Document 3. Integrated campaign digitization monitoring, learning and evaluation framework approach

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1. Overview

1.1. Objectives and target audience

The Integrated campaign digitization (ICD) monitoring, learning and evaluation (MLE) framework was developed as an adaptable approach to MLE plan development for campaign digitization efforts. This document provides a starting point for implementers to develop a customized MLE framework for their ICD activities that includes a focus on digitization outcomes and impact, government ownership, cost-effectiveness, integration with routine systems and sustainability. Outputs from MLE efforts can also contribute to the global evidence base for integrated campaign digitization to support high-impact, cost-effective public health campaign approaches.

This document's target audience includes governments, other campaign implementers and donors that seek to monitor, evaluate and learn from the outcomes and impact of campaign digitization and integration of digitization efforts.

This document comprises 3 main sections and is accompanied by the *Integrated campaign digitization monitoring, learning and evaluation framework supplement,* a spreadsheet which contains the ICD MLE indicators:

- **Logic model:** Section 2 of this document provides an overview of the MLE framework logic model.
- **Indicator bank:** Section 3 explains the overarching indicator bank that serves as the foundation for the MLE framework and approach.
- **Operationalization:** Section 4 provides recommended next steps for operationalizing this MLE approach.

1.2. How to use this document

This document and the *Integrated campaign digitization monitoring, learning and evaluation framework supplement* should be used together as references throughout integrated digitized campaign interventions. Users should refer to these documents during the planning stage of campaign digitization to develop an MLE plan for the intervention context. Once developed, the implementation-specific MLE plan should be used throughout and after the implementation.

2. MLE framework logic model

The ICD MLE approach is grounded in the theory that sustainable, integrated digitization of health campaigns enhances planning and delivery, ultimately reducing morbidity and mortality. The logic model (Figure 1) illustrates this theory, highlighting intermediate outcomes around governance, ownership and capacity, data integration and sharing, data quality and data use, which drive these improvements. This logic model forms the foundation of the ICD MLE framework, detailed in the ICD MLE framework supplement.

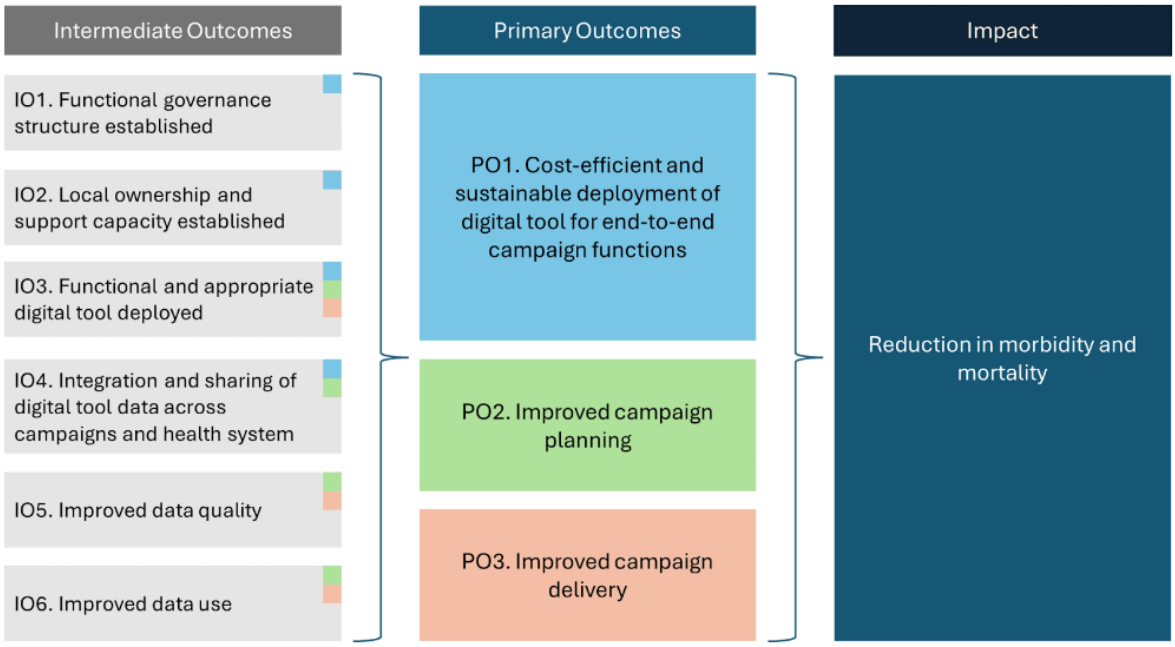

FIG. 1. GENERALIZED ICD MLE LOGIC MODEL

3. MLE framework indicator bank

The ICD MLE framework includes an indicator bank that should be adapted to the goals of specific campaign digitization initiatives and for a country's level of digital maturity given historic and ongoing efforts to transition to digital solutions. Some campaign implementers may choose to incorporate existing MLE indicators (e.g., immunization campaign indicators in DHIS2) into this framework.

Each framework indicator is accompanied by its link to the logic model as well as guidance on data source(s) and collection approaches; disaggregation; adaptation notes; importance of a counterfactual/comparison; the estimated level of effort (LoE) of data collection; and analysis. Additional detailed guidance for indicator data collection methodology, timing and analysis recommendations is included in Appendix A.

The indicator bank categories are outlined below and each indicator is further defined in the *Integrated campaign digitization monitoring, learning and evaluation framework supplement.*

Indicator category	Example indicators
Strength of digitization	Digital solution developed; hardware and system performance
Strength of data sharing and integration	Data sharing achieved; digital solution integrated with routine health system
Strength of implementation	Users trained; geographies where rolled out; user feedback
Operational impacts	Proportion of stock outs resolved; training post-test scores; proportion of campaign workers receiving timely payments
Data quality	Data completeness; reporting time; concordance

Use of data	Dashboards established; data used for decision-making
Resource requirements	Support for ongoing costs; sustainable financing
Governance	Digitization prioritized by MoH; coordination mechanisms established
Sustainability	Programme technical capacity; supporting ecosystem
Public health outcomes	Coverage rates; reduction in incidence/prevalence
Cost effectiveness	Cost effectiveness; cost per beneficiary; change in campaign cost

This complete set of indicators aims to be:

- **Based on mixed-methods**
    - A balance of quantitative and qualitative indicators are available in the framework to ensure that quantifiable progress can be tracked and key nuances and lessons learned are captured.
- **Responsive to project priorities**
    - Given the variety of ICD initiatives across contexts, users of the MLE framework should select indicators that are relevant to specific campaign digitization goals. These indicators should also be customized to reflect campaigns of interest as well as the key priorities that digitization hopes to address.
- **Flexible given feasibility considerations**
    - Indicators may be supported by a variety of data, which includes differing levels of data collection and complexity. The indicators that require more intensive data collection are flagged within the framework, and supported by additional information about the advantages and disadvantages of using these indicators. Where relevant, alternative methods and considerations for key indicators are suggested for contexts where particular data collection activities cannot take place.

Operationalizing the ICD MLE framework

Development and implementation of a country-specific ICD MLE framework guidance can be facilitated by following discrete, ordered steps (Figure 2). These steps enable campaign implementers to collaboratively determine the ideal approach for indicator inclusion and definition, stakeholder engagement, timing, and data review necessary for comprehensive monitoring, evaluation and learning.

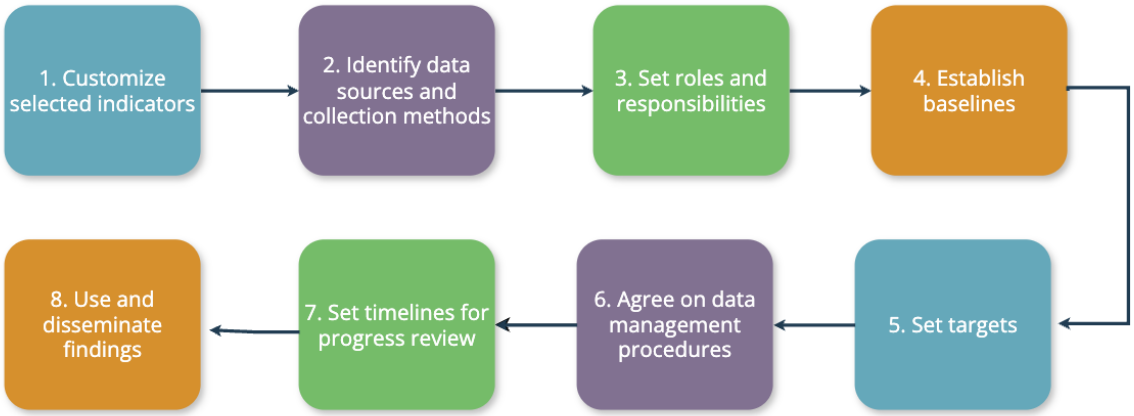

FIG. 2. ICD MLE OPERATIONALIZATION FLOW

The process should be initiated by a designated convener (e.g., individual leader, Technical Working Group) with the appropriate mandate and capacity to guide relevant stakeholders through meaningful and sustainable decision-making. The *ICD MLE framework supplement* and this document's appendices should be utilized to support indicator selection, data collection and analysis throughout the integrated campaign digitization initiative.

Appendix links:

Appendix A. ICD MLE framework: data collection methodology, timing and analysis recommendations

Appendix B. Example of a user questionnaire

Appendix C. Example of key informant interview/focus group discussion guide

Appendix D. Example of a pre-/post-training test

Appendix A. ICD MLE framework: data collection methodology, timing and analysis recommendations

A. Strength of digitization indicators

A1	Requirements to achieve end-to-end digitization of campaigns defined
A2	Functional digital solution developed
A3	Proportion of campaigns where all priority aspects of the campaign have been digitized
A4	Hardware performance
A5	System performance
A6	System Usability Scale (SUS) rating

Purpose: These indicators assess whether the implemented digital solution(s) meet the established requirements for functionality, performance and stability.

Data collection methods:

- **A1, A3:** Collect documentation describing the pre-determined requirements of the digital solution and all priority campaign aspects it should address.
- **A2:** Document pre-testing results of the digital solution to ensure that all requirements relevant to A1 and A3 are included.
- **A4:** Conduct pre-tests on a sample of hardware devices to assess performance aspects such as battery life, charge time and speed of response. Additionally, use user questionnaires targeting campaign workers as a supplemental measure of hardware performance in the field (see Appendix B for an example).
- **A5:** Routinely analyze system logs to determine the frequency of crashes and latency periods. User questionnaires targeting campaign workers can be used as a supplemental measure of system performance during the campaign.
- **A6:** Administer the validated SUS questionnaire to pre-testers and campaign workers via user questionnaires (see Appendix B for an example).

Data collection timing:

- **A1:** Collect documentation once, as soon as the governance body formalizes the requirements for the digital solution.
- **A2, A3:** Assess for each campaign that uses the digital tool until all planned features have been integrated and piloted.
- **A4:** Assess pre-launch of the digital solution and during pilots. If the type of hardware used changes, restart data collection.
- **A5:** Routinely collect and analyze system logs on an ongoing basis. Use questionnaires during pilots of new system features.

- **A6:** Assess for each version of the digital tool. Once significant changes to the digital solution have ceased and the governance body is satisfied with SUS score, cease data collection.

Analysis recommendations: Conduct analysis as soon as data for A4 – A6 is available to promptly detect and address any issues.

B. Strength of data sharing and integration

B1	Requirements to ensure relevant data collected via digital solution is shared across campaigns in the appropriate format and frequency defined
B2	Functional data sharing achieved
B3	Campaign integration (between different campaigns)
B4	Campaign integration (with routine health systems)

Purpose: These indicators assess if the use of a digital solution(s) improves data sharing across campaigns and within the routine health system.

Data collection methods:

- **B1:** Collect documentation describing the pre-determined requirements for sharing and access of data collected via the digital solution.
- **B2:** Review system logs to assess availability, access and use of digital solution data. Supplement with key informant interviews as needed (see Appendix C for an example).
- **B3:** Review macroplans and microplans to assess if data and tools are shared between campaigns. Supplement with key informant interviews as needed.
- **B4:** Review dashboards and system logs in the routine health information system (HMIS) to assess availability, access and use of digital solution data within the HMIS. Supplement with key informant interviews as needed.

Data collection timing:

- **B1:** Collect documentation once, as soon as the governance body formalizes the requirements for data sharing.
- **B2:** Assess at pre-determined time points based on the timeline for data sharing established by the governance body.
- **B3:** Assess during the planning phase for each campaign that plans to use the digital solution after the first pilot is completed.
- **B4:** Assess at pre-determined time points based on the timeline for data integration with the HMIS established by the governance body.

Analysis recommendations: Conduct analysis as soon as data for B3 and B4 is available to promptly detect and address any issues with data sharing and integration.

C. Strength of implementation

C1	Digital solution scaled (use in campaigns)
C2	Digital solution scaled (number of users)
C3	Digital solution scaled (number of administrative areas)
C4	Acceptability to users
C5	Reuse of digital solution

Purpose: These indicators assess if the digital solution has moved beyond sporadic/limited usage to being fully scaled nationwide.

Data collection methods:

- **C1:** Review campaign documentation indicating digital solution use.
- **C2:** Assess login/user data for digital solution and accompanying dashboards.
- **C3:** Review campaign documentation indicating digital solution use. Alternatively, assess with location information collected via digital solution.
- **C4:** Conduct user questionnaires, focus group discussions and/or key informant interviews (see Appendices B and C).
- **C5:** Review campaign documentation (e.g., digital solution forms, training materials, SOPs) to determine what resources have been used in multiple campaigns with minimal changes.

Data collection timing:

- **C1 – C3, C5:** Assess at pre-determined time points based on the timeline for digital solution scale-up.
- **C4:** Assess during each pilot and during scale-ups if significant changes have been made to the digital solution or deployment that may affect user acceptability.

Analysis recommendations: Analyze scale-up information both as an overall total and disaggregated for different types of campaigns. For instance, it is important to know the number of users that have been trained on any version of the digital solution (to assess overall penetration and familiarity) as well as knowing how many users have been trained on specific versions (e.g., the vaccination form, the LLIN form).

D. Operational impacts

D1	Microplans in use (sufficient population denominators)
D2	Microplans in use (variance in population denominators)
D3	Microplans in use (microplans updated during campaign)
D4	Microplans in use (appropriate for campaign needs)
D5	Effective supply chain management (stock outs resolved)
D6	Effective supply chain management (adequate stock)

D7	Training completeness (post-test scores)
D8	Training completeness (appropriate for user needs)
D9	Timely and transparent payments made (audit trail available)
D10	Timely and transparent payments made (payment timeliness)
D11	Proportion of campaign recipients reporting receipt of IEC messaging

Purpose: These indicators assess if the digital solution has contributed to improvements in campaign planning and delivery. These indicators should be analyzed against results from campaigns that used paper-based tools to understand if the use of the digital solution can plausibly be said to have contributed to operational improvements. Users should only opt for indicators where the campaign function is hypothesized to be strengthened via inclusion in the digital solution.

Data collection methods:

- **D1, D2:** Assess campaign microplans, enumeration data collected via the digital tool, and multiple population sources for population sensitivity analyses (e.g., census data and projections, enumeration from recent campaigns or surveys, GRID3 or other geospatial estimates). Collate control data from previous campaigns delivered using paper-based tools or from concurrent campaign delivery still using paper-based tools.
- **D3, D4:** Conduct structured observation and key informant interviews.
- **D5, D6:** Collect logistics management data via the digital solution. Collate control data from previous campaigns delivered using paper-based tools or from concurrent campaign delivery still using paper-based tools.
- **D7:** Review pre- and post-training tests completed by digital solution users prior to the campaign (See Appendix D for an example).
- **D8:** Conduct structured observation and key informant interviews.
- **D9, D10:** Review payment records generated by the digital solution.
- **D11:** Collect IEC messaging data based on participants' recall, either through campaign questionnaires or via a coverage survey conducted post-campaign.

Data collection timing:

- **D1, D4:** Assess for each campaign where the digital solution is being rolled out until the microplanning module changes have been resolved and the governance body is satisfied with the quality of the microplans.
- **D5, D6:** Assess for each campaign where the digital solution is being rolled out until the stock management module changes have been resolved.

- **D7, D8:** Assess for each campaign where the digital solution is being rolled out until all key changes to the digital solution have been implemented and the governance body is satisfied that participants are routinely scoring at an acceptable level on the post-test.
- **D9, D10:** Assess for each campaign where the digital solution is being rolled out until the changes to the payment module have been resolved and the governance body is satisfied that the payment process is meeting pre-determined standards.
- **D11:** Assess for each campaign where the digital solution is being rolled out until the community education module changes have been resolved.

Analysis recommendations: To measure the impact of the digital solution implementation, it is essential to have comparisons for these indicators. Ideally, this involves calculating each indicator based on the digital solution versus the most recent paper-based campaign. If this data is not available, qualitative data collection methods can supplement the understanding of how the digital solution implementation affected each indicator value. Additionally, qualitative data may help contextualize the results and offer alternative explanations for each indicator value.

For **D1 – D3**, it is highly recommended to compare the official population source in the microplan to alternative population estimates to better understand the range of potential error for each population estimate.

For **D5 – D6**, it is highly recommended to present qualitative insights to accompany quantitative results. While digitization of stock management can improve forecasting and redistribution, other factors (e.g., transport challenges/delivery timelines) may impact campaign managers' abilities to resolve these challenges.

E. Data quality

E1	Data completeness (form)
E2	Data completeness (submissions)
E3	Data collection time
E4	Data reporting time
E5	Concordance rate

Purpose: These indicators assess if digital solution implementation has affected the quality of data collection and reporting during campaigns. The analysis should compare these indicators with results from campaigns that used paper-based tools to determine if the digital solution has led to any changes in data quality.

Data collection methods:

- **E1:** Review the digital solution form for each campaign against the campaign's monitoring and evaluation (M&E) framework and reporting requirements to ensure the form captures all necessary information to calculate required indicators.
- **E2 – E4:** Collect campaign data via the digital solution. Control data should be collated from previous campaigns delivered using paper-based tools or from concurrent campaign delivery still using paper-based tools.
- **E5:** Collect campaign data via the digital solution and an alternate verification source (e.g., a coverage verification survey). Control data should be collated from previous campaigns delivered using paper-based tools or from concurrent campaign delivery still using paper-based tools.

Data collection timing:

- **E1:** Assess during the pre-testing phase for each form and after any significant changes are made to the form structure.
- **E2 – E5:** Assess for every campaign. However, paper-based comparison data is only required until all major changes to the digital solution have been implemented and the governance body is satisfied with data quality results delivered by the digital solution compared to paper-based tools.

Analysis recommendations: Use resources including the WHO Data Quality Assurance guidance for routine DQA on health facility data to inform the general approach for conducting DQA on campaign data.

F. Use of data

F1	Data used for decision-making (data review procedures implemented)
F2	Data used for decision-making (data use)
F3	Dashboard established (to facilitate data use during each campaign)
F4	Dashboard established (to facilitate data sharing across campaigns and HMIS)
F5	M&E framework operationalized
F6	Implementation guidance documents in place

Purpose: These indicators are designed to assess whether the implementation of the digital solution has improved use of data. Where possible, indicator **F2** should be analyzed against results from campaigns that used paper-based tools to better understand the potential impact of digitization on data use.

Data collection methods:

- **F1:** Review meeting minutes and other documentation indicating that data use procedures have been implemented for each campaign.
- **F2:** Conduct structured observation of data review sessions and supervision feedback provided at different levels of the campaign. Review action trackers used by campaign leadership to track follow up. Cross-reference decisions with enumeration, delivery and logistics data to understand the impact of data use.
- **F3 – F6:** Review dashboards and campaign documentation to confirm implementation.

Data collection timing:

- **F1 – F6:** Assess indicators for each campaign until governance leadership is satisfied that campaign M&E, dashboards and data use procedures have been institutionalized.

Analysis recommendations: For **F1 and F2**, conduct preliminary analysis during the campaign to determine if campaign leadership needs to strengthen data use procedures while the campaign is still ongoing.

G. Coverage and health outcomes

G1	Percent change in individuals reached by campaign
G2	Intervention coverage rate
G3	Reduction in incidence and/or prevalence of disease (e.g., reported malaria cases)

Purpose: These indicators assess whether the implementation of the digital solution has changed campaign coverage rates and, subsequently, the incidence and prevalence rates of disease. Analyze these indicators against results from campaigns that used paper-based tools to understand if the use of the digital solution can plausibly be said to have contributed to coverage increases. Depending on the type of campaign and previous campaign coverage, M&E staff should assess the expected impact of digitization on **G3** to determine inclusion of digitization.

Data collection methods:

- **G1, G2:** Collect campaign distribution data via the digital solution. Collate control data from previous campaigns delivered using paper-based tools or from concurrent campaign delivery still using paper-based tools. For sensitivity checks, compare coverage surgery results based on validated methods such as those from WHO and from The Alliance for Malaria Prevention to the digital solution data. Use multiple population sources to assess the impact of denominator differences (e.g., GRID3).
- **G3:** Extract incidence and prevalence data from the HMIS or health status surveys conducted using probability sampling (e.g., DHS).

Data collection timing:

- **G1 – G3:** Campaign staff should determine the appropriate timescale for coverage verification surveys and incidence/prevalence surveys based on campaign type.

Analysis recommendations:

- **G1 – G2:** Depending on specific evaluation goals, multiple views of this data can be explored to better understand how digitization may impact coverage:
    a. Explore changes over time for individual campaign types.
    b. Review changes over time for different types of campaigns in the same geographic areas.
    c. Conduct sensitivity analyses of coverage results using different sources of population data to understand the potential spread of coverage values and their impact on the understanding of historic and current coverage.
    d. If GPS coordinates are available for campaign data, conduct spatial analysis (using settlement data as a background layer) to determine if there has been improvement in reaching hard-to-reach or historically missed areas.
    e. If the data collection form identifies hard-to-reach populations (e.g., IDPs, migratory workers, zero-dose children, etc), review any changes in coverage for these populations.

H. Governance indicators

H1	Government campaign digitization agenda (prioritized)
H2	Government campaign digitization agenda (operationalizing priorities)
H3	Coordination mechanisms
H4	Lessons learned and best practices

Purpose: These indicators assess the strength and functionality of the governance mechanism(s) in place to coordinate the design, deployment and continued use of the digital solution.

Data collection methods:

- **H1, H2:** Review documentation establishing the governance mechanism and setting digitization as a priority (e.g., Terms of Reference (TOR) for governance mechanism, digitization strategy and roadmap).
- **H3:** Conduct a desk review of coordination mechanism documentation (e.g., meeting minutes, progress against digitization strategy). Supplement with key informant interviews if additional information is needed to assess performance.
- **H4:** Conduct key informant interviews and desk review of supporting documentation (e.g., campaign reports, progress reports).

Data collection timing: Data collection for H1 – H3 should occur at pre-specified points based on the digitization roadmap.

Analysis recommendations: Conduct analysis as soon as data is available for H3 to ensure any issues can be promptly identified and addressed.

I. Sustainability indicators

I1	Sustainability plan developed
I2	Supporting ecosystem identified and formalized
I3	Programme technical capacity strengthened

Purpose: These indicators assess the programme's ability to maintain and sustain the use of the digital solution without external support.

Data collection methods:

- **I1:** Review the sustainability plan documentation.
- **I2:** Review supporting documentation indicating formalized support (e.g., contracts signed with local developers).
- **I3:** Conduct a desk review of personnel records and budgets to determine if adequate staff are in place to support the digital solution. Supplement with key informant interviews if additional information is needed to assess capacity.

Data collection timing: Data collection should occur at a pre-specified point based on established timelines for the programme to take over full support of the tool.

Analysis recommendations: Conduct analysis as soon as data is available for all indicators to quickly address any detected issues with sustainability planning.

J. Resource and cost indicators

J1	Support of ongoing hardware costs
J2	Support of ongoing programmatic costs
J3	Support of ongoing technical costs
J4	Sustainable financing for campaigns
J5	Training requirements

Purpose: These indicators quantify the financial and human resources required to maintain use of the digital tool at scale.

Data collection methods:

- **J1 – J4:** Review executed and planned budgets.

- **J5:** Review training records and post-test results.

Data collection timing:

- **J1 – J5:** Conduct cost and training estimations timed to inform sustainability and scale up planning.

Analysis recommendations: Ensure that cost and training estimations are timed to inform sustainability and scale up planning.

K. Cost-effectiveness indicators

K1	Total campaign cost, by category of expense (with and without commodities)
K2	Change in campaign cost (with and without commodities)
K3	Cost per beneficiary reached (with and without commodities)
K4	Cost-effectiveness of campaign

Purpose: These indicators quantify the cost of the digitization-specific portion of digitized campaigns cost and provide an estimate for the marginal cost per benefit of digitization. Analyze these indicators against results from campaigns that used paper-based tools to understand potential cost-savings or tradeoffs.

Data collection methods:

- **K1 – K4:** Review campaign budgets for both digitized and non-digitized areas. Ensure the level of disaggregation is adequate for the context (see example for required level of detail for a malaria campaign here).

Data collection timing:

- **K1 – K4:** Collect budgets during each campaign.

Analysis recommendations:

- **K1 – K4:** If possible, ensure budgets capture enough detail to accurately assess the costs of digitization versus paper-based methods (e.g., the cost of devices and data versus the staff cost of manually tallying data). Conduct sensitivity analyses to determine how digital costs can be "spread" across multiple campaigns and time periods (e.g., if devices are used for multiple campaigns).

Appendix B. Example of a user questionnaire

Instructions to Data Collectors

[Campaign specific instructions.]

Introduction and Consent

[Campaign specific introduction and consent guidance.]

Guided Questionnaire

Participant Informed Consent		
Consent	Was verbal consent granted to proceed with the interview?	0 - No; do not proceed 1 - Yes; proceed
User Acceptability		
A1	How would you rate your experience using [solution name]?	1 – Very bad 2 – Bad 3 – Neither good nor bad 4 – Good 5 – Very good
A2	How would you rate the ease of using [solution name] for [intervention]?	1 – Very difficult 2 – Difficult 3 – Neither difficult nor easy 4 – Easy 5 – Very easy
A3	Do you think you received sufficient training to use [solution name] effectively?	0 – No 1 - Yes
A4	How confident would you feel about using [solution name] again in a future campaign?	1 – Not at all confident 2 – Not confident 3 – Neutral 4 – Confident

		5 – Very confident
A5	Have you previously worked on campaigns using paper-based tools for [intervention]?	0 – No (*skip to SUS1)* 1 - Yes
A6	How would you compare how long it takes you to enter information when using [solution name] compared to paper-based tools?	1 - Much slower with [solution name] 2 - A little slower with [solution name] 3 - About the same time 4 - A little faster with [solution name] 5 - Much faster with [solution name]
A7	How would you compare how long it takes you to submit data when using [solution name] compared to a paper-based system?	1 - Much slower with [solution name] 2 - A little slower with [solution name] 3 - About the same time 4 - A little faster with [solution name] 5 - Much faster with [solution name]
A8	How would you compare the accuracy of the data you record when using [solution name] compared to a paper-based system?	1 - Much slower with [solution name] 2 - A little slower with [solution name] 3 - About the same time 4 - A little faster with [solution name] 5 - Much faster with [solution name]
System Usability Scale		
SUS1	I think that I would like to use [solution name] frequently	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS2	I found [solution name] unnecessarily complex	1 – Strongly disagree 2 – Disagree

		3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS3	I thought [solution name] was easy to use	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS4	I think that I would need the support of a technical person to be able to use [solution name]	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS5	I found the various functions in [solution name] were well integrated	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS6	I thought there was too much inconsistency in [solution name]	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS7	I would imagine that most people would learn to use [solution name] very quickly	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree

		4 – Agree 5 – Strongly agree
SUS8	I found [solution name] very cumbersome to use	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS9	I felt very confident using [solution name]	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
SUS10	I needed to learn a lot of things before I could get going with [solution name]	1 – Strongly disagree 2 – Disagree 3 – Neither agree nor disagree 4 – Agree 5 – Strongly agree
System Performance		
S1	Did [solution name] ever freeze, crash or stop responding while you used it?	0 – No *(skip to S3)* 1 – Yes
S2	How often did this happen?	1 – Very often (multiple times per day) 2 – Often (once a day) 3 – Sometimes 4 – Rarely 5 – Only once

S3	How fast did [solution name] respond when clicking on buttons and fields?	1 – Very slow 2 – Slow 3 – Fast 4 – Very fast
S4	When syncing your data (records), how fast did you perceive the syncing process to be?	1 – Very slow 2 – Slow 3 – Fast 4 – Very fast
Hardware Performance		
H1	On a normal campaign day, how much battery did your device have left at the end of the day? A normal day is a campaign day for which the device was fully charged at the start of it.	1 – No battery left (0% charge) 2 – 1% – 20% charge 3 – 21% – 40% charge 4 – 41% - 60% charge 5 – 61% - 80% charge 6 – 81% - 100% charge
H2	Did you have any issues collecting the GPS coordinates required for question [question number]?	0 – No (*skip to H4)* 1 - Yes
H3	How often did this happen?	1 – Very often (multiple times per day) 2 – Often (once a day) 3 – Sometimes 4 – Rarely 5 – Only once
H4	How much data was loaded on your device's SIM card at the start of the campaign?	[____] GBs

H5	How much did your device use over the course of the campaign? [Hint about how to check data usage]	[____] GBs
H6	During the campaign, did your device's SIM card run out of data?	0 – No 1 - Yes
Wrap-up		
E1	Please share any final comments about your experience using [solution name] during [intervention]:	[_____]

Appendix C. Example of key informant interview/focus group discussion guide

Instructions to Interviewers/Facilitators

[Campaign specific instructions.]

Note: Text in *italics* should not be read aloud.

Introduction and Consent

[Campaign specific introduction and consent guidance.]

Guide

1. What functions did you like about [solution name]? Did it have any characteristics that helped you with your daily tasks? Please give specific examples of how it helped.
    a. **Probe:** *If participants do not mention tasks related to the following aspects of daily work, ask specifically:*
        i. Did it help you with recording stock received? How so?
        ii. Did it help you with recording stock issued? How so?
        iii. Did it help you recording stock returned? How so?
        iv. Did it help you with stock reconciliation? How so?
2. What did you not like about [solution name]? Did anything frustrate you or make it difficult to use [solution name]?
3. If you could add or change any features of [solution name] what would they be? How would this help you in your daily tasks?
4. Compared to using paper forms in the past, which do you prefer? Why?
    a. **Probe:** *If participants do not mention the following themes organically, ask specifically:*
        i. Do you think it is easier to prevent or address stocks outs using [solution name] or paper-based tools? Why?
        ii. Do you think it is easier to reallocate stock using [solution name] or paper-based tools? Why?
        iii. Do you think it is easier to manage reverse logistics using [solution name] or paper-based tools? Why?
5. Do you feel you received adequate training to use [solution name] successfully? If not, what aspects did you need more training on?
6. What kind of feedback did you receive on your performance during the campaign? Please give specific examples.
    a. **Probe:** When did you receive this feedback?
    b. **Probe:** What changes did you make in your performance based on this feedback?

7. Overall, did you think use of [solution name] improved, hindered, or had no impact on the management of stock during this campaign? Why?
8. Do you have any final thoughts you would like to share on [solution name]?

Appendix D. Example of a pre-/post-training test

1. The image [to the right] shows the homepage of a campaign device. Which of the following applications do you need to access to collect data during the campaign?
    a. _____
    b. _____
    c. _____
    d. _____
    e. _____

2. Why is it important to login to the platform with your username and synchronize DHIS2 before going to the field?
    a. It lets the platform know how many phones will be collecting data during the campaign_____
    b. It lets the user become acquainted with their device_____
    c. It is not important; login can be done in the field_____
    d. It downloads the forms and dashboards to the phone so they can be used in the field when there is no network _____

3. How often does a registrar need to use their device to record information and data for the campaign?
    a. Once, at the end of the day_____
    b. For each and every household at the moment they deliver the [intervention] _____
    c. Once, in the middle of the day_____
    d. Whenever you have time, as long as you record your information digitally before the end of the campaign_____

4. After data is collected, how does your digital device send the information to the MOH database (also known as data synchronization)?
    a. Through the internet using mobile data _____
    b. Through Bluetooth connections _____
    c. Through the cable when the phone is charging _____
    d. Through the air when near any computer _____

5. How often should you send (synchronize) the information collected in your device to the MOH database?
    a. Only at the end of the campaign _____
    b. As often as possible, at least once per day _____
    c. Every time I receive a visit from a supervisor _____
    d. Never, it should only stay in the device _____

6. The [following image] shows the main page of the data collection platform. In this example, one of the forms has records that have not been synchronized. Which of the highlighted buttons would the user need to click to synchronize their data?

7. The [following image] shows a form during the first step of data collection. Which of the following buttons needs to be pressed to automatically retrieve the GPS coordinates of the registrar in that moment?

8. The [following image] shows how the country is organized into different organizational units. Data will be collected at one of these levels. Which level would you select to register [location] where [intervention] was delivered?
    a. At the province level_____
    b. At the district level _____
    c. At the administrative post level _____
    d. At the locality level _____
    e. At the village level _____

9. In the [following image] a user has finished filling out a Household Registration Form, but the tool has not allowed them to save the record. Examine the image and indicate how you should proceed.
    a. Try to save again, the system experienced a network failure_____
    b. The head of household name is duplicated _____
    c. The number of [commodity] distributed must be lower than 3_____
    d. The number of [commodity] distributed me more than 8 _____

10. Sometimes records that contain mistakes can be created by accident. Who is primarily responsible for editing or deleting records with errors?
    a. Central level _____
    b. The monitoring & evaluation team _____
    c. The user who created the record _____

d. The supervisor of the user who created the record _____

11. In the next image, a registrar has been collecting data in [intervention location], but has saved one of their records incorrectly. What does the user need to do to ensure that the record is saved properly?
    a. This error means the phone is broken, so you should request a new device from your supervisor_____
    b. The user should synchronize that particular record _____
    c. Ask another registrar to enter the record in their own device_____
    d. Go into the record again and save it again selecting the option to “finish and complete” _____

12. If at any point, the platform stops working correctly, how should the user proceed? For this question write “1”, ”2”, ”3”, ”4” on each answer in the order each solution should be attempted.
    a. Contact campaign leadership or the technical support team_____
    b. Fill out a Helpdesk form_____
    c. Close and reopen the platform application _____
    d. Restart the device_____

13. In the mobile application, it is possible to review graphs and tables (dashboards) of the data that has been collected. In the [image below], which button should the user press to access the dashboards?

14. The [image below] shows a chart from the phone of a registrar. Based on this chart, what can you conclude about the registrar and their [intervention delivery] team?
    a. The team is doing a great job and is being consistent in their visits every day_____
    b. The team is doing terribly; they haven’t distributed any [intervention]____
    c. The team is visiting too many delivery points and need to be told to slow down_____
    d. The team has not visited the required number of delivery points on any day and need to be told that they need to meet their daily goals_____]

15. The [image below] shows an example of the dashboards available on [digital solution.] If the user was interested in reviewing [item of interest], which button would they have to click?
    a. _____
    b. _____
    c. _____
    d. _____