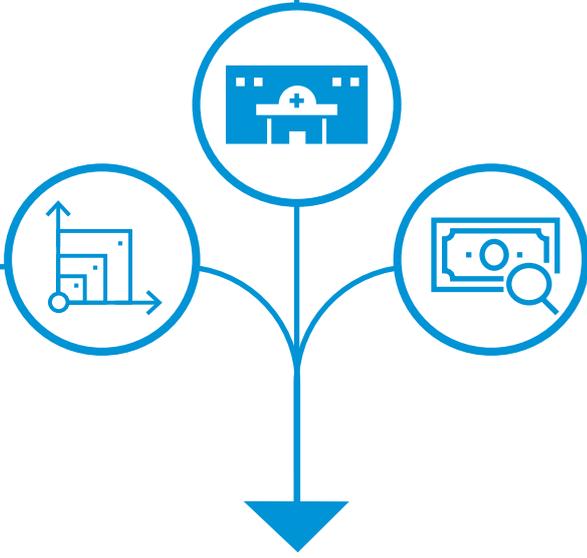




# Digital implementation investment guide (DIIG)

Quick deployment guide





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Quick  
deployment  
guide

Digital implementation investment guide (DIIG): quick deployment guide

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The Digital implementation investment guide (DIIG) (1) was developed by the World Health Organization to help governments and technical partners plan a digital health implementation focusing on one or more health programmes supporting national health system goals. It is designed to provide users with step-by-step guidance through planning, costing and implementing digital health interventions within a digital health enterprise.

**The Quick deployment guide** complements the DIIG and is intended to be a shortened ‘how-to’ manual in designing and implementing digital health interventions that are part of a digital health enterprise. Each step in this document includes exercise worksheets that encourage users to think through the health programme processes and programme needs, identify opportunities to implement digital interventions and develop functional requirements designed to benefit different end-users.

The objective of these exercises is to help users design and deploy a well thought-out implementation that integrates with the country’s broader digital health architecture and can scale easily, contributing to the country’s national digital health strategy. As such, this document serves as a hands-on component that can be used by national governments, specifically the health ministries and IT staff, as well as in-country partners who are designing, selecting or deploying implementations. Combined with the costing exercise, these exercises can help governments develop requests for proposals (RFPs) or assess digital health investments.

The Quick deployment guide may also be used as a facilitator’s guide in a workshop setting where participants go through each step and complete the worksheets in groups of small teams. The steps are ordered sequentially with outputs from each exercise serving as inputs to the subsequent steps and it is recommended that users complete all steps sequentially. However, depending on which step is more pertinent to a country’s context, users may choose to complete individual exercises that serve their specific programme objectives.

# How to navigate this document

**Step 1 Identifying target health programmes** will set the stage for the entire exercise as outputs from this step will inform subsequent steps. We will identify the health programme for which a digital intervention is being designed and then define the vision for the programme. We will then outline the associated health system operations before identifying the different user groups or actors that will be impacted by the digital intervention.

Next, in **Step 2 Assessing current state and country readiness to deploy a specific digital health intervention**, we will illustrate the current state of the targeted health programme using a workflow diagram to determine the readiness of the country's health system. This will allow us to map out the current processes and reflect on the bottlenecks and health system challenges that a digital intervention could resolve.

In **Step 3 Designing digital health interventions**, we will imagine what the future state of the health programme could look like and the digital interventions that could help us get there.

Once a digital intervention has been identified, in **Step 4 Defining capabilities and functionalities** we will define the functional requirements that will ensure the intervention serves the needs of its users. Through interviews with the different user groups identified in Step 1, we will come up with a specific list of ways in which these user groups will engage with the digital intervention.

In order to merge the digital intervention with the overall digital health ecosystem, in **Step 5 Linking to national enterprise architecture** we will look at the current enterprise architecture and look at how the selected intervention works with other systems, the interoperability requirements and data standards required to ensure seamless integration.

**Step 6 Monitoring and evaluation of implementation** will then present a checklist of activities that will ensure the implementation is on track to accomplish its objectives. A logic model template will help us link programme inputs and processes to expected outcomes and impact as we identify key metrics to measure throughout the course of the implementation.

Finally, with a digital intervention identified and the deployment planned, as part of **Step 7 Costing for implementation, maintenance and scale** we will consider all the cost drivers across the phases of the implementation and come up with the total cost of implementation. The worksheet provides suggested cost items to help us develop a programme budget.

Together, these worksheets can form the basis for an RFP for the implementation of a digital intervention in a specific programme area, outlining present and expected process workflow, different end-users and how they're expected to interact with the intervention, and the prioritized functional requirements the intervention should meet. Fig. 1.1 shows a summary of all the worksheet outputs that can help countries create an RFP for the deployment of a digital health intervention.

FIG.1 SUMMARY OF WORKSHEET OUTPUTS AS AN RFP TEMPLATE



# Checklist of worksheets



## **Step 1** Identifying target health programmes and establishing a shared understanding

- 1.1 Planning and implementation charter
- 1.2 Health system organogram
- 1.3 User personas

## **Step 2** Assessing the current state and country readiness

- 2.1 Process matrix
- 2.2 Current state workflow diagram

## **Step 3** Designing digital health interventions for scale and impact

- 3.1 Digital health interventions to overcome bottlenecks
- 3.2 Future state user journey/workflow diagram
- 3.3 Landscape analysis of existing digital health enterprise
- 3.4 Enabling-environment assessment

## **Step 4** Defining capabilities and functionalities of digital health interventions

- 4.1 Functional requirements to summarize end-user needs

## **Step 5** Linking digital health interventions to the national enterprise architecture

- 5.1 Interoperability standards, applications and data sources

## **Step 6** Monitoring & evaluation of digital health implementations

- 6.1 Adaptive management checklist
- 6.2 Logic model for digital health implementation
- 6.3 Key metrics for monitoring and evaluation (M&E)

## **Step 7** Costing for implementation, maintenance and scale

- 7.1 Cost drivers across phases

## Step 1

# Identifying target health programmes and establishing a shared understanding

As a first step, we will articulate a common understanding of the main goals of the health programme for which a digital intervention is being implemented. Core programme documents and data, assessment reports that describe the programme's goals and objectives may be used as reference documents for this exercise. Please refer to [Chapter 2: Form the team and establish goals](#) in the DIIG for additional details.

WORKSHEETS



- ❑ 1.1 Planning and implementation charter
- ❑ 1.2 Health system organogram
- ❑ 1.3 User personas

## 1.1 PLANNING & IMPLEMENTATION CHARTER

In the worksheet to follow, list the overall vision, scope, targeted health programmes and other key information related to your planning and implementation efforts. As you review health programme documents, aim to identify the following:

- ➔ Short- and long-term goals and objectives of the health programme.
- ➔ How the programme aligns with priorities under the national strategic health plan or other government strategies for investing in health. Ensure that all stakeholders have a shared understanding of the health programme's goals.
- ➔ How well these goals align with the needs of the population that the health programme targets.

## 1.2 HEALTH SYSTEM ORGANOGRAM

For this exercise, draw a diagram using lines and arrows to illustrate the levels of the health system, facility types and types of health workers at each level, and their relationships to one another. This will help us develop a common understanding of how the current health programme operates in practice, including the workflows and information flows across all levels of the health system. An illustrative example of a health system organogram and relationships is shown in [Fig. 2.3.1 of the DIIG](#).

## VISION/OBJECTIVES

A concise description of what outcomes are expected from the planning and implementation. Describe how the organization will benefit at the end of the project.

## BACKGROUND

Current situation that requires a change; inventory of existing tools and systems; context diagram that visually represents the project participants, problems and opportunities.

## FUNCTIONAL SCOPE

A brief description of the main functional blocks or modules that will be included.

## HEALTH AREA SCOPE

Which of the Ministry of Health departments and programmes will eventually use this intervention? Will it include only a subset at first, and then be expanded?

## GEOGRAPHIC SCOPE

Where will the intervention be implemented over time? Where will it be piloted? Who will be using it? District people or also at the health center level?

## PARTICIPANTS

List of individuals whose input has been gathered as part of the scope definition.

## TIMING

By when do you expect the intervention to be operational at the pilot level? And at scale?

Use this worksheet to draw a health system organogram using lines and arrows to illustrate the levels of the health system, facility types and types of health workers at each level, and their relationships to one another.

## 1.3 USER PERSONAS

Next, we will create user personas, which are generic descriptions of the different types of people involved in or benefiting from the health programme. Personas provide a common point of reference on who delivers health services, monitors or supervises services and who receives services. They help stakeholders view the objectives and programmatic challenges from the vantage point of the people who will be the end-users of the digital system.

For this exercise, identify the different end-users and think through their needs and challenges which could be resolved using a digital health intervention. Use the following worksheet and the suggested prompts to develop a complete user persona for each type of user or stakeholder impacted by the health programme.

**Demographics**

- » Gender
- » Age
- » Community
- » Language(s) used

**Name, Photo and Type of Persona**

- » Name (can be real or illustrative)
- » Photo of persona to help with visualization and storytelling

**Roles and Responsibilities****Context Description**

- » Does this end-user own a digital device? Is yes, what kind?
- » Level of familiarity with digital tools?
- » Rural or urban?
- » Internet connectivity?
- » Availability of electricity and water?
- » Homogeneous or heterogeneous population?
- » Distance to nearest health facility?

**Challenges**

- » What are the routine challenges this end-user faces?
- » Long distances travelled without reliable mode of transportation?
- » Sufficient training and performance monitoring?
- » Workload?
- » It would be beneficial to include quotes given directly in interviews for the persona you are creating

**What does success look like from the perspective of the persona?**

- » What are their motivations?

For example: When clients are happy with the services? Not having to wait a long time before seeing a health worker?

## Step 2

# Assessing the current state and country-readiness to deploy a specific digital health intervention

In order to achieve the objectives listed in Step 1, we first need to assess the current state of the health programme. This will allow us to identify challenges, areas for improvement and opportunities for digital interventions in the health programme. In this exercise, we will develop a current state workflow diagram to identify the processes and tasks within a specific health programme and identify bottlenecks. Please refer to [Chapter 3: Identify health system challenges and needs](#) in the DIIG for additional details.

WORKSHEETS



- 2.1 Process matrix
- 2.2 Current state workflow diagram

## 2.1 PROCESS MATRIX

Use the process matrix worksheet below to list processes, objectives, outcomes and bottlenecks for the selected health programme. For example, if you are assessing the current state of the various COVID-19 related health programmes, list the different processes that need to be followed, the associated set of tasks and the desired outcomes for each process. In the next step, we will map relevant digital health interventions that can help overcome the bottlenecks we have identified.

Sample programme processes, tasks and potential challenges for common health programme areas for COVID-19 are shown in the table below :

PROCESS	OBJECTIVE	TASK SET	OUTCOMES	COMMON BOTTLENECKS
<b>SERVICE DELIVERY PLANNING</b>	Prepare for vaccination delivery and identify target populations based on the risk-benefit assessment for different population groups, the amount and pace of vaccine supply.	<ul style="list-style-type: none"> <li>• Develop COVID-19 vaccine delivery strategies to reach target populations</li> <li>• Identify and develop a master list and strategy of service providers who could effectively deliver COVID-19 vaccine to various target populations</li> <li>• Ensure availability of plans to safeguard the security of staff (e.g. during an emergency or major campaign) as well as security at the central and/or regional storage facilities and for in-transit of products</li> </ul>	Target populations are vaccinated against COVID-19	Identifying and reaching populations with health services and vaccines
<b>DOCUMENTING VACCINATION STATUS</b>	Provide proof of vaccination to recipients and establish vaccination status in coverage surveys	<ul style="list-style-type: none"> <li>• Identify data needs and monitoring objectives</li> <li>• Design a system to record, report, analyze and use vaccination data</li> </ul>	Vaccinated individuals have proof of vaccination and added to national coverage records	Current approach is not tamper-proof. The card is easy to lose or forget. There is poor quality and integrity of data, and lack of immutable authentication mechanisms for providers and recipients.
<b>COMMUNITY MOBILIZATION</b>	Ensure acceptance and uptake of COVID-19 vaccinations	<ul style="list-style-type: none"> <li>• Design a demand plan (i.e. advocacy, communications, social mobilization, risk and safety comms, crisis communications, community engagement, and training) to generate confidence, acceptance and demand for COVID-19 vaccines</li> <li>• Develop key messages and materials for public communications and advocacy, in alignment with demand plan</li> <li>• Establish data collection systems, including 1) social media listening and rumor management, and 2) assessing behavioral and social data</li> </ul>	The public has accurate information and access to COVID-19 vaccinations and there is sufficient demand.	Overabundance of information can lead to confusion and mistrust in the public health response

PROCESS	OBJECTIVE	TASK SET	OUTCOMES	COMMON BOTTLENECKS
<b>LOGISTICS MANAGEMENT</b>	Ensure supply chain readiness prior to deploying COVID-19 vaccines	<ul style="list-style-type: none"> <li>Assess storage and cold chain capacity at all levels with regards to the COVID-19 vaccines characteristics and fill the identified supply and logistics gaps</li> <li>Prepare for vaccine storage, transportation, waste management, cold chain capacity, etc.</li> <li>Develop standard operating procedures (SOPs) or guidelines for collection and disposal of medical waste</li> <li>Update vaccine stock management tools and operating procedures to reflect the characteristics of COVID-19 vaccines (i.e. vial size, Vaccine Vial Monitor (VVM), etc.)</li> </ul>	Health facilities have the right amount of supplies to avoid stockouts and reduce wastage	Incomplete and untimely information make logistics decisions and supply chain management difficult
<b>COVERAGE MONITORING</b>	Measure equitable vaccination coverage across different target populations	<ul style="list-style-type: none"> <li>Develop recommended indicators (e.g. coverage indicators, disease surveillance) for COVID-19 vaccine.</li> <li>Determine whether registration and reporting will be individual or aggregate, and to what extent existing tools and systems can be reused</li> <li>Develop or adapt necessary monitoring tools or adapt existing tools: vaccination card/certificate, facility-based nominal registers and/or tally sheets, vaccination reports (paper and/or electronic) and analytical tools to monitor progress and coverage among different at-risk categories</li> </ul>	Vaccine uptake and coverage data is available for programme planning and decision making	Slow and incomplete information on uptake and coverage of health services in a population
<b>REMOTE HEALTH WORKER TRAINING</b>	Train health workers to prepare them for COVID-19 prevention, diagnosis, care of patients, and vaccination delivery	<ul style="list-style-type: none"> <li>Assess training needs across different categories of health workers</li> <li>Develop/adapt training material and training schedule</li> <li>Develop training delivery methodology for the different categories of health workers</li> </ul>	Health workers have the necessary training to handle and administer vaccines and care for patients	Remote locations; restrictions on gatherings due to COVID-19

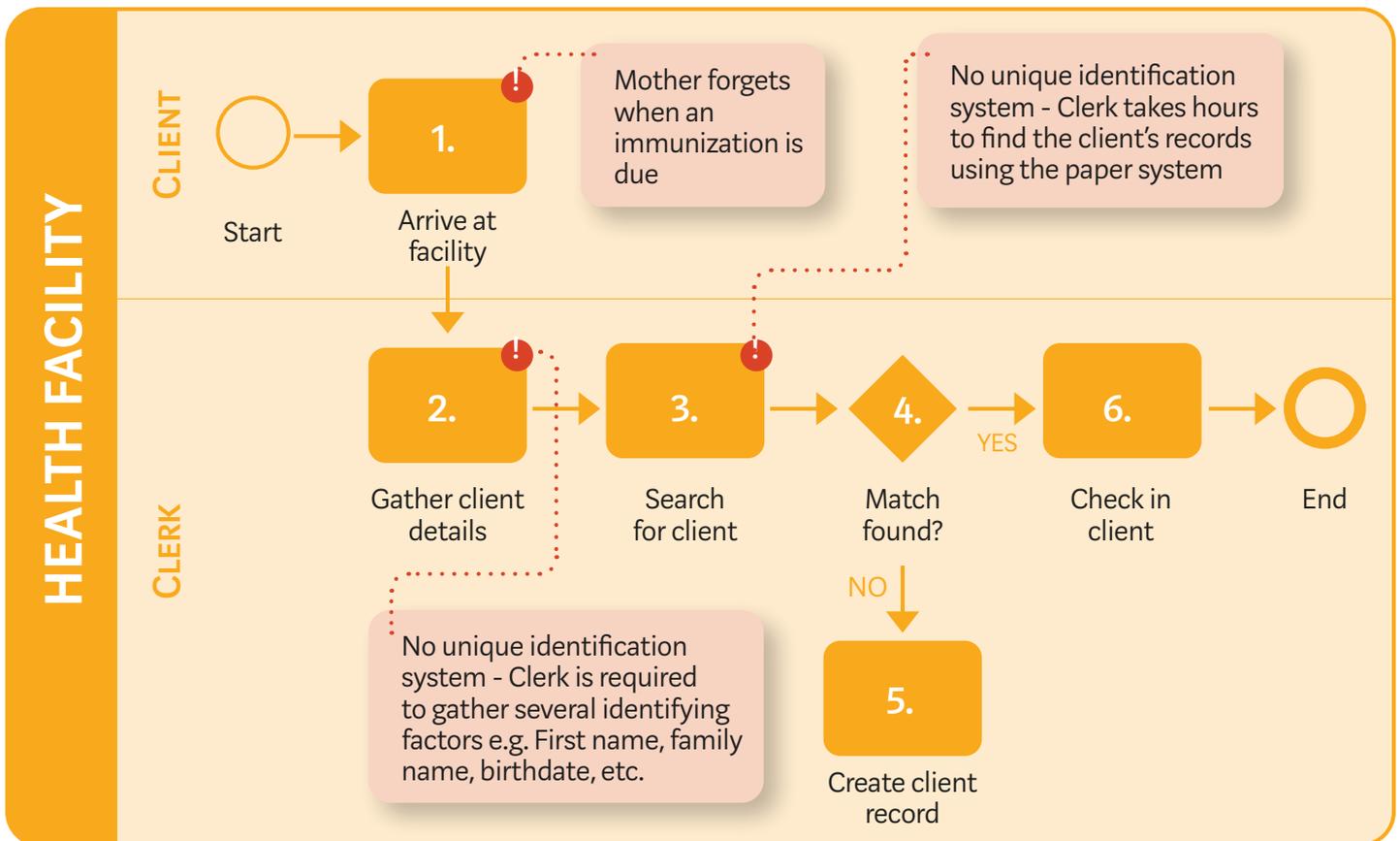
In the process matrix worksheet below, list the different processes, objectives, outcomes and bottlenecks for the selected health programme:

PROCESS	OBJECTIVE	TASK SET	OUTCOMES	COMMON BOTTLENECKS

## 2.2 CURRENT STATE WORKFLOW DIAGRAM

Once the processes and bottlenecks have been identified, we will visually represent them in a workflow diagram. Workflow diagrams help us map the user journey within each of the processes. Make sure to represent the progression of activities (tasks, events and interactions) performed within the health programme process and identify bottlenecks within each workflow. A sample workflow diagram is shown below.

FIG. 2 CURRENT STATE PATIENT MANAGEMENT



**!** Bottleneck where digital health intervention would add value

Use this worksheet to draw a current state workflow diagram mapping user journey and showing the progression of activities (tasks, events and interactions) performed within the health programme process and identify bottlenecks within each workflow.

## HEALTH FACILITY

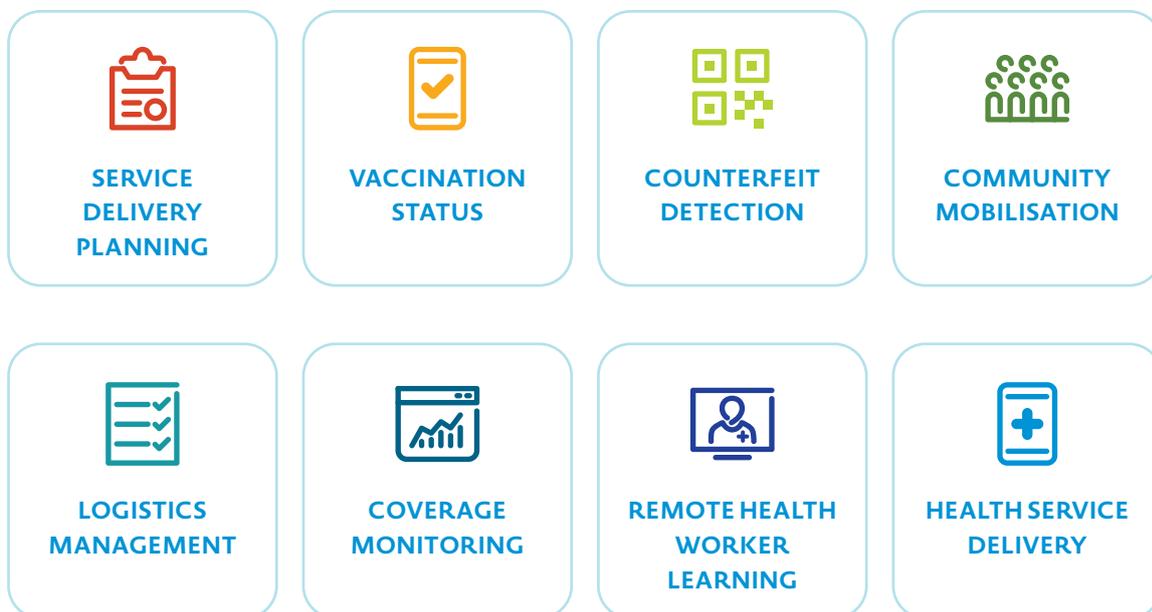
USER PERSONA 1

USER PERSONA 2

## Step 3

# Designing digital health interventions for scale and impact

Having developed a workflow diagram identifying common bottlenecks and opportunities for digital interventions, we will now select appropriate digital interventions and develop an implementation plan to address programmatic needs. As you identify potential digital interventions, consider the following areas in the context of COVID-19 for which you may seek technical assistance:



Please refer to [Chapter 4: Determine appropriate digital health interventions](#) in the DIIG for additional details.

WORKSHEETS



- ❑ 3.1 Digital health interventions to overcome bottlenecks
- ❑ 3.2 Future state user journey/workflow diagram
- ❑ 3.3 Landscape analysis of existing digital health enterprise
- ❑ 3.4 Enabling-environment assessment

# 3.1 DIGITAL HEALTH INTERVENTIONS TO OVERCOME BOTTLENECKS

To complete this exercise, first review the WHO Classification of Digital Health Interventions (2) shown below.

## 1.0 CLIENTS

<b>1.1 TARGETED CLIENT COMMUNICATION</b>	<b>1.3 CLIENT TO CLIENT COMMUNICATION</b>	<b>1.6 ON-DEMAND INFORMATION SERVICES TO CLIENTS</b>
1.1.1 Transmit health event alerts to specific population group(s)	1.3.1 Peer group for clients	1.6.1 Client look-up of health information
1.1.2 Transmit targeted health information to client(s) based on health status or demographics	<b>1.4 PERSONAL HEALTH TRACKING</b>	<b>1.7 CLIENT FINANCIAL TRANSACTIONS</b>
1.1.3 Transmit targeted alerts and reminders to client(s)	1.4.1 Access by client to own medical records	1.7.1 Transmit or manage out of pocket payments by client(s)
1.1.4 Transmit diagnostics result, or availability of result, to client(s)	1.4.2 Self monitoring of health or diagnostic data by client	1.7.2 Transmit or manage vouchers to client(s) for health services
<b>1.2 UNTARGETED CLIENT COMMUNICATION</b>	<b>1.5 CITIZEN BASED REPORTING</b>	1.7.3 Transmit or manage incentives to client(s) for health services
1.2.1 Transmit untargeted health information to an undefined population	1.5.1 Reporting of health system feedback by clients	
1.2.2 Transmit untargeted health event alerts to undefined group	1.5.2 Reporting of public health events by clients	

## 2.0 HEALTHCARE PROVIDERS

<b>2.1 CLIENT IDENTIFICATION AND REGISTRATION</b>	<b>2.5 HEALTHCARE PROVIDER COMMUNICATION</b>	<b>2.8 HEALTHCARE PROVIDER TRAINING</b>
2.1.1 Verify client unique identity	2.5.1 Communication from healthcare provider(s) to supervisor	2.8.1 Provide training content to healthcare provider(s)
2.1.2 Enrol client for health services/clinical care plan	2.5.2 Communication and performance feedback to healthcare provider(s)	2.8.2 Assess capacity of healthcare provider(s)
<b>2.2 CLIENT HEALTH RECORDS</b>	2.5.3 Transmit routine news and workflow notifications to healthcare provider(s)	<b>2.9 PRESCRIPTION AND MEDICATION MANAGEMENT</b>
2.2.1 Longitudinal tracking of clients' health status and services	2.5.4 Transmit non-routine health event alerts to healthcare provider(s)	2.9.1 Transmit or track prescription orders
2.2.2 Manage client's structured clinical records	2.5.5 Peer group for healthcare providers	2.9.2 Track client's medication consumption
2.2.3 Manage client's unstructured clinical records	<b>2.6 REFERRAL COORDINATION</b>	2.9.3 Report adverse drug events
2.2.4 Routine health indicator data collection and management	2.6.1 Coordinate emergency response and transport	<b>2.10 LABORATORY AND DIAGNOSTICS IMAGING MANAGEMENT</b>
<b>2.3 HEALTHCARE PROVIDER DECISION SUPPORT</b>	2.6.2 Manage referrals between points of service within health sector	2.10.1 Transmit diagnostic result to healthcare provider
2.3.1 Provide prompts and alerts based according to protocol	2.6.3 Manage referrals between health and other sectors	2.10.2 Transmit and track diagnostic orders
2.3.2 Provide checklist according to protocol	<b>2.7 HEALTH WORKER ACTIVITY PLANNING AND SCHEDULING</b>	2.10.3 Capture diagnostic results from digital devices
2.3.3 Screen clients by risk or other health status	2.7.1 Identify client(s) in need of services	2.10.4 Track biological specimens
<b>2.4 TELEMEDICINE</b>	2.7.2 Schedule healthcare provider's activities	
2.4.1 Consultations between remote client and healthcare provider		
2.4.2 Remote monitoring of client health or diagnostic data by provider		
2.4.3 Transmission of medical data to healthcare provider		
2.4.4 Consultations for case management between healthcare provider(s)		

## 3.0 HEALTH SYSTEM MANAGERS

<b>3.1 HUMAN RESOURCE MANAGEMENT</b>	<b>3.3 PUBLIC HEALTH EVENT NOTIFICATION</b>	<b>3.6 EQUIPMENT AND ASSET MANAGEMENT</b>
3.1.1 List health workforce cadres and related identification information	3.3.1 Notification of public health events from point of diagnosis	3.6.1 Monitor status of health equipment
3.1.2 Monitor performance of healthcare provider(s)	<b>3.4 CIVIL REGISTRATION AND VITAL STATISTIC</b>	3.6.2 Track regulation and licensing of medical equipment
3.1.3 Manage certification/registration of healthcare provider(s)	3.4.1 Notify birth event	<b>3.7 FACILITY MANAGEMENT</b>
3.1.4 Record training credentials of healthcare provider(s)	3.4.2 Register birth event	3.7.1 List health facilities and related information
<b>3.2 SUPPLY CHAIN MANAGEMENT</b>	3.4.3 Certify birth event	3.7.2 Assess health facilities
3.2.1 Manage inventory and distribution of health commodities	3.4.4 Notify death event	
3.2.2 Notify stock levels of health commodities	3.4.5 Register death event	
3.2.3 Monitor cold-chain sensitive commodities	3.4.6 Certify death event	
3.2.4 Register licensed drugs and health commodities	<b>3.5 HEALTH FINANCING</b>	
3.2.5 Manage procurement of commodities	3.5.1 Register and verify client insurance membership	
3.2.6 Report counterfeit or substandard drugs by clients	3.5.2 Track insurance billing and claims submission	
	3.5.3 Track and manage insurance reimbursement	
	3.5.4 Transmit routine payroll payment to healthcare provider(s)	
	3.5.5 Transmit or manage incentives to healthcare provider(s)	
	3.5.6 Manage budget and expenditures	

## 4.0 DATA SERVICES

<b>4.1 DATA COLLECTION, MANAGEMENT, AND USE</b>	<b>4.2 DATA CODING</b>	<b>4.3 LOCATION MAPPING</b>
4.1.1 Non-routine data collection and management	4.2.1 Parse unstructured data into structured data	4.3.1 Map location of health facilities/structures
4.1.2 Data storage and aggregation	4.2.2 Merge, de-duplicate, and curate coded datasets or terminologies	4.3.2 Map location of health events
4.1.3 Data synthesis and visualization	4.2.3 Classify disease codes or cause of mortality	4.3.3 Map location of clients and households
4.1.4 Automated analysis of data to generate new information or predictions on future events		4.3.4 Map location of healthcare providers
		<b>4.4 DATA EXCHANGE AND INTEROPERABILITY</b>
		4.4.1 Data exchange across systems

For the bottlenecks identified in Step 2, select the most relevant digital health intervention from the Classification of Digital Health Interventions. (Skip this exercise if a digital health intervention has already been identified).

<b>BOTTLENECKS (FROM WORKSHEETS 2.1 AND 2.2)</b>	<b>RELEVANT DIGITAL HEALTH INTERVENTIONS</b>

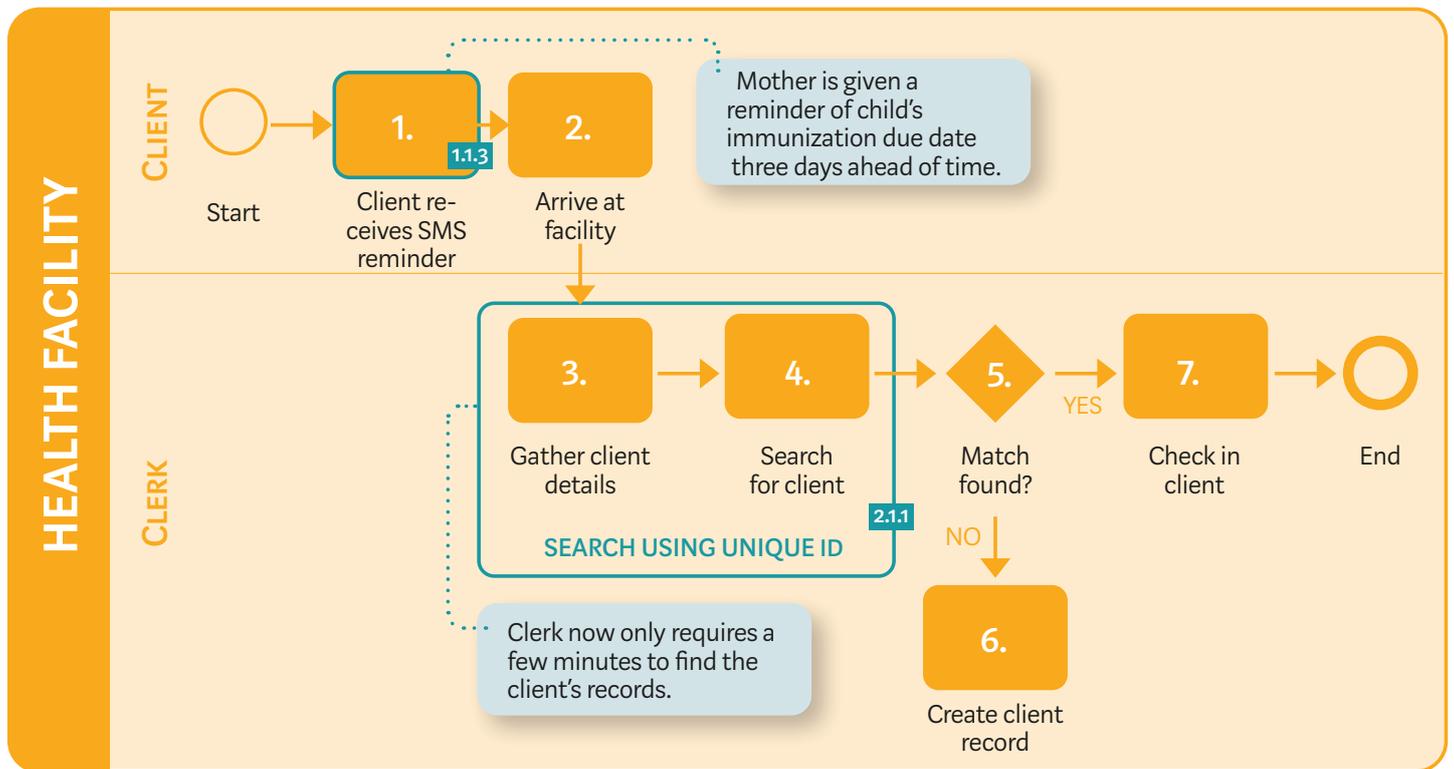
## 3.2 FUTURE STATE USER JOURNEY/WORKFLOW DIAGRAMS

In Step 2, we created workflow diagrams of the current state of programme processes. In this exercise, you will reimagine the health programme in its future state and redraw the workflow diagram, with digital health implementations in place where bottlenecks were identified. Make sure to map the appropriate digital health interventions from the previous step to the specific bottlenecks in the workflow diagram. Sample future state workflow diagrams for patient management (Fig. 3) and proof of vaccination status (Fig. 4) are shown below.

For this step, be sure to:

- Review the current state workflow diagrams and the end-user profiles. Taking these factors into account will ensure that the intervention is realistic.
- Redraw the workflow diagrams from the Step 2 worksheets to include proposed digital interventions that collectively address health system challenges.

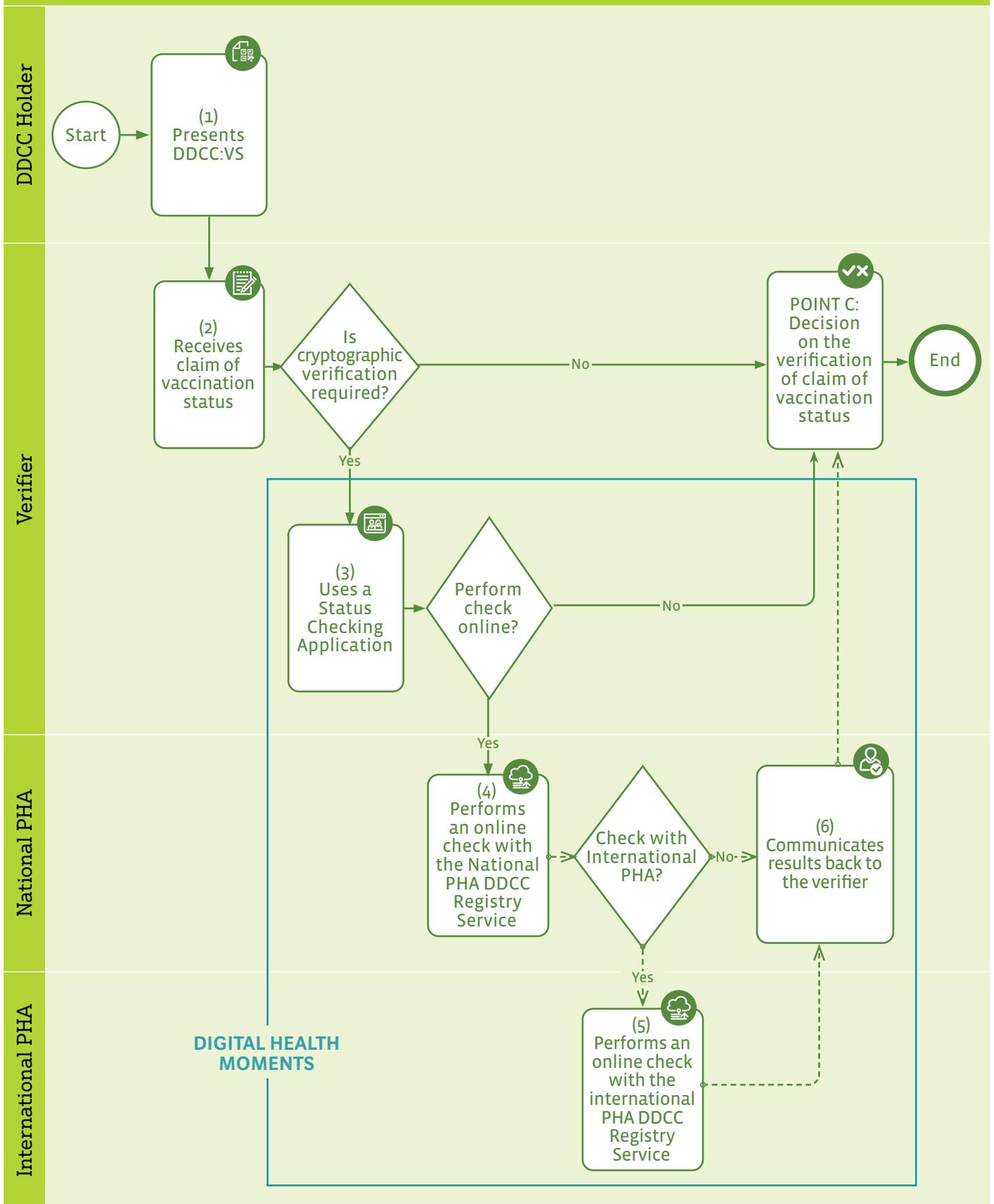
FIG. 3 FUTURE STATE PATIENT MANAGEMENT



### DIGITAL HEALTH MOMENTS

- |       |   |
|-------|---|
| 1.1.3 | Transmit targeted alerts and reminders to client(s) |
| 2.1.1 | Verify client unique identity                       |

Fig. 4 Proof of Vaccination status



DDCC:VS: Digital Documentation of COVID-19 Certificates: Vaccination Status; PHA: public health authority.

Source: Digital documentation of COVID-19 certificates (3)

Based on the workflow diagram in worksheet 2.2, draw the future state workflow diagram with appropriate digital health interventions mapped to the bottlenecks that were identified.

## HEALTH FACILITY

USER PERSONA 1

USER PERSONA 2

### 3.3 LANDSCAPE ANALYSIS OF EXISTING DIGITAL HEALTH ENTERPRISE

Building on existing investments, such as by expanding the functionality of existing applications or by incorporating new health content into the tools that health workers already use, can limit the fragmentation of the digital health enterprise and support the sustainability of your intervention. In this exercise you will conduct a landscape analysis and inventory of existing digital health applications, enabling components, shared services and enterprises used in your country.

To help you with this step, you may also use the following resources:

- ➔ Digital Health Atlas (4), a WHO global technology registry platform that lists existing projects and implementations across health programs globally. For each project listed under the Digital Health Atlas, you may also find information on the health focus area, the health system challenge it addresses, scope of implementation etc.
- ➔ Map and Match (5): The USAID-funded Map & Match project helps countries, donors, implementing partners, and the global digital health community to leverage and adapt existing digital tools in response to the COVID-19 pandemic. Through data collected via desk review, surveys, and in many cases, interviews with Ministries of Health, Map and Match highlights existing digital tools deployed in-country, including those that have been adapted for COVID-19, and opportunities to adapt currently deployed tools for COVID-19 for use cases including vaccine planning, delivery, and monitoring.
- ➔ Digital Health Mapping (6): UNICEF's digital health mapping tool lists digital systems being used in countries across various use cases within public health and other relevant sectors. Data is available for several use cases including Health Management Information System (HMIS), Logistics Management Information System (LMIS), Electronic Medical Records (EMR), Patient Registries, Track and Trace, Geographic Information System (GIS), etc.

**NAME OF DIGITAL HEALTH IMPLEMENTATION IN USE**

No. of end-users

Levels of health system impacted by the applications

Key data collected

Standards for data storage, exchange

Ability to exchange information with other systems

Potential substitute for the intervention(s) identified in exercise 1 of step 3:

### 3.4 ENABLING-ENVIRONMENT ASSESSMENT

For any digital health application to scale and become institutionalized within a health programme, it must align with the infrastructure, legislation and policies, and country or implementation leadership and governance. These foundational building blocks of a digital health strategy, contextualize the implementation of the digital health application and are critical for its viability and sustainability.

For each digital health intervention selected, use the following worksheet to list the implementation considerations for the different factors within the enabling environment. Implementation considerations to digitally provision training and educational content for health workers are shown here as an example:

<b>DESCRIPTION OF THE DIGITAL HEALTH INTERVENTION</b>	Management and provision of education and training content in electronic form for health professionals; in contrast to decision support, health worker training does not need to be used at the point of care <sup>1</sup>
<b>COMMONLY ASSOCIATED HEALTH SYSTEM CHALLENGES</b>	<ul style="list-style-type: none"> <li>» Insufficient health worker competence</li> <li>» Poor adherence to guidelines</li> <li>» Inadequate supportive supervision</li> <li>» Lack of or inappropriate referrals</li> </ul>
<b>CONSIDERATIONS BEFORE DEPLOYING</b>	<ul style="list-style-type: none"> <li>» Ensure that the information is from a source considered trustworthy and credible by health workers in your setting. For example, the information loaded on the mLearning system should be based on validated content or should align with national or WHO clinical guidance.</li> <li>» Ensure that the programme is end-user tested among health workers, both those in practice and those in training, to ensure that their needs and concerns are met.</li> <li>» Consider network capacity and coverage, especially if mLearning materials may be videos, which can be time-consuming to download in certain settings.</li> <li>» Consider usage needs of the mLearning content, as to whether or not you need to report on which resources are accessed more frequently than others, how many times and during what times of day, and then ensure that systems/applications can support these needs.</li> </ul>
<b>CONSIDERATIONS DURING DEPLOYMENT</b>	<ul style="list-style-type: none"> <li>» Improve awareness among staff and supervisors about the value of portable devices and develop ground rules or codes of conduct for when and how devices should be used to increase the acceptability of mLearning.</li> <li>» Consider if health workers can earn credits for continuing education using these materials as a way of increasing their uptake.</li> <li>» Involve the relevant professional bodies, including national certification or institutional boards, to ensure that the content of the mLearning programmes aligns with current scopes of practice and national training curricula for health workers.</li> </ul>
<b>OPPORTUNITIES FOR INTEROPERABILITY AND LINKAGES TO OTHER DIGITAL HEALTH INTERVENTIONS</b>	<p>Embed mLearning content on devices used by health workers for other digital health interventions to help maximize resources and enable health workers to access content on a routine basis.</p> <p>Link mLearning with human resource information systems to update certification of health workers.</p>
<b>RISKS AND MITIGATION STRATEGIES</b>	Issues with unvalidated or erroneous educational and training content can result in poor quality of care. The underlying content needs to undergo thorough rounds of validation and testing and be rooted in reliable sources, such as national clinical protocols and global guidelines.
<b>ADDITIONAL RESOURCE</b>	Open Deliver [app]. mPowering Frontline Health Workers; 2018 ( <a href="https://partnerships.usaid.gov/partnership/mpowering-frontline-health-workers/">https://partnerships.usaid.gov/partnership/mpowering-frontline-health-workers/</a> ).

<sup>1</sup> Adapted from *Classification of digital health interventions*, 2018.

Enabling environment factors	Implementation considerations for digital health intervention 1	Implementation considerations for digital health intervention 2
<b>1. STRATEGY AND INVESTMENTS</b>		
<b>2. INFRASTRUCTURE</b>		
<b>3. LEGISLATION, POLICY AND COMPLIANCE</b>		
<b>4. LEADERSHIP AND GOVERNANCE</b>		
<b>5. WORKFORCE</b>		
<b>6. SERVICES AND APPLICATIONS</b>		
<b>7. STANDARDS AND INTEROPERABILITY</b>		
<b>8. HEALTH CONTENT</b>		

Other resources such as the Early Stage Digital Health Investment Tool (EDIT) (7) provide additional measures with which the country readiness and digital maturity assessment may be conducted. EDIT was developed to assist ministries of health in understanding where their country is on the spectrum of digital health readiness and is available for download as a multi-sheet Excel workbook. Results from EDIT may then be used to facilitate a discussion between a country and its stakeholders around the building blocks that need to be in place to enable the successful implementation of a digital health solution.

The Global Digital Health Index (GDHI) (8) is another resource that could be used to complete this step. GDHI is an interactive digital resource that tracks, monitors, and evaluates the use of digital technology for health across countries using seven key indicator categories.

## Step 4

# Defining the capabilities and functionalities of digital health interventions

Functional requirements describe what the digital health application needs to do to address the bottlenecks we identified in Step 2. These requirements answer the question, “What does the intervention need to do to help resolve a bottleneck or pain point?” and can serve as the basis for an RFP. Understanding the perceptions, roles and responsibilities, as well as the motivations, of the people who will interact with or be affected by the digital health intervention ensures that the intervention responds to their needs. For this exercise, it would also be helpful to interview the different end-users whose personas were created in Step 1.

In order to develop functionality specifically for COVID-19 response systems and to prepare health systems for future pandemics, the Digital Pandemic Preparedness Assessment (DPPA) Tool may be used. The DPPA tool draws on epidemic response best practices and digital health standards to define broad categories of functionality for software packages. It provides 14 pandemic preparedness categories broken down into 63 functionalities in terms of practical software requirements and can be downloaded as an Excel workbook (9). Please refer to [Chapter 4: Identify health system challenges and needs](#) in the DIIG for additional details.

WORKSHEETS



4.1 Functional requirements to summarize end-user needs

## 4.1 FUNCTIONAL REQUIREMENTS TO SUMMARIZE END-USER NEEDS

Using the future state workflow we developed in Step 3, generate all possible scenarios that each end-user would encounter in a logical sequence along the process workflow. Note the functional requirements in the form of simple statements that summarize what the end-user needs the digital health intervention to do.

As an example, the functional requirements for the Proof of Vaccination scenario are shown here:

Requirement ID	Functional requirement
DDCC.FXNREQ.037	Paper cards and the validation markings they bear <b>SHOULD</b> be designed to combat fraud and misuse. Any process that generates a paper vaccination card <b>SHALL</b> include elements on the card that support the Verifier in visually checking that the card is genuine (e.g. water marks, holographic seals etc.) without the use of any digital technology.
DDCC.FXNREQ.038	Paper vaccination cards <b>SHALL</b> display an HCID.
DDCC.FXNREQ.039	Where paper cards are used, an authority <b>SHALL</b> put in place a process for the replacement of lost or damaged cards with the necessary supporting technology.
DDCC.FXNREQ.040	If a paper vaccination card or electronic vaccination document bearing a 1D or 2D barcode is presented to a Verifier, then it <b>SHALL</b> be possible for the Verifier to scan the code and, as a minimum, read the HCID encoded in the barcode, to visually compare it with the HCID written on the paper card, if present.
DDCC.FXNREQ.041	If a paper vaccination card or electronic vaccination document bears a QR code and that 2D barcode includes a digital signature, then it <b>MAY</b> be possible for the Verifier to check the signature, using information downloaded from a DDCC:VS Registry Service, to ensure it is genuine.
DDCC.FXNREQ.042	It <b>MAY</b> be possible to log all offline verification operations so that, at a later stage, when an online connection is available, verification decisions can be reviewed and reconfirmed against data provided by the online DDCC:VS Registry Service. For example, this may be done to confirm that a certificate checked offline in the morning using public key and revocation data downloaded from the DDCC:VS Registry Service the day before has not been added to a public key revocation list issued that same day.
DDCC.FXNREQ.043	It <b>SHALL</b> always be possible to perform some form of offline verification of vaccination cards; any solution should be designed so that a loss of connectivity to online components of the solution cannot force the verification work to stop.
DDCC.FXNREQ.044	If, at the time of verification, a Verifier has online access/connectivity to a DDCC:VS Registry Service managed by a National PHA, then it <b>SHALL</b> be possible to query whether the HCID present in the barcode (and the public key, if also present) of the paper vaccination card are currently valid.
DDCC.FXNREQ.045	When making the verification check, any solution <b>SHALL</b> send only the minimum information required for the verification to complete. The minimum information comprises the metadata and signature of the DDCC:VS.
DDCC.FXNREQ.046	When receiving a request for validation, a National PHA <b>SHALL</b> consult its DDCC:VS Registry Service and respond with a status to indicate that the signing key has not been revoked, that the key was issued by a certified authority, and that the DDCC has not otherwise been revoked.
DDCC.FXNREQ.047	A PHA servicing a validation request <b>MAY</b> respond with basic details of the vaccination card holder (name, date of birth, sex, etc.), in accordance with PHA policies, so the Verifier can confirm that the vaccination card corresponds to the DDCC:VS Holder who has presented himself or herself for validation.
DDCC.FXNREQ.048	A PHA <b>SHALL</b> maintain a PKI to underpin the signing and verification process. Lists of valid public keys and revocation lists will be held in such a system and be linked to the DDCC:VS Generation Service to associate public keys with HCIDs.

**MAY:** MAY is used to describe technical features and functions that are optional, and it is the implementer's decision whether to include that feature or function based on the implementation context.

**SHALL:** SHALL is used to describe technical features and functions that are mandatory for this specification.

**SHOULD:** SHOULD is used to describe technical features and functions that are recommended, but are not mandatory. It is the implementer's decision whether to include that feature or function based on the implementation context. However, it is highly recommended that the implementer review the reasons for not following the recommendations before deviating from the technical specifications outlined.

*These definitions are based on the definition published by the Internet Engineering Task Force (IETF) (<https://www.ietf.org/rfc/rfc2119.txt>, accessed 30 June 2021).*

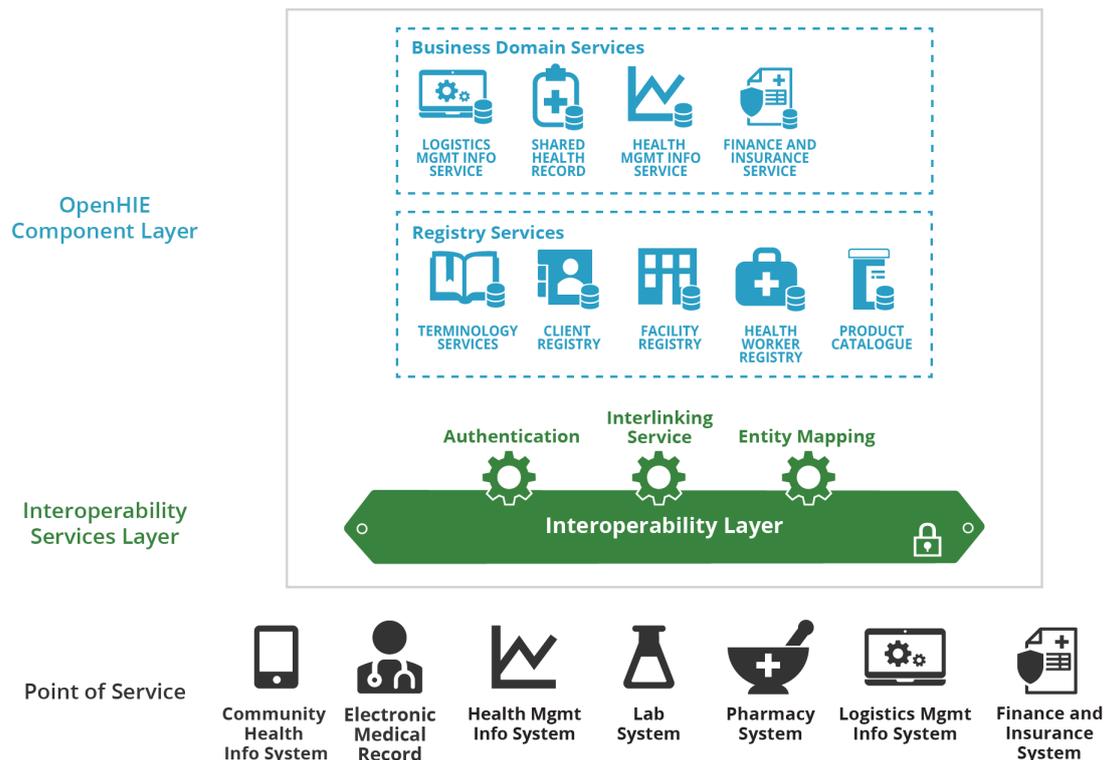
Source: Digital documentation of COVID-19 certificates (3)



# Step 5

## Linking digital health interventions to the national enterprise architecture

In this step, we will determine how the digital health intervention links to the broader architectural requirements within an exchanged digital health application architecture or a digital health platform.



OpenHIE 2021-09-29; CC BY 4.0

Source: OpenHIE Architecture (10)

A digital health platform is a shared information infrastructure on which digital health applications are built to support consistent and efficient healthcare delivery. The digital health platform serves as a foundation for the country’s digital health applications and enables interoperability between them through the use of standards. Standards allow multiple systems, applications, and devices to communicate with one another by accessing, exchanging and making use of data in a standardized and systematic way to achieve health goals. Common health data sharing standards include Health Level 7 (HL7), Global Standards 1 (GS1), Fast Healthcare Interoperability Resources (FHIR). Please refer to [Chapter 6: Link the digital health intervention to the enterprise architecture](#) in the DIIG for additional details.

WORKSHEETS



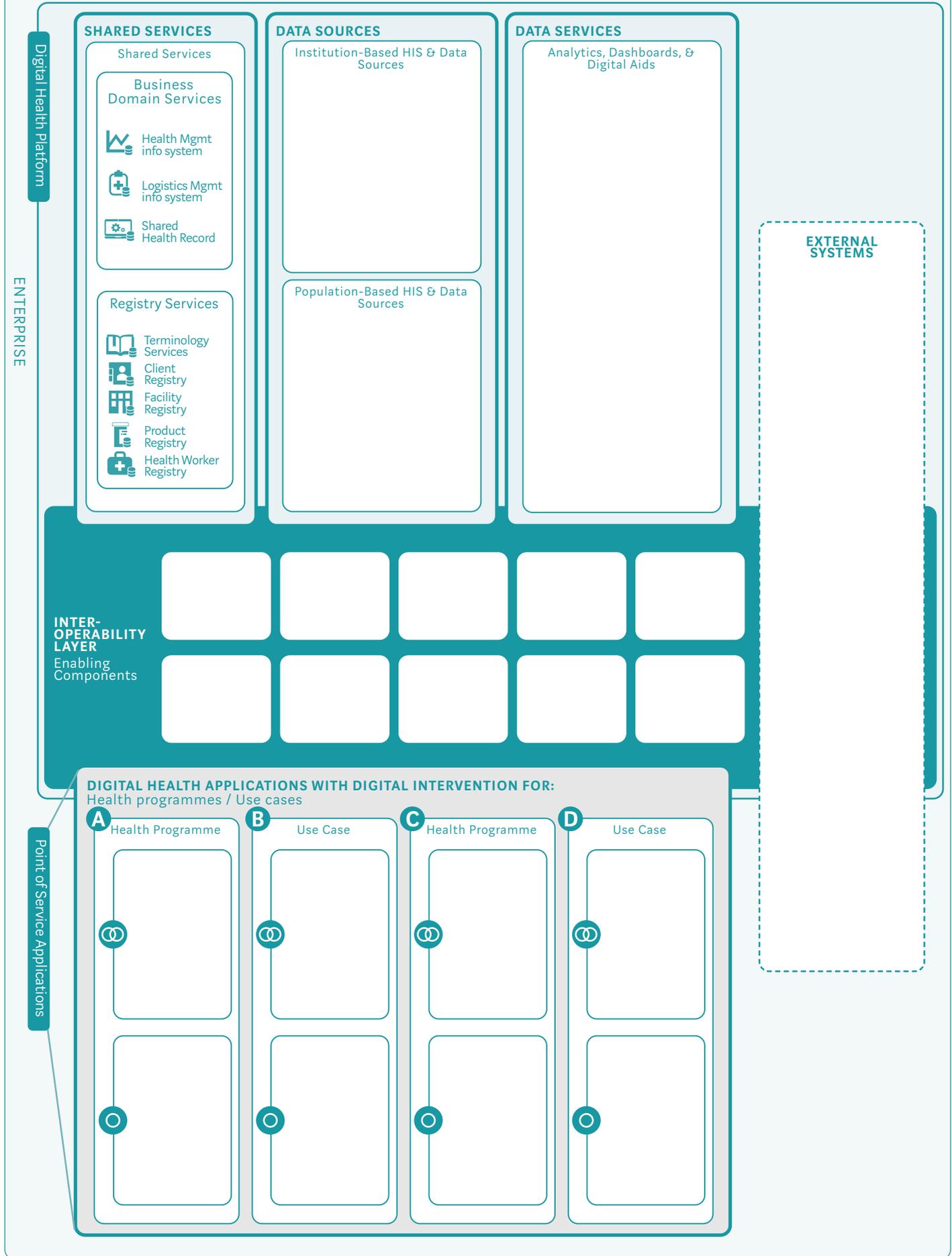
5.1 Interoperability standards, applications and data sources

## 5.1 INTEROPERABILITY STANDARDS, APPLICATIONS AND DATA SOURCES

For this exercise, list the different health applications, data sources and external systems with which the selected digital health intervention exchanges data. The template shown below can help you graphically represent how the digital health intervention fits within the exchanged digital health system architecture. The following prompts can help you complete this exercise:

- ➔ Is the digital health intervention a point of service application that enables health workers to access and collect data, or is it a component within the digital health platform that is used for business domain or registry services?
- ➔ What are the interoperability requirements and standards that your system will leverage?

FUTURE STATE



## Step 6

# Monitoring & evaluation of digital health implementations and fostering data use

After going through the steps to plan the digital health implementation and prior to deploying the implementation, you can embed mechanisms to monitor the implementation, such as collecting baseline data, and use the insights from the emerging data to increase your implementation's impact and efficiency. Ongoing monitoring of activities at different stages of the implementation is critical for ensuring its long-term success, as is responding to external changes and new learnings. Please refer to [Chapter 8: Monitor the implementation and use data effectively](#) in the DIIG for additional details.

WORKSHEETS



- ❑ [6.1 Adaptive management checklist](#)
- ❑ [6.2 Logic model for digital health implementation](#)
- ❑ [6.3 Key metrics for monitoring and evaluation \(M&E\)](#)

## 6.1 ADAPTIVE MANAGEMENT CHECKLIST

As you plan the digital health implementation, use the following adaptive management checklist to ensure your implementation is responsive to changing circumstances and achieve programme objectives in a more effective and efficient way.

## PLANNING

 <p><b>Budget for adaptive management</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Ensure there is a dedicated budget for time to implement your adaptive management processes.</li> <li><input type="checkbox"/> Allow for some flexibility in the overall budget to enable course correction as needed.</li> </ul>
 <p><b>Engage stakeholders</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Identify key stakeholders and decision-makers, including data generators, data analysts, decision-makers reviewing progress and authorities who can authorize changes in plans and/or redirect funds as needed.</li> <li><input type="checkbox"/> Clarify mechanisms for coordination between stakeholders/decision-makers (such as technical working groups).</li> <li><input type="checkbox"/> Develop a communications plan.</li> </ul>
 <p><b>Design a learning log</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Design a learning log and other knowledge management platforms based on the communications plan.</li> </ul>
 <p><b>Establish and refine digital health intervention goals and objectives</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Articulate the expected outcomes, goals and objectives of your digital health intervention; this process typically takes place during M&amp;E planning and can usually be taken directly from the M&amp;E plan.</li> </ul>
 <p><b>Develop and refine a theory of change</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Develop an evidence-based theory of change articulating your hypothesis for how change will happen throughout the life of your digital health intervention in order to achieve each goal and objective. Clearly map your evidence-based assumptions on how inputs and activities will lead to expected outputs and outcomes. This step is also typically part of designing a monitoring plan, and you may not need to develop this from scratch.</li> </ul>
 <p><b>Map areas of uncertainty within the theory of change for each objective</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Identify areas where there may be risks to implementation fidelity or where achieving desired outcomes may be uncertain given implementation or contextual factors.</li> <li><input type="checkbox"/> Identify specific stakeholders and decision-makers to engage in discussions on these areas of uncertainty.</li> </ul>
 <p><b>Plan intentional pause-and-reflect cycles. Identify time points and milestones when progress will have to be verified and course corrections will need to be made</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Schedule regular times to pause and reflect on implementation data and progress.</li> <li><input type="checkbox"/> Schedule appropriate data review meetings or technical working group meetings well in advance to ensure that necessary stakeholders will be able to attend. These may include routine meetings (like quarterly team meetings) prior to work planning, at a point in time when an identified risk may occur or directly after major deliverables have been completed.</li> </ul>



From the M&E plan, identify and map monitoring measures and specific assessments required to assess implementation fidelity, whether outputs are being realized and if risks are arising that need to be mitigated

- Identify the feedback frequency that is feasible to allow for rapid identification of potential issues.
- Find the appropriate balance between rigorous and rapid methodologies for feedback. Frequency and rapid feedback need to be balanced with understanding the burden of collecting, analysing and reporting back those data.



Develop matrix of alternative options and costs

- For areas of uncertainty or risk, identify the appropriate decision-makers to engage, alternative implementation options and critical costs associated with the alternatives.
- Costing may be time-consuming, so if resources are constrained at implementation-planning stages, at least clarify the process for developing this matrix of alternative options and costing those options.



Develop adaptive management flow; articulate the steps to get from decision to action

- Map decision-flow processes, identifying who needs to be informed, how and if budgets need to be adjusted, who has authority to make decisions and when those decisions will be acted upon regarding different areas of uncertainty.

## IMPLEMENTATION



Monitor and assess interventions to determine performance

- Implement the routine monitoring and assessments articulated in the M&E and adaptive management plans.



Pause and reflect on data regularly

- Conduct data review meetings.
- Provide feedback to appropriate decision-makers at the appropriate decision milestones to verify if things are on track or determine if course corrections are needed.
- Define recommendations and action steps needed based on data review.



Take evidence-based action

- Engage necessary actors to make decisions and approve any needed adjustments.
- Make evidence-based adjustments and course corrections.
- Adapt the implementation as required, and be sure to update any necessary assessments or monitoring measures needed to track the new implementation plan.



Document findings and learnings in a learning log

- Keep a record of lessons learned along the way. A learning log can be used to track issues identified, data reviewed, decisions made and course corrections needed and acted upon.



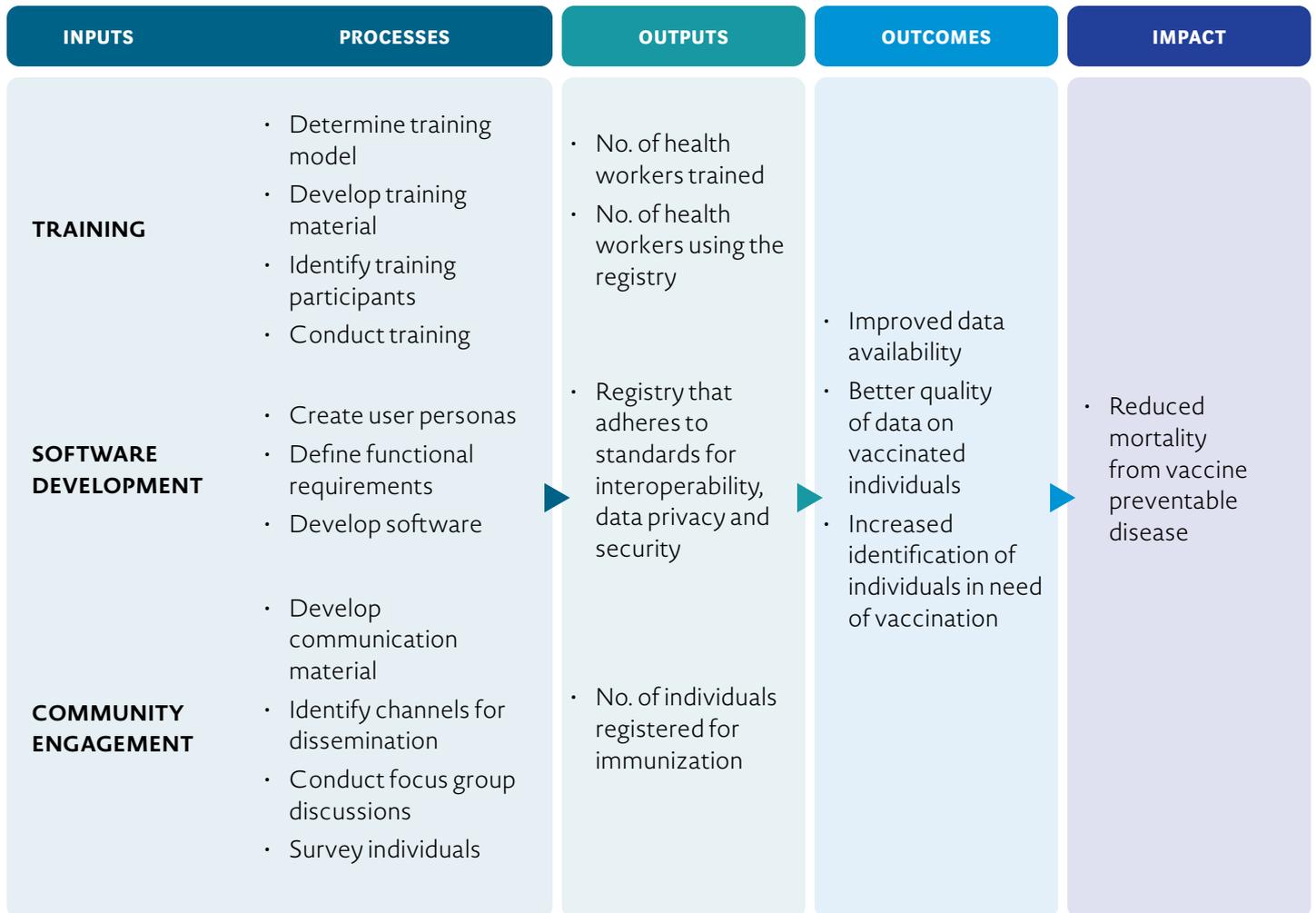
Repeat and continue to monitor, reflect, adapt, document and learn throughout the life cycle of the implementation

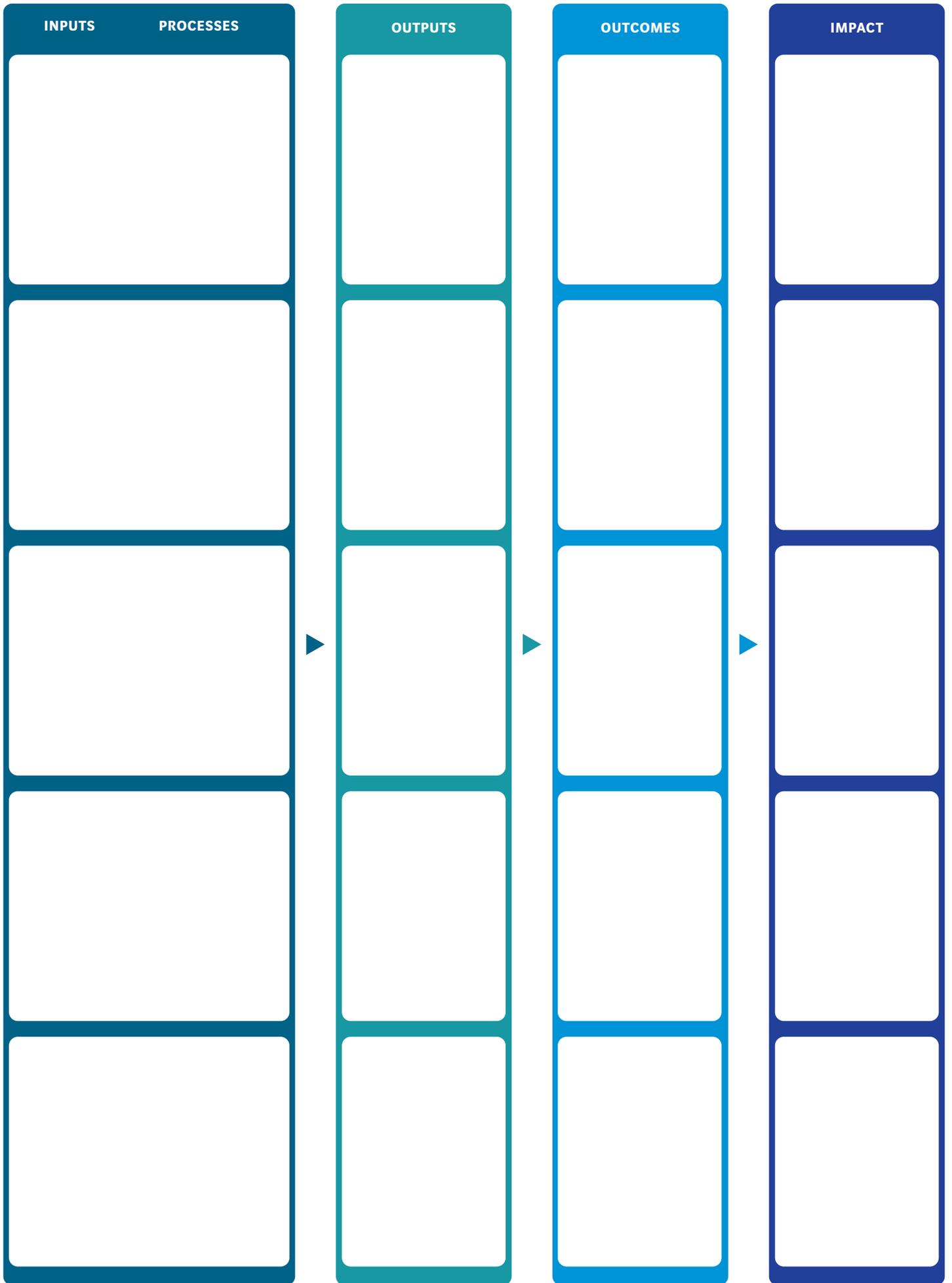
## 6.2 LOGIC MODEL FOR DIGITAL HEALTH IMPLEMENTATION

Logic models aim to clarify programme objectives and aid in identifying expected causal links from inputs, processes, outputs, outcomes and impacts. They provide a graphical representation, which may serve as a catalyst for engaging and communicating with key stakeholders, including implementers, in an iterative process.

Using the logic model template shown below, map your programme inputs, processes, outputs and the anticipated impact, including specific indicators you will use to measure the outcomes.

An illustrative example is shown below for the development of an immunization registry:





## 6.3 KEY METRICS FOR MONITORING AND EVALUATION (M&E)

Ideally, monitoring and evaluation occur in close balance with each other and are structured to answer questions that are most relevant at each stage of the implementation. M&E needs evolve as the deployment matures. Potential measures and guiding questions across the intervention maturity continuum are provided in the graphic below.

Component	When	Potential Measures	Implementation Maturity Continuum & Guiding Questions
<b>QUALITY</b>	Pre-launch & during implementation	<ul style="list-style-type: none"> <li>End-user entry of phone number is correct</li> <li>Rate of agreement in data recording between training rounds (i.e. end-user accuracy)</li> <li>Quality control reports on end-users</li> </ul>	 <p>How well and consistently are end-end-users able to operate the system?</p> <p>Are the content and use of the system adequate for yielding intended outcomes?</p>
		<ul style="list-style-type: none"> <li>Feedback from end-users on content</li> <li>Incorrect schedules or content updates</li> <li>Timestamps on form submissions</li> <li>Number of form submissions/worker</li> <li>Data patterns similar across workers/ geographic areas</li> </ul>	
<b>FIDELITY</b>	During implementation	<ul style="list-style-type: none"> <li>Stability reports</li> <li>Functionality reports</li> <li>Phone loss or damage</li> <li>Poor network connectivity</li> <li>Power outages</li> <li>End-user forgets password</li> <li>Incorrect intervention delivery by end-user</li> </ul>	<p>Do the realities of field implementation alter the functionality and stability of the system?</p> <p>Is the system being used appropriately or as designed?</p>
<b>STABILITY</b>	Pre-launch	<ul style="list-style-type: none"> <li>Server downtime</li> <li>SMS failure rate</li> </ul>	<p>Does the system consistently operate as intended?</p> <p>Is the system responsive during peak conditions or high volume of data transmission?</p> <p>What is the failure rate from the server side?</p>
		<ul style="list-style-type: none"> <li>Network connectivity</li> <li>Server operation capacity</li> </ul>	
<b>FUNCTIONALITY</b>	Pre-launch	<ul style="list-style-type: none"> <li>SMS content</li> <li>SMS schedules</li> <li>SMS timing</li> </ul>	<p>Does the system meet the requirements for addressing the identified health system challenge?</p> <p>Does the system operate as intended?</p>
		<ul style="list-style-type: none"> <li>Form content</li> <li>Form schedules</li> <li>Application functions</li> <li>Comparison of requested system vs delivered system</li> <li>QA test case adherence</li> </ul>	

For your programme, make a list of measures at the different stages of the deployment that would ensure the programme is on track to achieve its intended impact.

Component	When	Potential Measures	Implementation Maturity Continuum & Guiding Questions
<b>QUALITY</b>			
<b>FIDELITY</b>			
<b>STABILITY</b>			
<b>FUNCTIONALITY</b>			

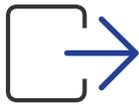
## Step 7

# Costing for Implementation, Maintenance, and Scale

In this final step, we will develop a budget for implementing and sustainably operating the digital health intervention within your country's digital health ecosystem. We will identify cost drivers for each phase of the digital health implementation, including budget considerations related to interoperability, and develop a budget for the life span of the investment. The worksheet below provides suggested cost items to help us develop a programme budget. Please refer to [Chapter 7: Develop a budget](#) in the DIIG for additional details.

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WORKSHEETS



7.1 Cost drivers across phases

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## 7.1 COST DRIVERS ACROSS PHASES

Using the template provided, list the different cost drivers for each phase of the implementation. Then enter the total cost for each cost driver on a yearly basis. You may use a monthly rate to arrive at an annual cost. Remember to factor a year-on-year rate increase.

Phase	Cost driver	Up-front versust recurring	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
 <b>ONGOING/ ALL PHASES</b>	Management and staffing	Recurring						
	Governance	Recurring						
 <b>DEVELOP- MENT AND SETUP</b>	Software licensing cost per environment and per end-user	Up-front						
	Software customization, including adding additional languages	Up-front						
	Application installation and configuration	Up-front						
	Interoperability with other systems	Recurring						
	Hardware	Recurring						
 <b>DEPLOYMENT</b>	End-user testing	Recurring						
	Cost and availability of data connectivity and power	Recurring						
	Training	Recurring						
	Roll-out	Up-front						
 <b>INTEGRATION AND INTER- OPERABILITY</b>	Data collection and use	Recurring						
 <b>SCALE</b>	Any category that will be affected by expanding reach	Recurring						

Phase	Cost driver	Up-front versust recurring	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
 <p><b>SUSTAINED OPERATIONS</b></p>	<b>Voice and data services</b> <i>(mobile data plan, Internet, number of text messages)</i>	Recurring						
	<b>Hardware maintenance, ongoing administration and replacement rate</b>	Recurring						
	<b>Subscriptions</b>	Recurring						
	<b>Software maintenance</b> <i>(fixing bugs, adding features, maintaining customizations)</i>	Recurring						
	<b>Transfer of ownership</b>	Recurring						
	<b>Refresher training and additional training activities</b>	Recurring						
	<b>M&amp;E and data-use activities</b>	Recurring						
	<b>Collective benefit, such as sharing learnings</b>	Recurring						
<b>TOTAL</b>								

## Requesting Technical Assistance

For the steps listed above and for the subsequent design and implementation of digital health interventions, countries may request technical assistance through the Digital Health Centre of Excellence (DICE) (11). DICE is a multi-agency consortium that was formed in April 2021 with an aim to more effectively organize support and provide coordinated technical assistance to countries for COVID-19 response. As low- and middle-income countries continue to roll-out COVID-19 vaccines, DICE ensures efficient and equitable roll-out through sustainable and scalable deployment of carefully chosen digital health solutions. This includes solutions for COVID-19 surveillance and case detection, training and communicating with frontline health workers, roll-out of vaccines and subsequent monitoring of coverage, and other innovative, digital aspects of country response activities.



DICE is a consortium of partners, including the Bill and Melinda Gates Foundation (BMGF), GIZ, the US Centers for Disease Control and Prevention (CDC), the European Commission, The Global Fund, The Foreign, Commonwealth & Development Office (FCDO), the Gavi Alliance, USAID, and the World Bank. DICE is co-hosted by a UNICEF-WHO virtual secretariat that manages day-to-day activities and coordinates with consortium members and other technical partners such as Clinton Health Access Initiative (CHAI) and Digital Square.

Technical assistance offered through DICE is driven by country demand and ownership. DICE works through UNICEF, WHO and country missions of consortium members, as well as their respective Regional Offices, and with other global partners including USAID, to identify and respond to country technical support requests. All in-country activities are led by national governments and partners, with DICE advising and providing quality assurance through a pre-vetted roster of consultants.

While the immediate focus is on health system priorities for COVID-19 response, DICE also supports the WHO's Global Digital Health Strategy and enables post-pandemic health system strengthening. Depending on country needs, DICE assists countries in the following areas:

- Conduct readiness assessments, define business requirements, conduct platform analysis, and map existing tools and gaps.
- Coordinate surge support to countries to assist in their development of a rapid strategic approach to meet the imminent needs of the vaccine delivery and transition to a sustainable strengthened and digitally enabled health system.
- Foster capacity and partnership with regional and national digital health experts toward the development of capacity that can provide long-term technical support to the region.
- Support the transition, alignment, and integration of COVID-19-related digital health investments through a systems strengthening lens.

Requests for technical assistance should come from or be endorsed by a Government institution. Countries requesting support may fill the form that can be found on the DICE website.

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