

# An Integrated Evaluation Design: **Capturing Contextual Dynamics** of Implementing a Health Information System for Reporting Routine Immunization (RI) Data in Nigeria

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# Presentation Outline

- Nigeria project and evaluation background
- Evaluation: process, purpose, questions, & Design
- Methods
- Dissemination efforts
- Pros and cons of design
- Conclusions
- Next steps



Photo: Focus Group Discussion

# Nigeria Background

- Population: 190,632,261
  - 7th most populated country in the world
- Administrative Structures
  - 6 Zones, 37 States, 774 Local Government Areas (LGAs), 37,000 Health Facilities
- ~250 ethnic groups, a history of political instability, infrastructure challenges, poverty, and safety and security issues.





# What is DHIS2 and How and Why Did this Project Evolve?

## What is DHIS2?

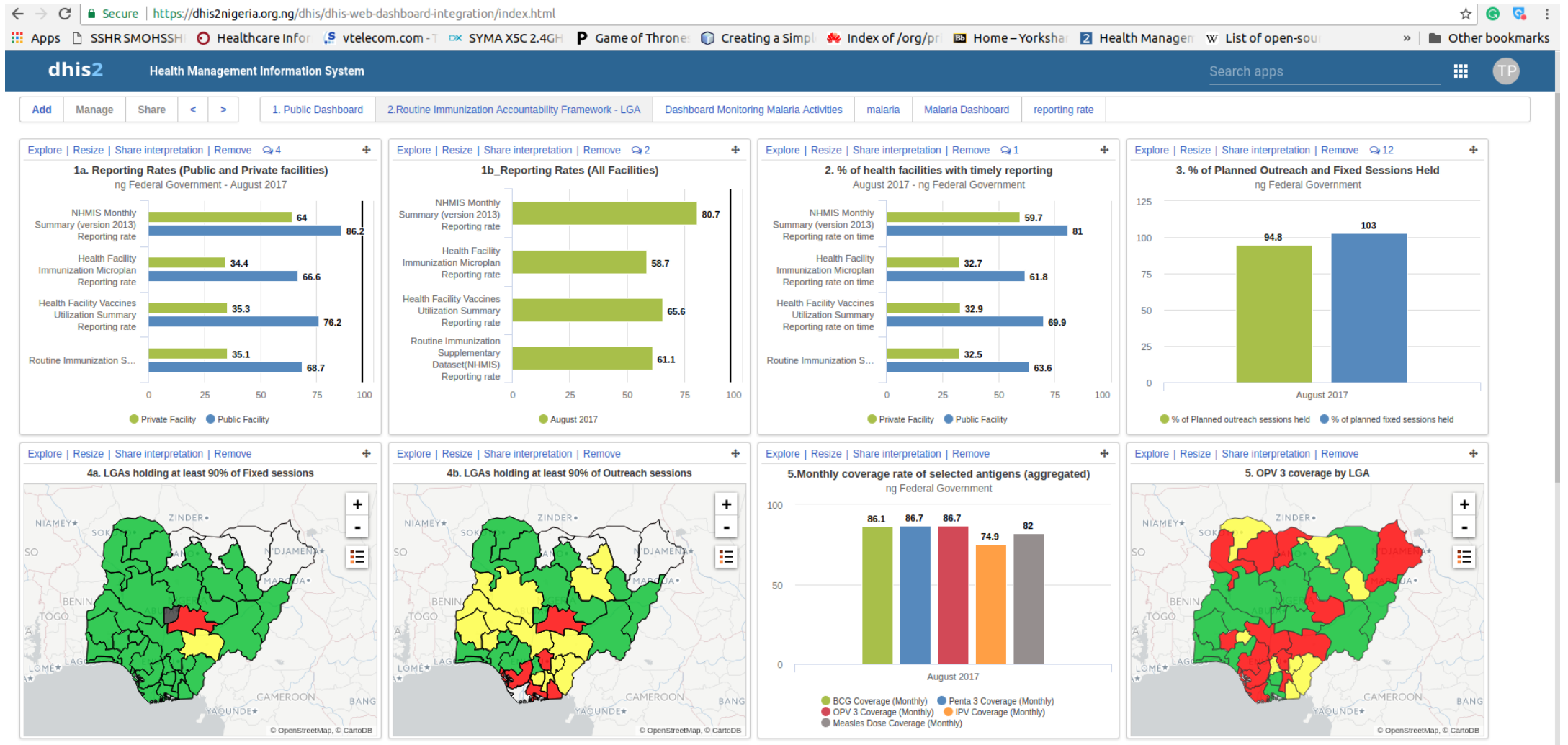
*"an open source, web-based Health Management Information System (HMIS) platform. Today, DHIS2 is the world's largest HMIS platform, in use by 67 low and middle-income countries."*

### Problems

- Existing HMIS = partner-owned excel based system with minimal Routine Immunization (RI) data
- No real time access to key RI performance indicators or visualization
- Limited data management capacity

### Solutions

- Project included a comprehensive multi-year implementation package that included:
  - A customized DHIS2 (HMIS add-on) component to include RI
  - Capacity building
  - Provision of laptops & stock of paper data collection tools
  - Technical support



# Evaluation Background

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Photo: Field team & partners during pilot,  
March 2018

# Evaluation Purposes

- Respond to interests of government & partners to document progress, lessons learned & recommendations & **inform decision-making** for program improvement
- Comply with the requirement of the funder to evaluate the project
- Contribute to evidence base
- Evaluator purpose



*Example of routine  
immunization data collection  
tool storage at LGA level*



## Context

### Individual

- Retention of information
- Prior experience with computer
- Perception of level of burden on existing workload

### Interpersonal

- Early stakeholder engagement
- Stakeholder interest & participation
- Buy-in, influenced by:
  - Skepticism vs. Acceptance
  - Technical subject matter experts' explanation of value

### Institutional

- Competing priorities & activities
- Clear terms, goals, objectives, defined roles & responsibilities
- Historical norms of DHIS2 Quality & Use in Nigeria

### Infrastructure

- Competing data systems
- Existing infrastructure: technical, HR, TWGs
- Internet/Network connectivity
- Server functionality
- Staff availability
- Availability of data to end users
- Human resource allocation

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## Context

## Outcomes

Knowledge & use of DHIS2 RI Module for data & RI forms

Increase quality of data across PH levels

Knowledge & use of DHIS2 RI Module

Use of RI data from DHIS2 for planning & program implementation

Business & technicality of LGA reporting

Integrated, easy to use data system incorporating comprehensive RI indicators

Participation & DHIS2 RI use

Accountability of RI staff for RI program

Meetings, reports & routine

National ownership/maintenance of DHIS2 RI data & system: DHIS2 system/technology, capacity building support (SS and TWGs)

Implementation to DHIS2 RI system & structure

**Enabling environment** for data collection & a culture of data use - To strengthen the Nigeria RI information system

Back on & for RI data for levels of system



# Conceptual Framework: A Working Example

## C

### ontext



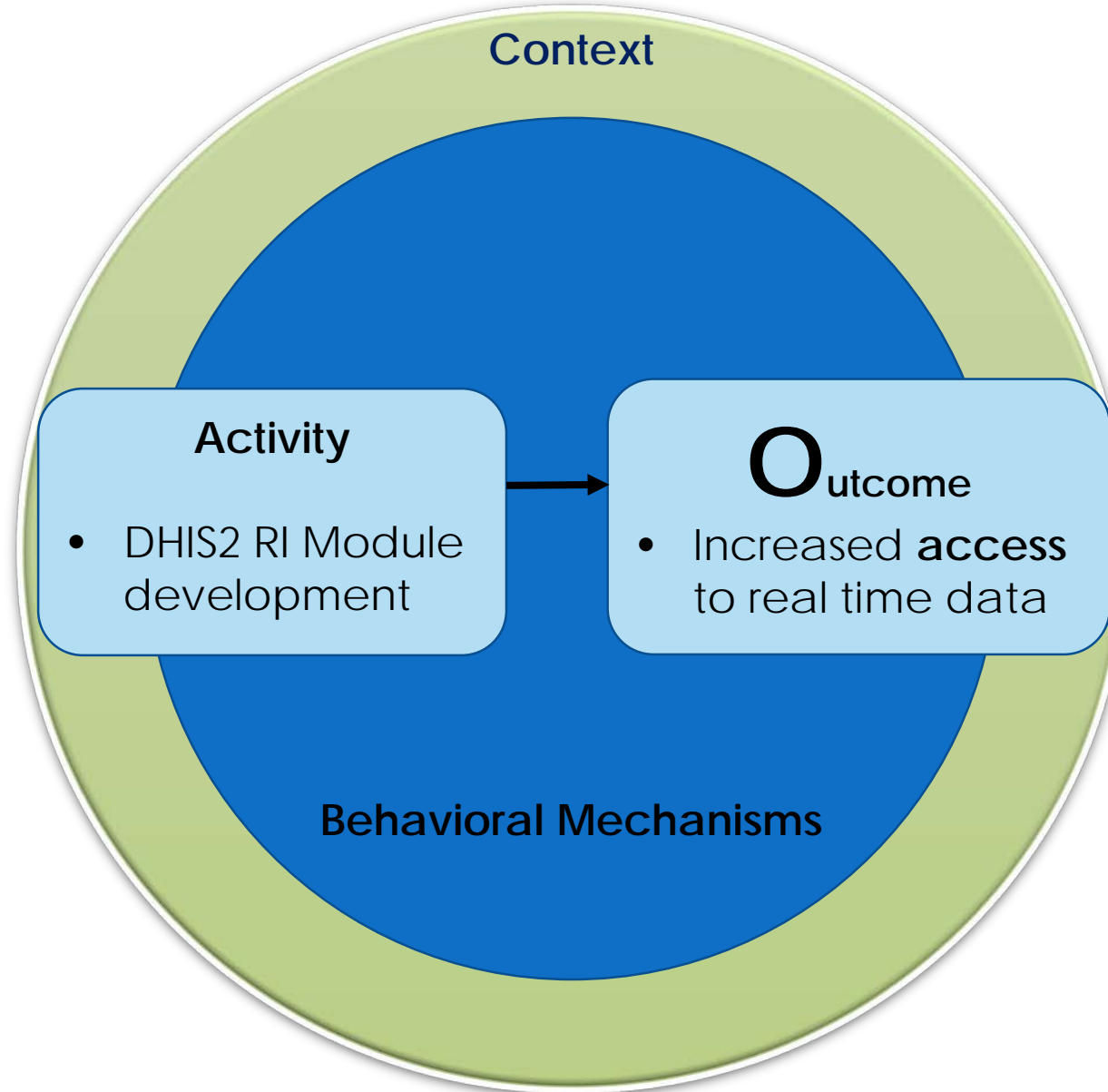
Computer Literacy



Equipment availability  
& Maintenance



Leadership and  
Stakeholder Support



## M

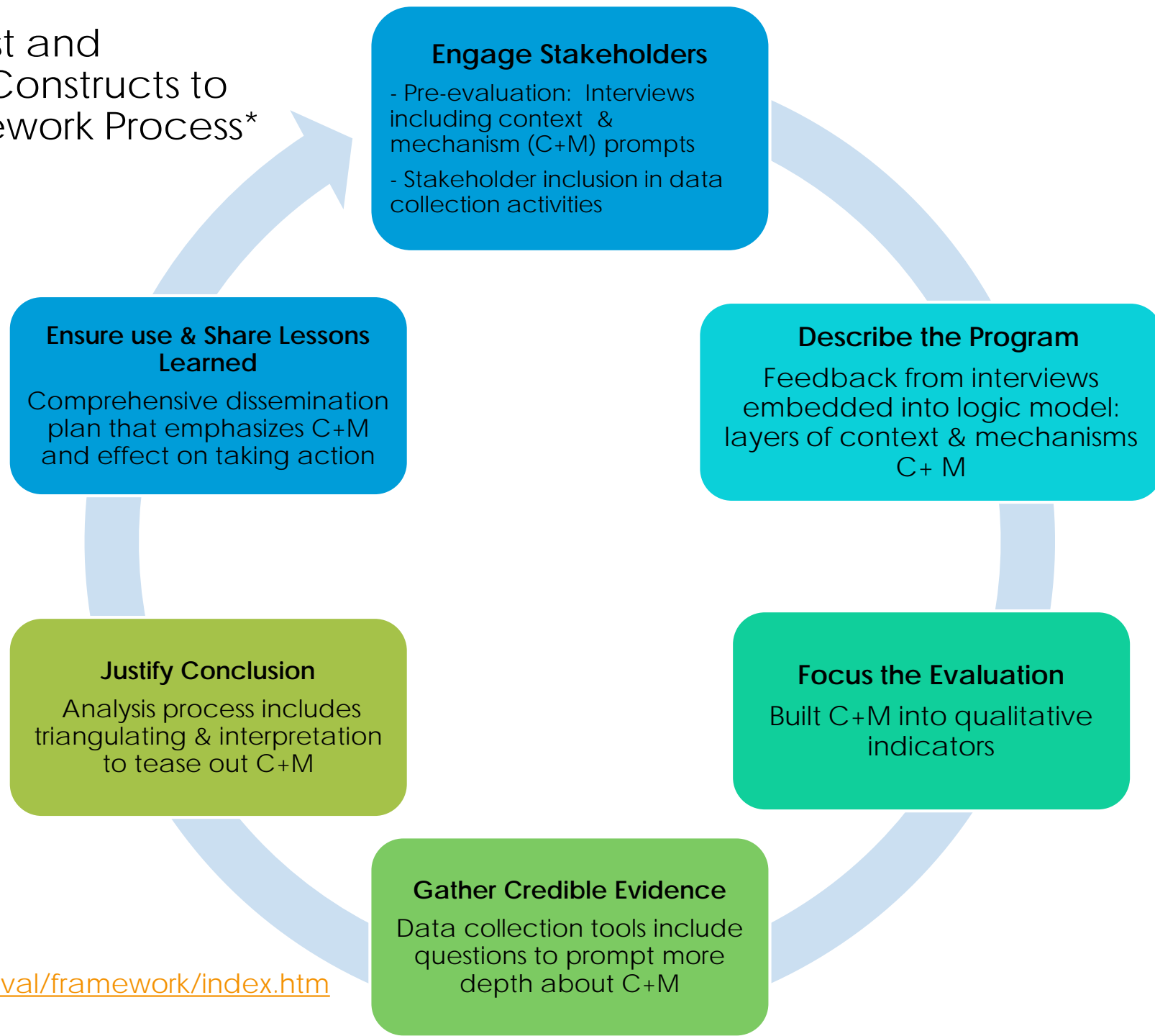
### echanisms



Staff Motivation

Acceptance of  
use of system,  
tools, processes

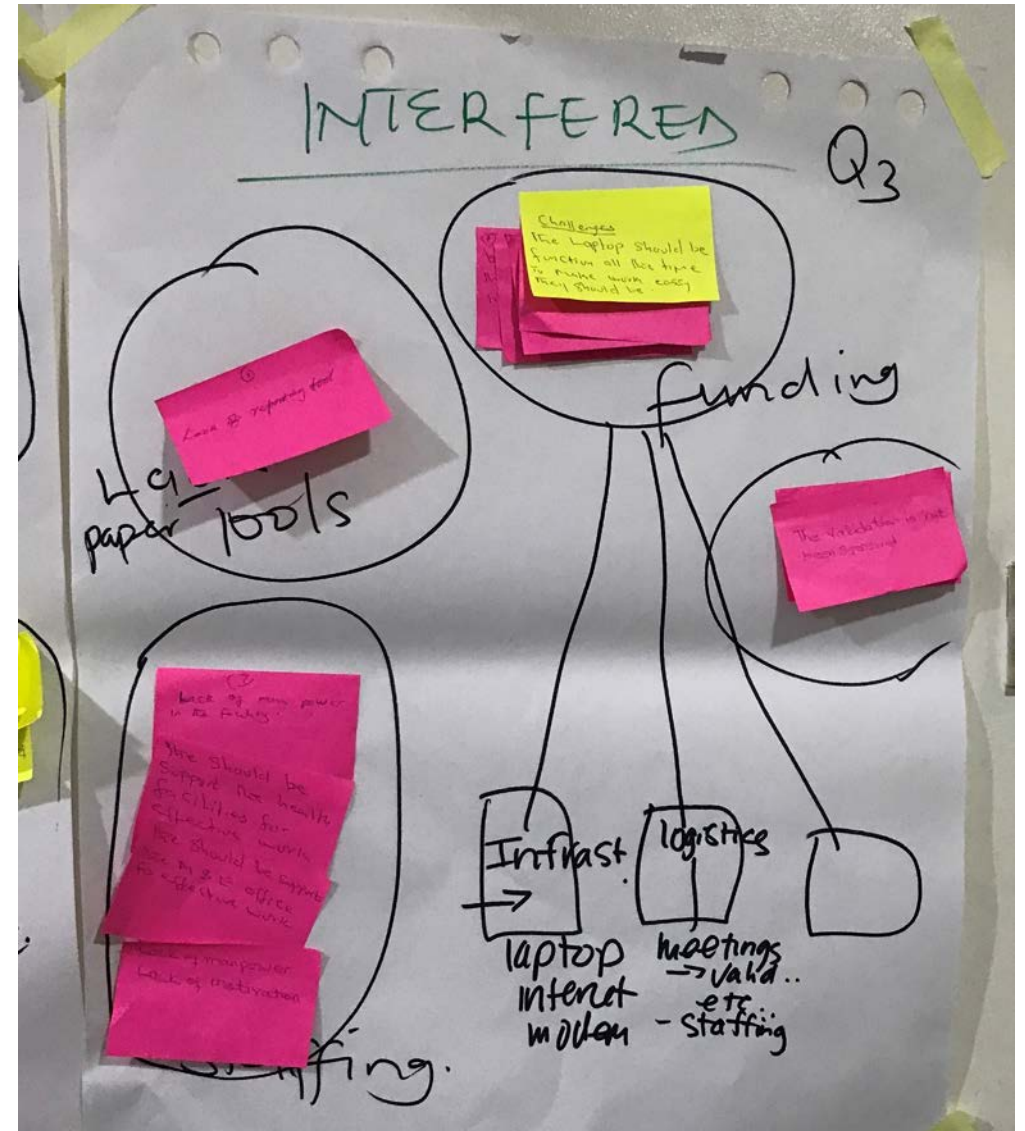
# Integrating Realist and Developmental Constructs to Evaluation Framework Process\*



\*<https://www.cdc.gov/eval/framework/index.htm>

# Evaluation Questions

1. What is the **progress of states** in implementing the project activities?
2. How, and to what extent, has **RI data quality and use** been impacted by implementation of the system?
3. What level and type of **ownership & sustainability** have been demonstrated by state and national-level government?



Sample FGD Exercise





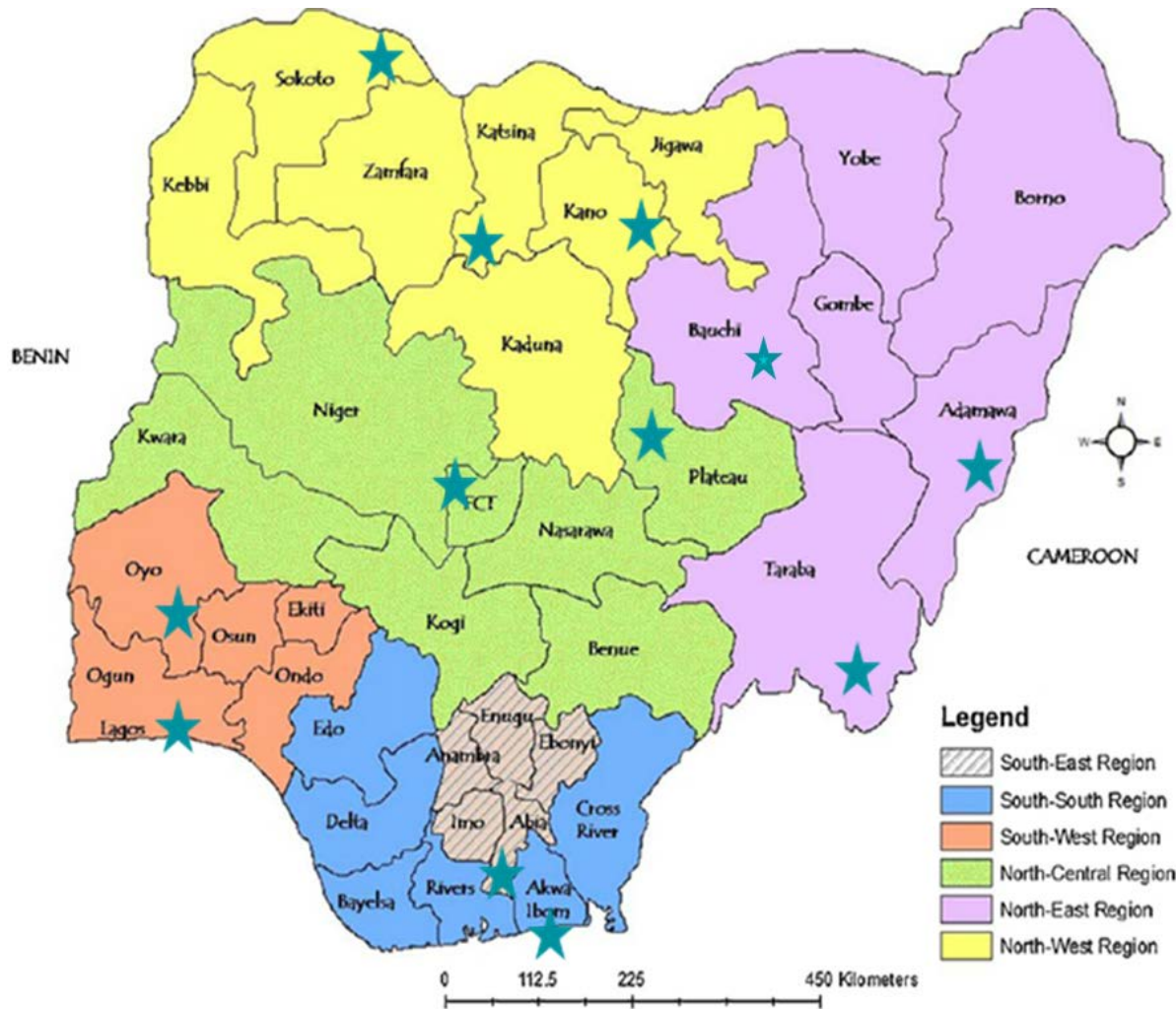
National IDI with Senior Ministry of Health Officer

# Methods



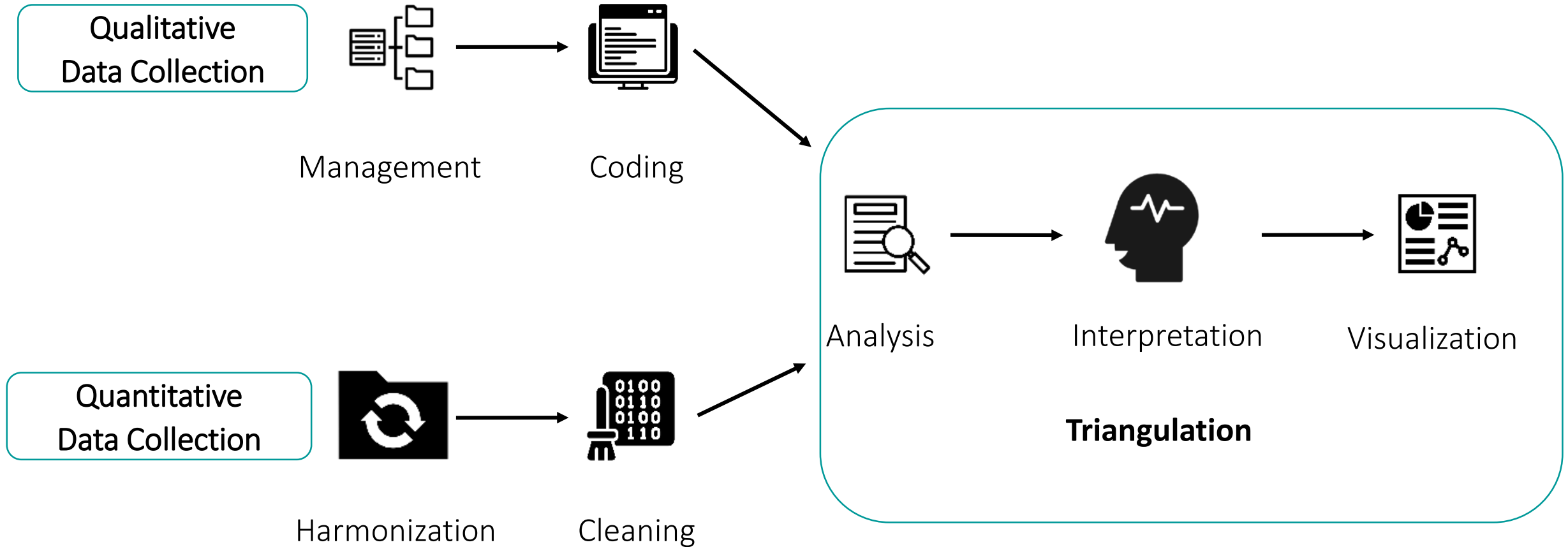
Focus Group Discussion 12

# Selection Criteria and Data Collection Activities



- Reach
  - 12 States: 2 in each of the 6 zones
  - 120 Local Government Areas
  - 96 Health Facilities
- Selection criteria included: reporting rate performance, logistical feasibility, and contextual diversity.
- Activities conducted:
  - IDIs, FGDs, Data Quality Assessments, & Quantitative desk review

# Data Synthesis and Analysis Process





# Triangulation Example

## Infrastructure: Equipment (Laptops)

### Qualitative

**The positive:** Equipment is crucial at the LGA and State levels of the health system. Respondents cited laptops as easing their work.

- Provision of laptops by the project was crucial to use of the system
- When laptop maintenance was provided, it was appreciated

**The negative:** LGA staff faced barriers maintaining and using those laptops.

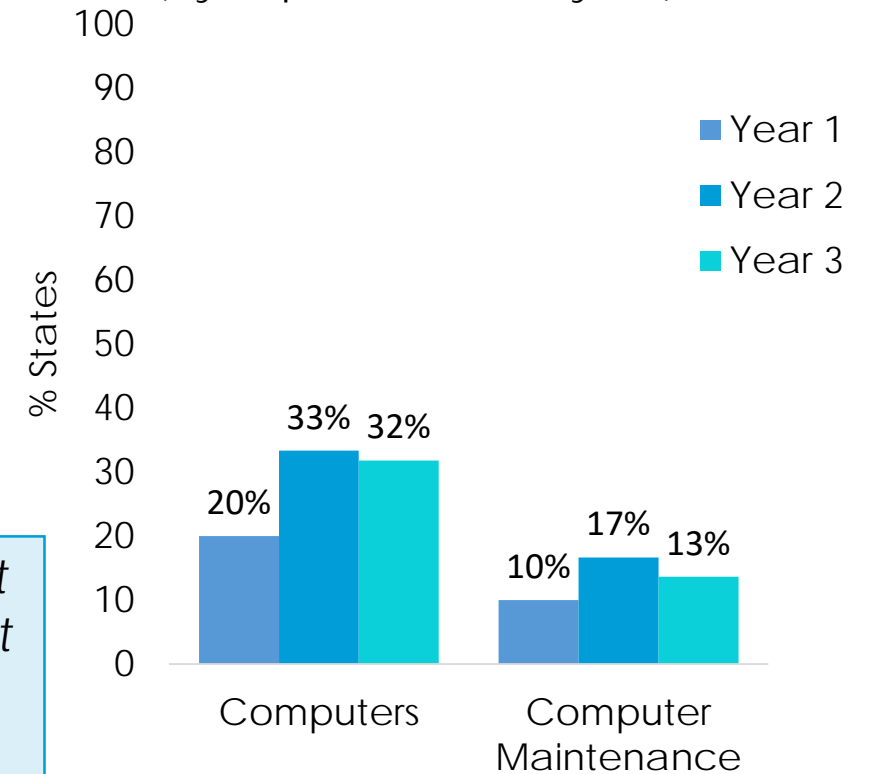
- Laptops “spoil”
- **No funds for laptop maintenance**
- **Unreliable power**

*“...because we are using laptop, here we don’t have permanent light as you see. Sometimes, you stay two, three months, we don’t have light. So when the battery goes off, I cannot work except [when] I go home, that’s when I [turn] on my gen and work at night. So not all the time I work in that office.”*

-LGA Respondent discussing personal responsibility for solutions

### Quantitative









Low % states incorporating computers into their annual budget (by implementation year)



Triangulation process:

- First looking at outcomes (columns)
- How context and mechanisms can explain differences

Red boxed area demonstrates contextual factors having a predominant negative impact.

Contextual Factor	Implementation	Data Use	Data Quality	Sustainability
Ownership / Buy-in 		✓	✓	✓
Leadership 		✓		✓ ✓
Coordination 		✓	✓ ✓	
Staff Capacity / Sufficiency 	✓	✓	✓ ✓	✓
Network Availability 	✓	✓	✓	
Funding 	✓ ✓	✓		✓
Competing Platforms 		✓		
Partner Support 	✓			✓



positive effect on outcome



negative effect on outcome



## Stakeholder Engagement & Dissemination are a Priority

### Why is this important?

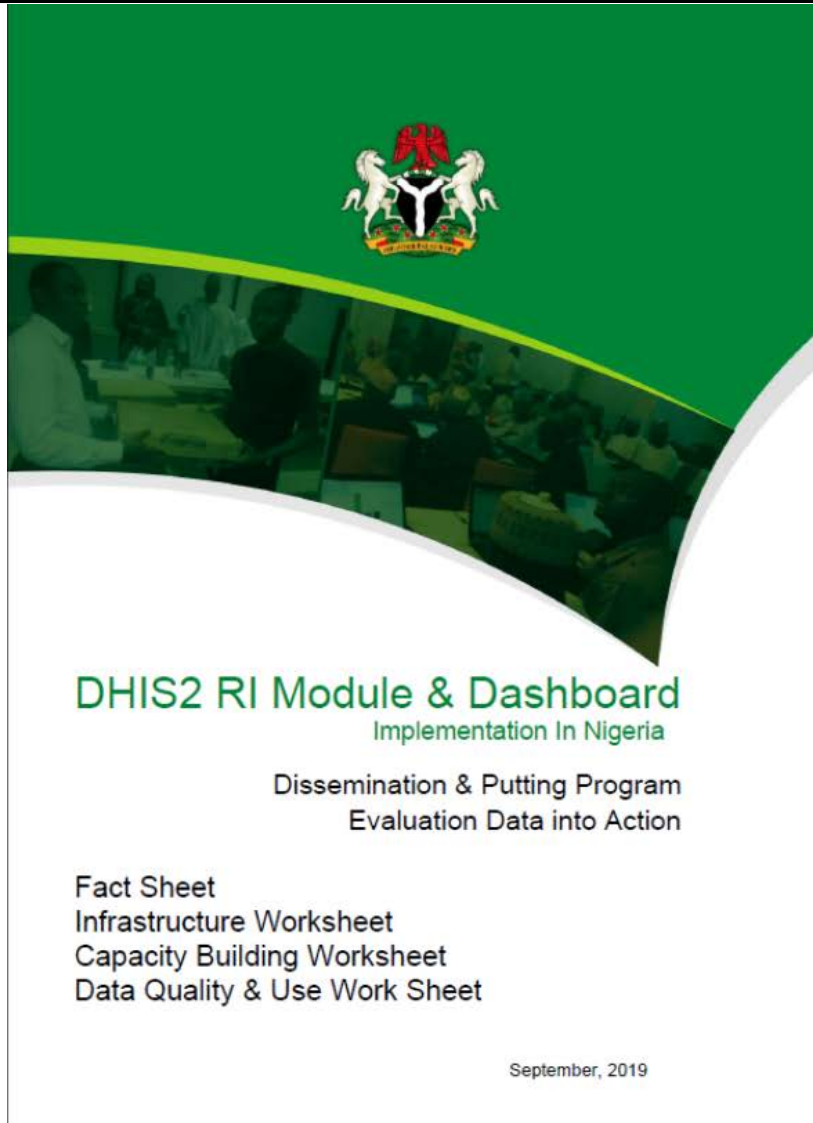
- Raise awareness
- Build capacity, and
- Promote use of findings

### Key Dissemination Activities

- Involvement in evaluation process
- Results dissemination
- Promote use of findings and recommendations



# Sample Output: Results Summary

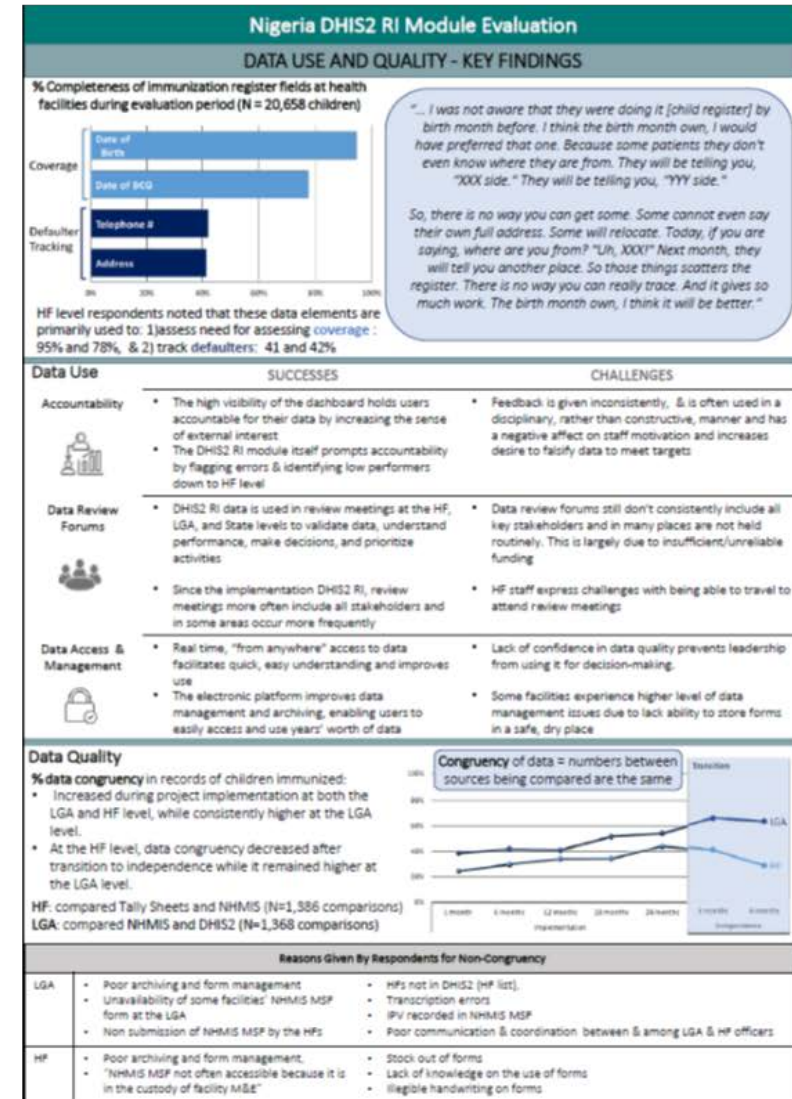


**DHIS2 RI Module & Dashboard**  
Implementation In Nigeria

Dissemination & Putting Program  
Evaluation Data into Action

Fact Sheet  
Infrastructure Worksheet  
Capacity Building Worksheet  
Data Quality & Use Work Sheet

September, 2019





*"A key expectation was the ownership of the project by the States and this has been achieved in all states and at the federal government level. Efforts must be in place to continue to build capacity on use of the platform at all levels."*




**- Bill and Melinda Gates Foundation**



## **Dissemination Workshop** **September 2019**



# Sample Output: Stakeholder Engagement

No.	Recommendation*	Action Items**	# of Participant Votes	Thematic Area		
				Infrastructure 	Capacity Building 	Data Quality & Use 
1	Develop and implement long-term strategy for training inclusive of DHIS2 RI data & supporting tools	<p><b>**Note:</b> action items came from participant discussion.</p> <ul style="list-style-type: none"> <li>• Leverage on LGA monthly validation and review meetings to identify gaps and build capacity</li> <li>• Based on gaps identified, conduct targeted supportive supervision</li> <li>• Inclusion and budgeting for trainings in annual operational plans (TOT, cascade and SOPs)</li> <li>• Implementation and regular review of developed work-plan</li> <li>• Conduct of quarterly on-the-job trainings targeting healthcare workers</li> <li>• Clustering of trainings based on domains</li> <li>• Conduct directly observed data entry (DODE)</li> </ul>	30		X	



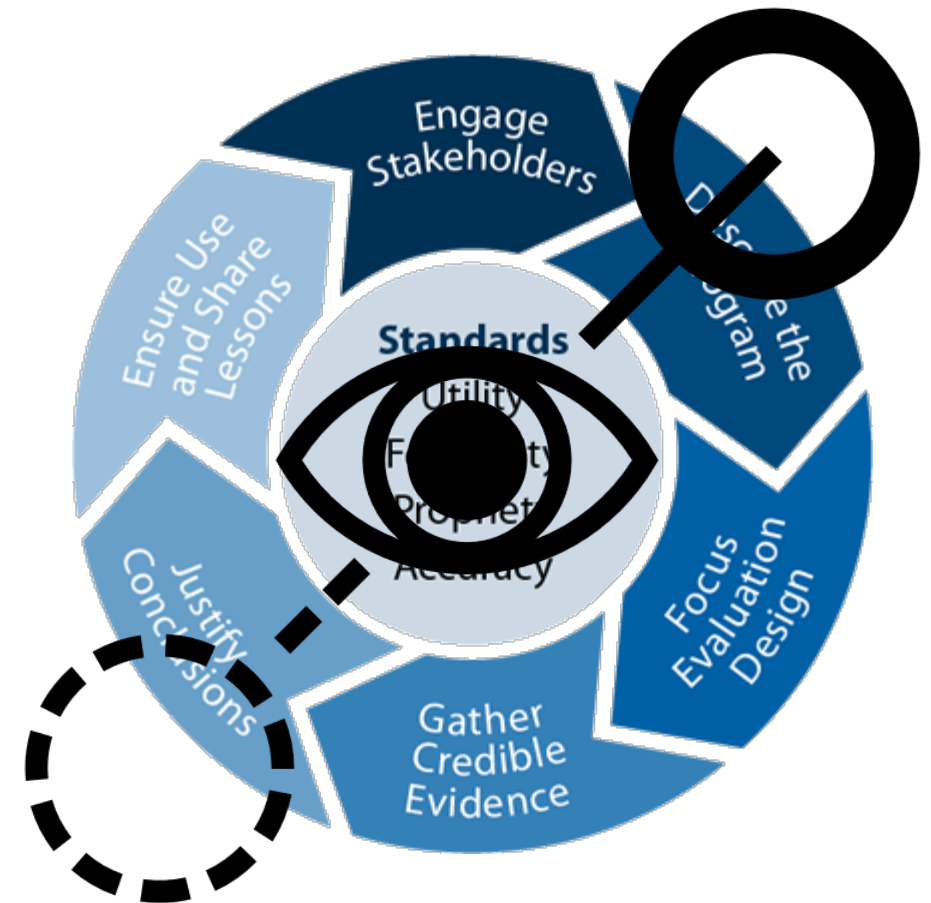
# What was useful (or not) about this approach?

## Pros

- Resulting rich data that gives in depth understanding of contexts and the **insight to inform practice directly**
- Doesn't change your evaluation process
  - Re-centers your focus in each phase on different kinds of questions and exploration.

## Cons

- Resource and labor intensive
- Use of mixed methods a must
  - only a con to those preferring only qualitative or quantitative.
- Solutions aren't easy
  - the issues related to context are big system level issues and behavioral mechanisms may involve changing of norms.



# Conclusions



- Integrated design (traditional, realist, and developmental constructs)
  - Useful for evaluating in complex settings
  - Practice oriented for moving forward with project and/or inform others
- Mixed methods approach
  - Data triangulation: Provides more in depth information and knowledge of the research question
- Comprehensive engagement and associated dissemination plan
  - Joint sense making ensured stakeholder engagement throughout the analysis and dissemination process
  - Maximized influence for buy-in to the results and ownership of activities moving forward.
- Emphasis on context facilitated holistic solutions
  - E.g. Approaches to getting better internet rather than just ignoring factors outside of the system itself

# Next Steps

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- Reinforce taking action on recommendations through embedding them into existing activities/efforts in Nigeria.
- Continue dissemination efforts through conferences and publications development
- Development and dissemination of final report



## Acknowledgements:

- Nigerian Government: national and state
- CDC Atlanta: expanded team
- CDC Nigeria
- African Field Epidemiology Network
- Bill and Melinda Gates Foundation



## Questions?

- Contact Sara Jacenko: [soj0@cdc.gov](mailto:soj0@cdc.gov)

*"The DHIS2 platform must be optimized as it is the only platform for reporting across the country. All technical leads at all levels must therefore ensure the data reported is of good quality and can be used for decision making."*

- Director PRS, NPHCDA (Ministry of Health)