Building Government-Owned, Resilient Data Systems to Propel Kenya's Integration Journey

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21 March 2026

Outline

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Why M&E Systems are Failing Us

Public Health Programs, Driven by Pandemics and Public Health Programs adopted technology FAST. But the Health System DID NOT.

Over the last 30 years, HIV, TB, and malaria programs **had to move fast** to save lives

Parallel systems were **a deliberate and rational choice** in emergency and scale-up contexts

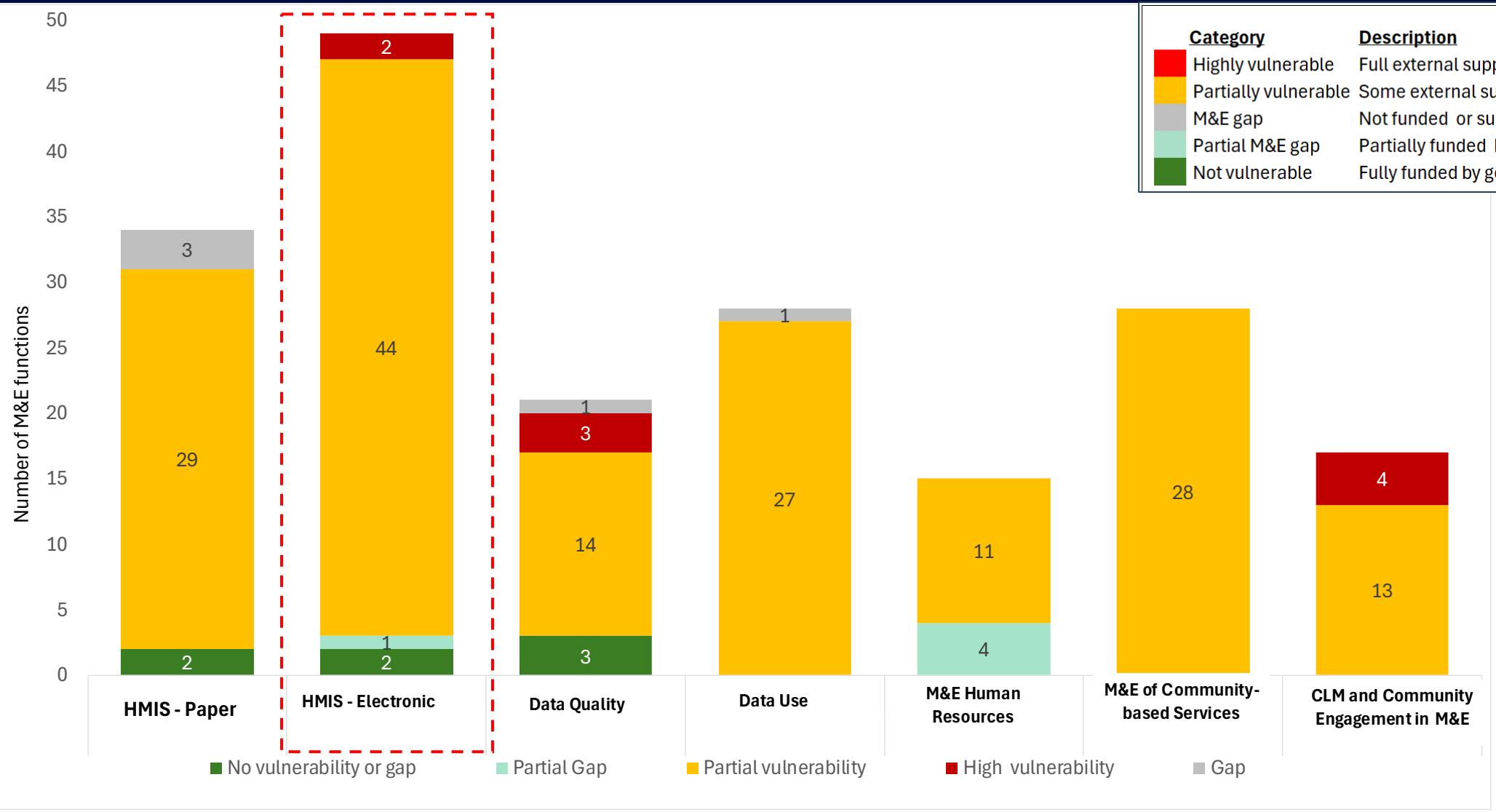
Fragmented, donor-driven system resulted in delayed data

Weak government ownership meant low sustainability

Parallel reporting created heavy HCW burden

"We are measuring the epidemic with systems not designed to end it"

Distribution of M&E Functions by Vulnerability



Category	Description
Highly vulnerable	Full external support
Partially vulnerable	Some external support, some government support
M&E gap	Not funded or supported by government or external partner
Partial M&E gap	Partially funded by government, no external support
Not vulnerable	Fully funded by government, no external support

M&E Vulnerability Assessment Summary

CQUIN M&E assessment | High-vulnerability areas identified in Kenya's 4-P review

Core issue: governance and financing gaps

Policies	Platforms	Processes	People
vulnerability	vulnerability	vulnerability	vulnerability
Key gaps identified	**Key gaps identified**	**Key gaps identified**	**Key gaps identified**
Weak governance frameworks	Fragmented systems 8+ competing EMR systems- no common standards	High reporting burden	High dependence on partners

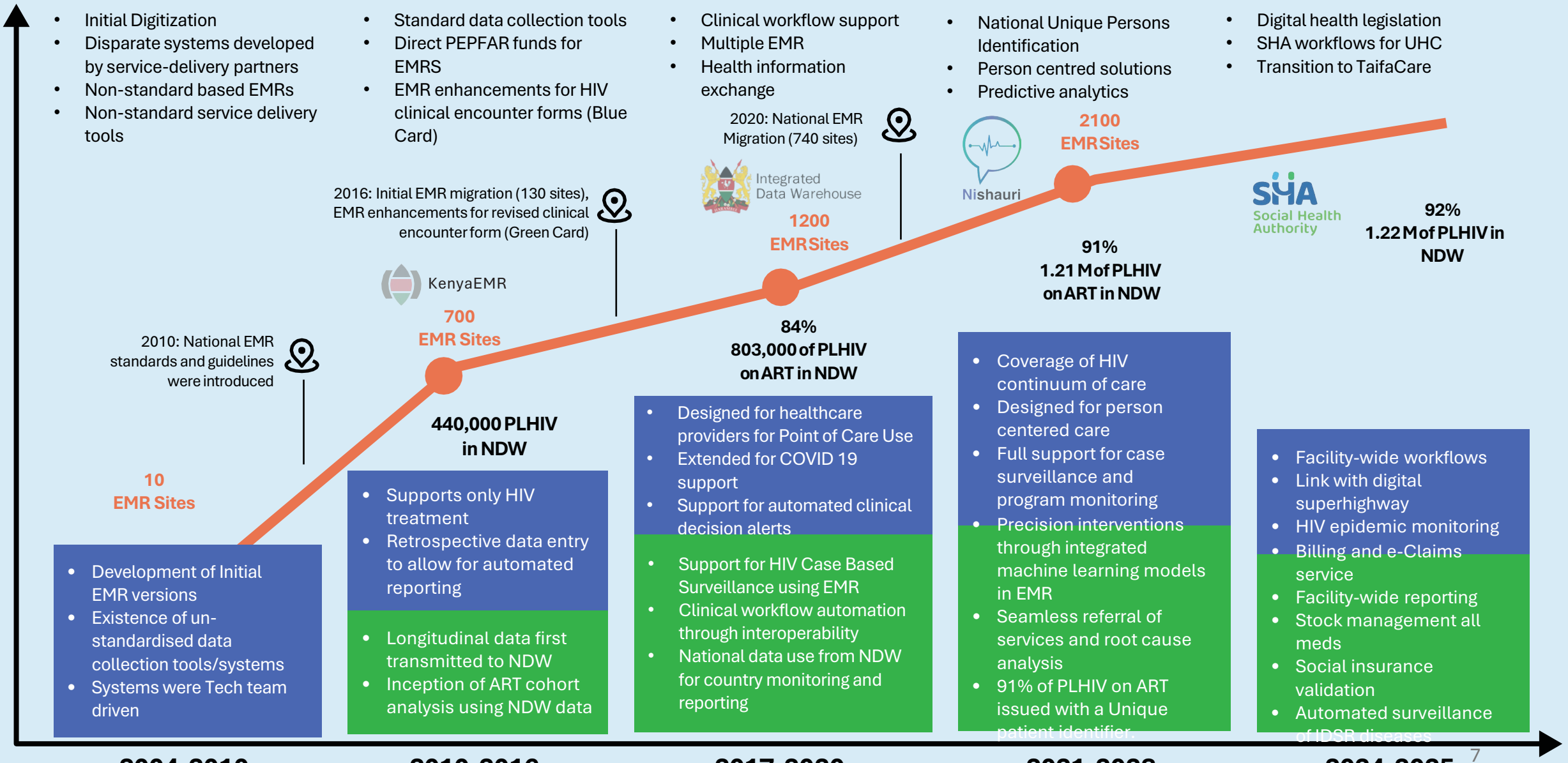
Service Integration through Systems Integration

THIS IS NOT INTEGRATION		THIS IS INTEGRATION
✗ Different disease programmes using the same reporting template		✓ One patient, one record — HIV, MNCH, TB, hepatitis, OPD, claims, pharmacy, lab all linked and shared across facilities for uninterrupted care
✗ HIV data in one system and TB data in another with no linkage		✓ Service delivery and commodity data reviewed together in real time
✗ EMR installed but running parallel to paper registers	**V S**	✓ Facility-level data informing sub-county decisions within the same week
✗ Data shared at national meetings once a quarter		✓ Surveillance signals automatically flagging to programme managers
✗ Interoperability written into a proposal but not implemented		✓ The facility clinician and the national surveillance, M&E and program managers reading the same numbers

Integration is not sharing reports — it is sharing data across systems

Kenya's Digital Health Story

Key: • PLHIV - Persons Living with HIV • EMR - Electronic Medical Record • MOH - Ministry of Health • NDW - National Data Warehouse



Streamlining Data Documentation, Reporting and Quality Assurance — Before vs After

What the HCW experience looked like — and why it changed

Before integration — HCW and data team burden

- 6 separate paper registers per patient (ART, VL, HTS, PMTCT, TB, pharmacy)
- 3–4 data entry steps for a single VL result: paper requisition → LIMS manual entry → paper result → facility register → DHIS2
- End-of-month: manually tally all registers, complete 6+ different partner report templates
- Facility data quality team spent 2–3 days/month cross-checking registers before upload
- Errors common: wrong register, illegible handwriting, missing patient ID, transposed VL values
- HCWs reported that documentation took longer than the clinical consultation itself
- High staff burnout from administrative burden — contributed to high turnover

After integration — streamlined workflow

- Single KenyaEMR screen per clinical encounter: ~4 minutes data entry
- VL result auto-populates from NASCOP LIMS — zero manual transcription
- DHIS2 aggregated automatically overnight — no end-of-month manual upload
- Monthly reporting reduced from 6+ forms to 2 standardised dashboards
- Data quality flags built into EMR — errors caught at point of entry, not a month later
- Facility M&E officer role shifted from data transcription to data use and quality review
- HCW time saved: estimated 8–12 hours/month per facility redirected to patient care

Key lesson: Reducing documentation burden required rationalising what data is collected before optimising how it is collected. Tool redesign before system redesign.

Streamlining Data Collection in the EMR

Removed from HCW Workflow

- VL register → auto-populated from NASCOP LIMS
- Manual DHIS2 uploads → real-time EMR aggregation
- Parallel HTS & ANC paper registers → merged into EMR modules
- Paper CD4 records → EMR baseline element (auto-filled)
- 6 partner reports/month → 2 standardised reports
- reduced need for data quality assessments

Preserved (critical data)

- Clinical encounter: diagnosis, regimen, adherence
- Viral load date & value (core cascade element)
- PMTCT: maternal ART status + infant EID outcome (via NUPI) with increased focus on HIV-negative women
- WHO staging at ART initiation
- LTFU flag: last appointment & follow-up outcome
- TB/HIV co-treatment start & outcome dates

How it was done

- One standardised screen per visit (~4 mins/patient)
- Auto-fill: medication, regimen & next appointment pre-populated
- LIMS integration: VL, CD4, EID results auto-populated
- Offline mode with overnight sync
- Built-in data quality flags at entry point
  Paper fallback card for low-connectivity facilities

Let clinicians take care of patients. Let systems handle reporting, program monitoring and surveillance

Challenges & Constraints

Honest account — for countries exploring this path

Staffing and skills at national and county-level to handle digital systems and technology

Infrastructure, connectivity & power at facility level

HCW training, training cost and staff turnaround

Sharing of health records across data systems and facilities for efficient patient management and unique count of clients for surveillance and program management.

EMRs to serve as comprehensive clinical management tools and not vertical

Data quality assurance

Lessons Learned

Start with governance, not technology

Legal and policy framework first-system build second. Technology without governance reverts to partner control.

Rationalize before you integrate

EMRs to have essentials standards for facility-wide functionality, not vertical diseases. Fewer, better-maintained systems are cheaper and easier to connect than many fragmented ones.

The UPI is the foundation

Without a persistent patient identifier, all 'integration' is superficial. Invest in NUPI-equivalent early — every subsequent system connection depends on it.

Government must own the infrastructure

Servers, domain, and access controls must sit with MOH — even if partners pay for the hardware.

Integration is a programme issue, not IT

The barriers are HCW training, facility leadership, political-data sharing agreements, partner reluctance etc. Programme leadership must drive this, not the IT department

Invest in people, not just platforms

Trained workforce is essential for maintenance of technology.