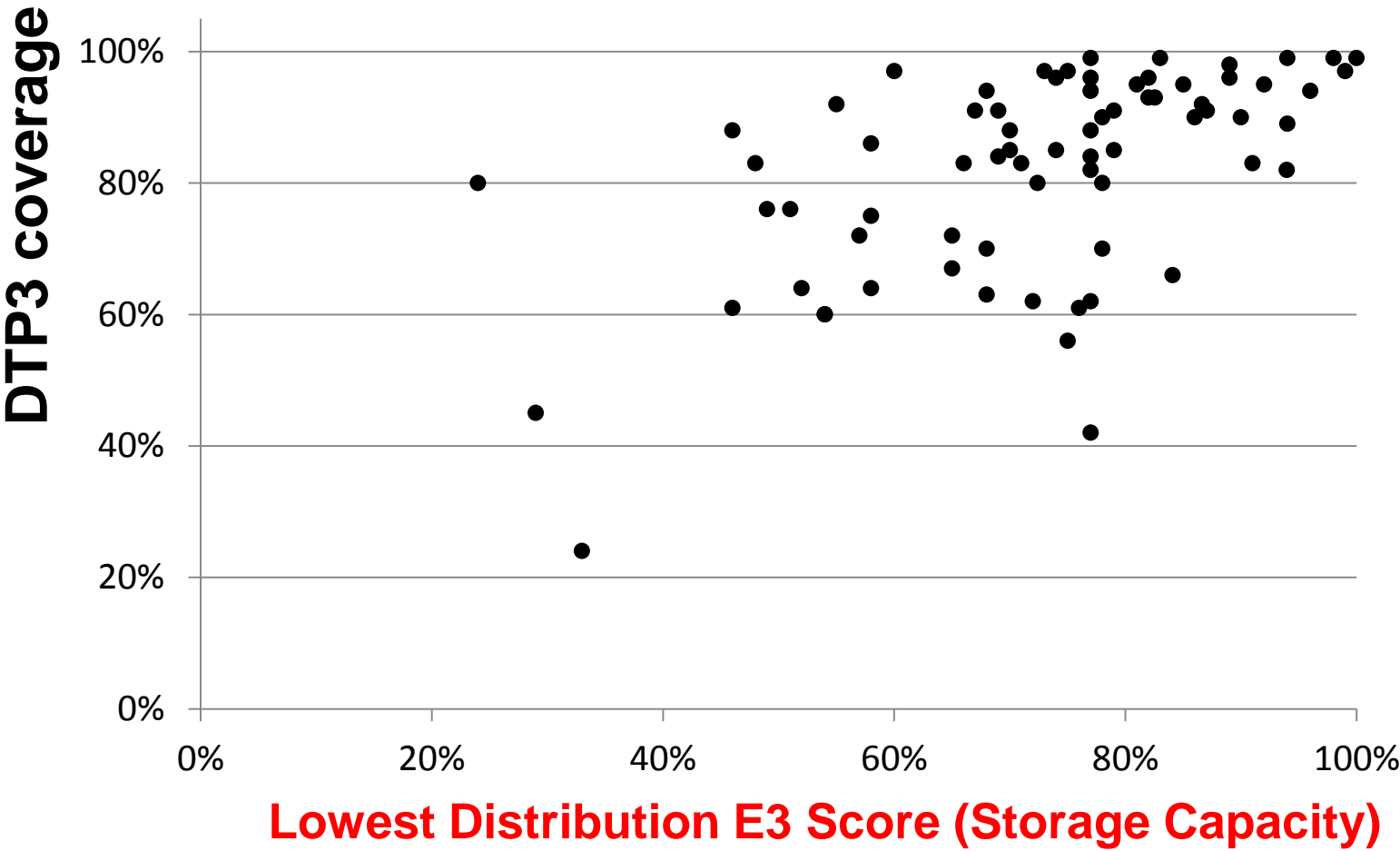
- Quantifiable evidence of significant immunization supply chain challenges faced by countries



## EVM Improvement

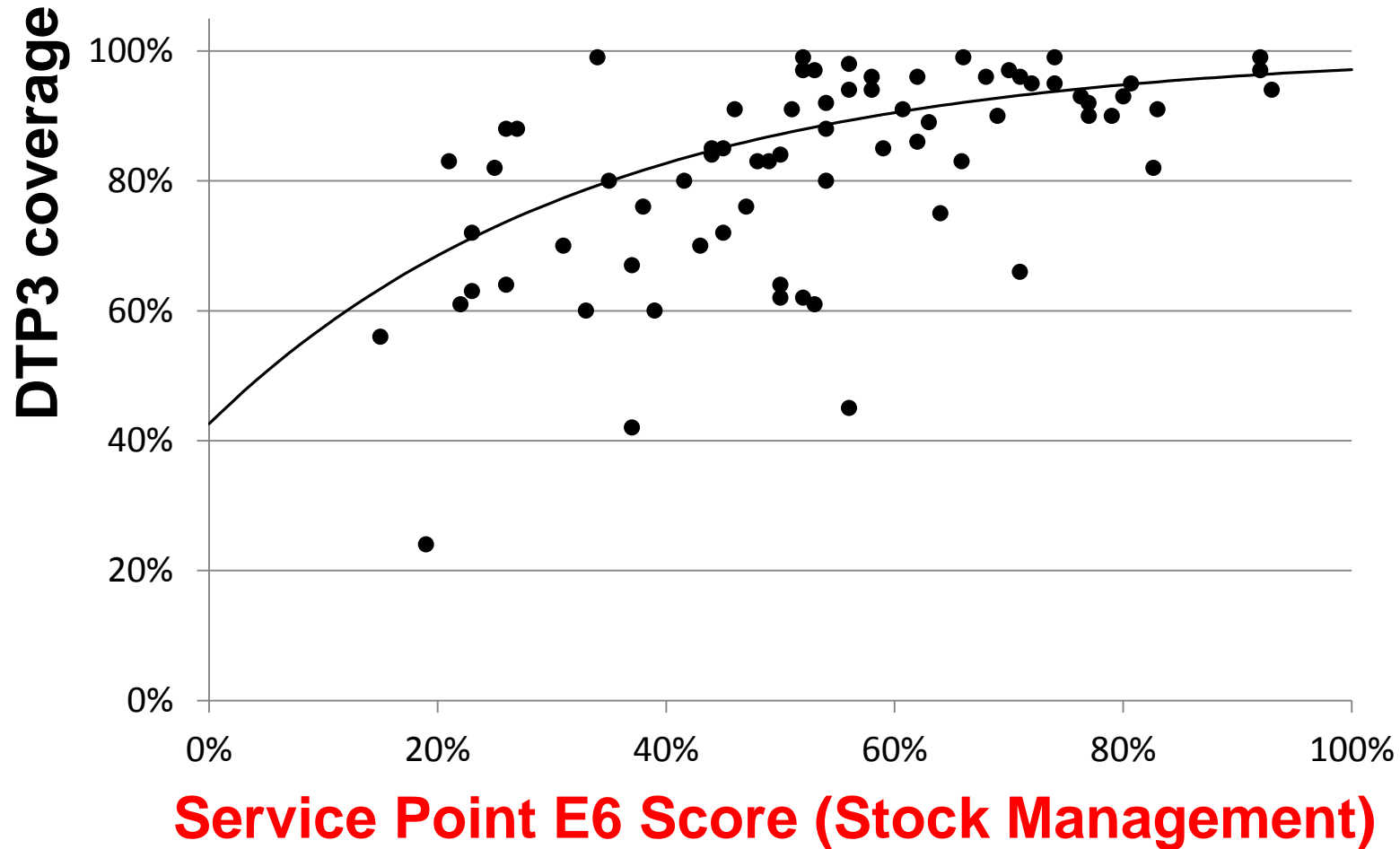
- Challenges can be met with:
  - strong country ownership of improvement process
  - coordinated partner support

# EVM Criterion Scores versus DTP3 coverage



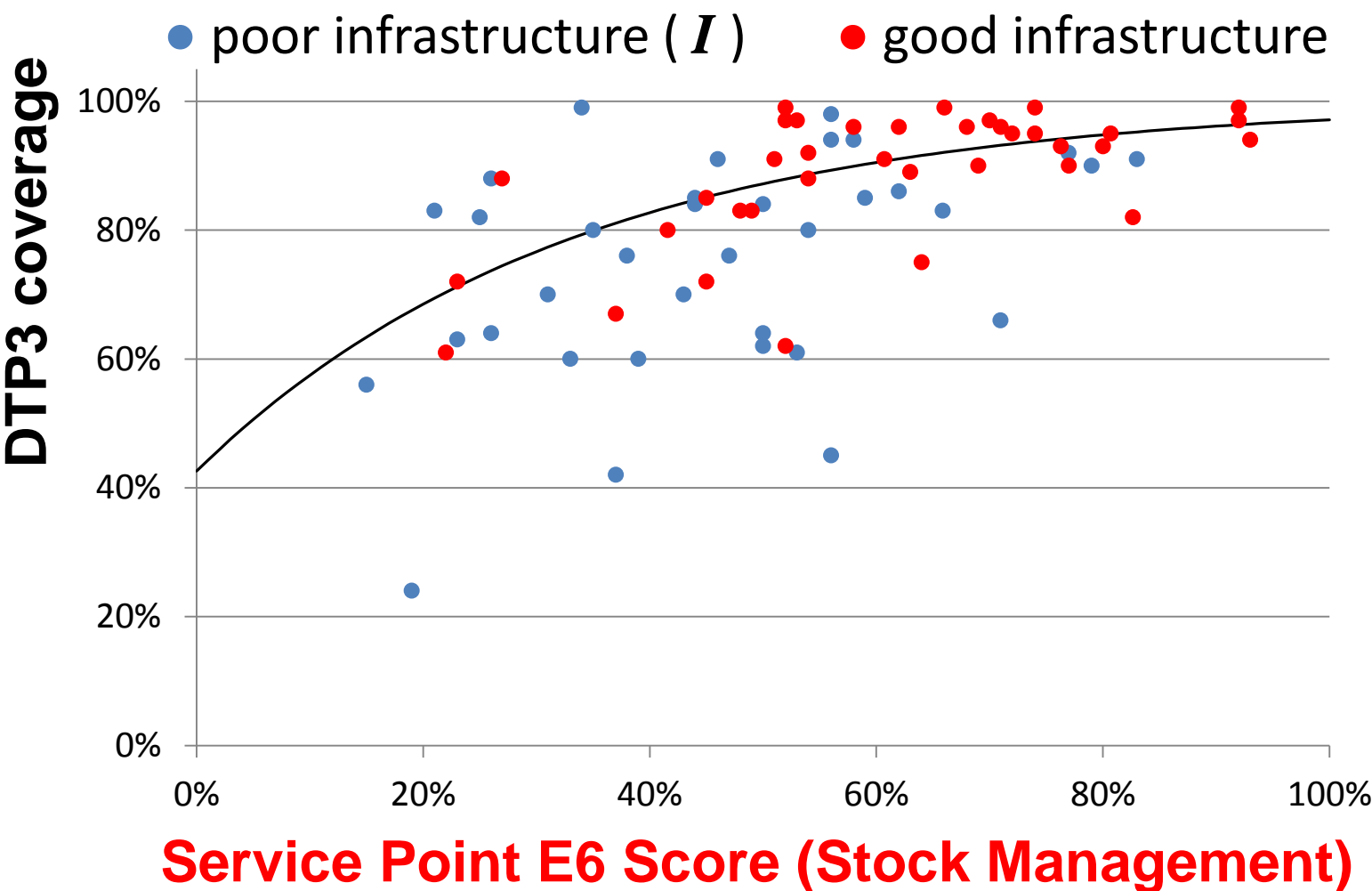


# EVM Criterion Scores versus DTP3 coverage



$$DTP3 = 1 - A_1 \cdot e^{\beta_1 \cdot E6_{SP}}; \quad \beta_1 = -3.0 \pm 0.6; \quad R^2 = 0.29$$

# EVM Criterion Scores versus DTP3 coverage



$$DTP3 = 1 - A_1 \cdot A_2^I \cdot e^{(\beta_1 + \beta_2 \cdot I) \cdot E6_{SP}}; \quad \beta_1 = -2.0 \pm 1.1; \quad R^2 = 0.38$$

**Thank you**