Toolkit Fair: Digital health resources for health systems strengthening

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Common questions

❑ How can I use digital health to address a problem/need?

❑ Is there any evidence that digital health works?

❑ How do I know what projects/investments already exist in the country?

❑ How do I implement digital health?

❑ …

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Linking questions to resources

Common question	Resource
How can I use digital health to address a problem? **Is there any evidence that digital health works?**	**WHO Digital Health Guidelines:** Provide evidence-based recommendations on the effectiveness of digital health interventions to inform decisions and country investment plans.
How do I know what projects/investments already exist in the country?	**Digital Health Atlas:** Web-based inventory to curate information on digital health investments for mapping, monitoring, and planning needs.
How do I implement digital health?	**WHO-PATH Implementation and Financing Toolkit:** Provides operational guidance on how to prioritize, plan, and finance digital interventions in the country-context.

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Guidelines

- Official request from member states on Guidelines regarding the selection and prioritization of digital strategies of value for the SDGs.

- Global financing mechanisms and governments increasingly recognize potential value of digital health interventions, but lack evidence-base guidance to direct planning and investments.

- Need to articulate linkages between health system challenges and digital health interventions.

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Interventions under consideration

Currently have 13 questions under consideration, focusing on a variety of digital health interventions:

- Targeted client communication
- Digital healthcare provider training
- Digital decision support
- Digital tracking of client health records
- Birth and death notification
- Monitoring stock outs
- Provider to provider communication / telemedicine
- Remote client to provider communication/ telemedicine

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Program Planning, Implementation, and Financing Guide for digital interventions for RMNCAH and health systems strengthening

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Digital Health Atlas

- Supports **government led mechanisms to conduct dynamic inventories of digital health investments.**

- Allows for trusted partner to **uniquely identify and categorize** specific investments using minimum data set, and then hand over to project to add details.

- Additional **data fields and customization** will be added throughout 2017 with input from Governments, donors, and technologists.

- Mechanism for Government to verify information.

COUNTRY LEVEL VIEW
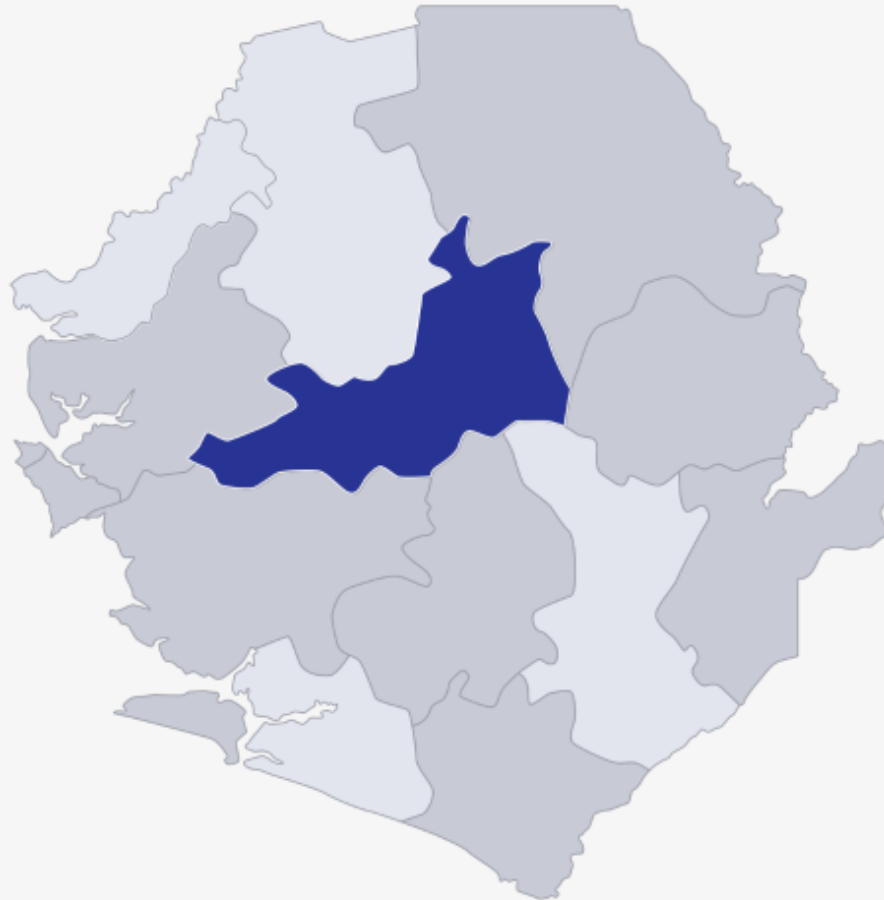
MAP VIEW   LIST VIEW

Sierra Leone ▬ ▾

Area name #1234

Helen Keller International
Routine nutrition monitoring

eHealth Africa
SENSE contact tracing

GOAL International
SENSE contact tracing

23 projects
Click on district to show all!

ⓘ How to use this map?

Hover on dtricts shows list the
list of active projects in an area.

Click on a district to enlarge and
browse the list of projects.

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COUNTRY LEVEL VIEW

MAP VIEW · LIST VIEW

Sierra Leone ▼

★ My projects

Project name ⌄	Country	Organization name	Donor name	I'm following	I've funded
★ eHealth Africa	Sierra Leona	Organization name	Donor name	✓	✓
GOAL International	Sierra Leona	Adipisici Elit	Adipisici Sed Magna		
★ Helen Keller International	Sierra Leona	Sed Eiusmod Tempor	Sed Eiusmod	✓	✓
Lorem ipsum dolor	Sierra Leona	Incidunt Labore	Tempor		✓
Sit amet Consectetur	Sierra Leona	Et Dolore Magna	Incidunt Labore		
Adipisici Elit	Sierra Leona	Aliqua	Et Dolore Magna		
Sed Eiusmod Tempor	Sierra Leona	Sed Eiusmod Tempor	Aliqua Tempor	✓	
★ Incidunt Ut Labore	Sierra Leona	Incidunt Ut	Sed Eiusmod		
Et Dolore Magna	Sierra Leona	Et Dolore Magna	Incidunt Tempor		
Aliqua Lorem	Sierra Leona	Lorem Ipsum	Donor name	✓	✓
Sed Eiusmod Tempor	Sierra Leona	Organization name	Adipisici Sed Magna		
Incidunt Ut Labore	Sierra Leona	Adipisici Elit	Sed Eiusmod	✓	
Et Dolore Magna	Sierra Leona	Et Dolore Magna	Incidunt Magna		
Aliqua Lorem	Sierra Leona	Aliqua	Aliqua Eiusmod		

Shared language is foundational…

- Standardized "**classifications**" used across resources for **inventory**, formulating **WHO recommendations**, and **implementation guidance**

CLASSIFICATION OF DIGITAL HEALTH INTERVENTIONS v1.0

A shared language to describe the uses of digital technology for health

WHAT IS IT?

The classification of digital health interventions (DHIs) categorizes the variety of ways in which digital and mobile technologies are being used to support health system needs. Targeted primarily at public health audiences, this Classification framework aims to promote an accessible and bridging language for health program planners to articulate functionalities of digital health implementations. Also referred to as a taxonomy, this Classification scheme is anchored on the unit of a "digital health intervention," which represents a discrete functionality of the digital technology to achieve health sector objectives.

1.0 CLIENTS

1.1 TARGETED CLIENT COMMUNICATION

1.1.1 Transmit health event alerts to specific population group(s)

1.1.2 Transmit targeted health information to client based on health status or demographics

1.1.3 Transmit targeted alerts and reminders to client(s)

1.1.4 Transmit diagnostics result, or availability of result, to clients

1.2 UNTARGETED CLIENT COMMUNICATION

1.2.1 Transmit untargeted health information to an undefined population

1.2.2 Transmit untargeted health event alerts to undefined group

1.3 CLIENT TO CLIENT COMMUNICATION

1.3.1 Peer group for clients

1.4 PERSONAL HEALTH TRACKING

1.4.1 Access by client to own medical records

1.4.2 Self monitoring of health or diagnostic data by client

1.4.3 Active data capture/ documentation by client

1.5 CITIZEN BASED REPORTING

1.5.1 Reporting of health system feedback by clients

1.5.2 Reporting of public health events by client

1.6 ON-DEMAND INFORMATION SERVICES TO CLIENTS

1.6.1 Client look-up of health information

1.7 CLIENT FINANCIAL TRANSACTIONS

1.7.1 Transmit or manage out of pocket payments by client

1.7.2 Transmit or manage vouchers to client for health services

1.7.3 Transmit or manage incentives to clients for health services

2.0 HEALTHCARE PROVIDERS

2.1 CLIENT IDENTIFICATION AND REGISTRATION

| 2.1.1 | Verify client unique identity |
| 2.1.2 | Enrol client for health services/clinical care plan |

2.2 CLIENT HEALTH RECORDS

2.2.1	Longitudinal tracking of client's health status and services received
2.2.2	Manage client's structured clinical records
2.2.3	Manage client's unstructured clinical records
2.2.4	Routine health indicator data collection and management

2.3 HEALTHCARE PROVIDER DECISION SUPPORT

2.3.1	Provide prompts and alerts based according to protocol
2.3.2	Provide checklist according to protocol
2.3.3	Screen clients by risk or other health status

2.4 TELEMEDICINE

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 healtcare provider
2.4.4	Consultations for case management between healthcare providers

2.5 HEALTHCARE PROVIDER COMMUNICATION

2.5.1	Communication from healthcare provider to supervisor
2.5.2	Communication and performance feedback to healthcare provider
2.5.3	Transmit routine news and workflow notifications to healthcare provider(s)
2.5.4	Transmit non-routine health event alerts to healthcare providers
2.5.5	Peer group for healthcare providers

2.6 REFERRAL COORDINATION

2.6.1	Coordinate emergency response and transport
2.6.2	Manage referrals between points of service within health sector
2.6.3	Manage referrals between health and other sectors

2.7 HEALTH WORKER ACTIVITY PLANNING AND SCHEDULING

| 2.7.1 | Identify clients in need of services |
| 2.7.2 | Schedule healthcare provider's activities |

2.8 HEALTHCARE PROVIDER TRAINING

| 2.8.1 | Provide training content to healthcare provider(s) |
| 2.8.2 | Assess capacity of healthcare provider |

2.9 PRESCRIPTION AND MEDICATION MANAGEMENT

2.9.1	Transmit or track prescription orders
2.9.2	Track client's medication consumption
2.9.3	Report adverse drug effects

2.10 LABORATORY AND DIAGNOSTICS IMAGING MANANGEMENT

2.10.1	Transmit diagnostic result to healthcare provider
2.10.2	Transmit and track diagnostic orders
2.10.3	Capture diagnostic results from digital devices
2.10.4	Track biological specimens

3.0
HEALTH SYSTEM MANAGERS

3.1 HUMAN RESOURCE MANAGEMENT

3.1.1	List health workforce cadres and related identification information
3.1.2	Monitor performance of healthcare provider(s)
3.1.3	Manage certification/registration of healthcare provider(s)
3.1.4	Record training credentials of healthcare provider(s)

3.2 SUPPLY CHAIN MANAGEMENT

3.2.1	Manage inventory and distribution of health commodities
3.2.2	Notify stock levels of health commodities
3.2.3	Monitor cold-chain sensitive commodities
3.2.4	Register licensed drugs and health commodities
3.2.5	Manage procurement of commodities
3.2.6	Report counterfeit or substandard drugs by clients

3.3 PUBLIC HEALTH EVENT NOTIFICATION

3.3.1	Notification of public health events from point of diagnosis

3.4 CIVIL REGISTRATION AND VITAL STATISTIC

3.4.1	Notify birth event
3.4.2	Register birth event
3.4.3	Certify birth event
3.4.4	Notify death event
3.4.5	Register death event
3.4.6	Certify death event

3.5 HEALTH FINANCING

3.5.1	Register and verify client insurance membership
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

3.6 EQUIPMENT AND ASSET MANAGEMENT

3.6.1	Monitor status of health equipment
3.6.2	Track regulation and licensing of medical equipment

3.7 FACILITY MANAGEMENT

3.7.1	List health facilities and related information
3.7.2	Assess health facilities

4.0
DATA SERVICES

4.1 DATA COLLECTION, MANAGEMENT, AND USE

4.1.1 Non routine data collection and management

4.1.2 Data storage and aggregation

4.1.3 Data synthesis and visualization

4.1.4 Automated analysis of data to generate new information or predictions on future events

4.2 DATA CODING

4.2.1 Parse unstructured data into structured data

4.2.2 Merge, de-duplicate, and curate coded datasets or terminologies

4.2.3 Classify disease codes

4.3 LOCATION MAPPING

4.3.1 Map location of health facilities/structures

4.3.2 Map location of health events

4.3.3 Map location of clients and households

4.3.4 Map location of healthcare provider(s)

4.4 DATA EXCHANGE AND INTEROPERABILITY

4.4.1 Data exchange across systems

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Category	Interventions	Synonyms	Illustrative examples*
3.1 **HUMAN RESOURCE MANAGEMENT** Digital approaches to manage the health workforce, including the use of databases to record training levels, certifications, and identification of health workers.	3.1.1 **LIST HEALTH WORKFORCE CADRES AND RELATED IDENTIFICATION INFORMATION**	- HEALTH WORKER REGISTRY; PROVIDER REGISTRY - DOCUMENTATION OF HEALTHCARE PROVIDERS' DEMOGRAPHICS, IDENTIFICATION, HEALTH FACILITY ASSIGNMENT, AND OTHER IDENTIFIER INFORMATION	**iHRIS Manage:** "... supports Ministry of Health and other service delivery organizations to track, manage, deploy, and map their health workforce." [24]
	3.1.2 **MONITOR PERFORMANCE OF HEALTHCARE PROVIDER(S)**	- REMOTE MONITORING OF HEALTHCARE PROVIDERS - WORKFORCE MANAGEMENT - AUDIT AND FEEDBACK - SUPERVISION, SUPPORTIVE SUPERVISION - CLINICAL TASK TRACKING	**iCCM:** The application includes a "routine supervision checklist on few key indicators of performance by the Health Surveillance Assistants (HSAs)...and a dashboard that enables users to see at a glance the status of the work being done by HSA." [8] **Health Enablement and Learning Platform (HELP):** "Community Health Extension Workers (CHEWs) receive weekly reports on worker performance and are able to target those in need of additional support." [8] **mHealth for Community-Based Family Planning Services:** "A system for the field team to monitor data and provide feedback to CHWs on a weekly basis..." [8]
	3.1.3 **MANAGE REGISTRATION/ CERTIFICATION OF HEALTHCARE PROVIDER(S)**	- MANAGEMENT OF HEALTH WORKER REGISTRATION - CERTIFICATION OR LICENSURE WITH REGULATORY AUTHORITY SUCH AS A PROFESSIONAL COUNCIL	**iHRIS Qualify:** "...enables a licensing or certification authority, such as a nursing council, to track complete data on a health worker cadre from pre-service training through attrition. It captures information about health professionals in that cadre from the time they enter pre-service training through registration, certification, and/or licensure." [24]
	3.1.4 **RECORD TRAINING INFORMATION ON HEALTHCARE PROVIDER(S)**	- TRACK OR MANAGE PRESERVICE AND/OR IN-SERVICE TRAINING RECEIVED BY A HEALTH WORKER	**iHRIS Train:** "Consolidates health worker training attendance and related data from several training organizations into a centralized database that can be queried and used to generate reports for further analysis." [24]
3.2 **SUPPLY CHAIN MANAGEMENT** Digital approaches for monitoring and reporting stock levels, consumption and distribution of medical commodities. This can include the use of communication systems (e.g. SMS) and data dashboards to manage and report on supply levels of medical commodities.	3.2.1 **MANAGE INVENTORY AND DISTRIBUTION OF HEALTH COMMODITIES**	- STOCK MONITORING OF HEALTH COMMODITIES - LOGISTICS MANAGEMENT - STOCK MANAGEMENT - COMMODITY SECURITY	**International Quality Short Messaging System (IQSMS):** "Healthcare workers' send preformatted commodity reports on key HIV stock status to a central server via SMS. The tool enables districts to full order of all commodities as quantified by the system and based on what has been consumed." [8] **eLMIS Bangladesh:** "...electronic Logistics Management Information System (eLMIS) collects data on consumption and availability of FP commodities, which is consolidated and entered for [viewing on] an interactive dashboard." [8] **cStock:** "HSAs sent a toll-free SMS using their personal mobile phones reporting current stock levels and medicines received..." [8]
	3.2.2 **NOTIFY STOCK LEVELS OF HEALTH COMMODITIES**	- STOCKOUT PREVENTION AND MONITORING - ALERTS AND NOTIFICATIONS OF STOCK LEVELS - RESTOCKING COORDINATION	**iCCM:** "Health workers can report stock levels and then submitted the data to cStock, a program to improve the tracking of inventories..." [8] **cStock:** "... automatically calculated resupply quantities and notified staff at health centers, who check their stock levels and advise HSAs whether stock was available for pick up or alerted health facilities and district managers that there was insufficient stock." [8]

Intervention	Synonyms	Illustrative examples
3.2.2 Notify stock levels of health commodities	-Stockout prevention and monitoring -Alerts and notifications of stock levels	• **cStock:** "... automatically calculates resupply quantities and notifies staff at health centers, who check their stock levels and advise HSAs on whether stock is available for pick up or alerts health facilities and district managers if there is insufficient stock."[8]

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HEALTH SYSTEM CHALLENGES

INFORMATION

- 1.1 Lack of population denominator
- 1.2 Delayed reporting of events
- 1.3 Lack of quality/ reliable data
- 1.4 Communication roadblocks
- 1.5 Lack of access to information or data
- 1.6 Insufficient utilization of data and information
- 1.7 Lack of unique identifier

AVAILABILITY

- 2.1 Insufficient supply of commodities
- 2.2 Insufficient supply of services
- 2.3 Insufficient supply of equipment
- 2.4 Insufficient supply of qualified health workers

QUALITY

- 3.1 Poor patient experience
- 3.2 Insufficient health worker competence
- 3.3 Low quality health commodities
- 3.4 Low Health worker motivation
- 3.5 Insufficient continuity of care
- 3.6 Inadequate supportive supervision
- 3.7 Poor adherence to guidelines

ACCEPTABILITY

- 4.1 Lack of alignment with local norms
- 4.2 Programs which do not address individual beliefs and practices

UTILIZATION

- 5.1 Low demand for services
- 5.2 Geographic inaccessibility
- 5.3 Low adherence to treatments
- 5.4 Loss to follow up

EFFICIENCY

- 6.1 Inadequate workflow management
- 6.2 Lack of or Inappropriate referrals
- 6.3 Poor planning and coordination
- 6.4 Delayed provision of care
- 6.5 Inadequate access to transportation

COST

- 7.1 High cost of manual processes
- 7.2 Lack of effective resource allocation
- 7.3 Client-side expenses
- 7.4 Lack of coordinated payer mechanism

Accountability

- 8.1 Insufficient patient engagement
- 8.2 Unaware of service entitlement
- 8.3 Absence of community feedback mechanisms
- 8.4 Lack of transparency in commodity transactions
- 8.5 Poor accountability between the levels of the health sector
- 8.6 Inadequate understanding of beneficiary populations

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Health System Challenge (HSC)
Need or problem to be addressed

Digital Health Intervention (DHI)
Digital functionality for addressing the Health System Challenge

Application Category
ICT system that delivers one or more of the Digital Health Interventions

HSC	DHI	Application Category
Insufficient supply of commodities	3.2.1 Manage inventory and distribution of health commodities 3.2.2 Notify stock levels of health commodities	» Logistics Management Information System
Healthcare provider's poor adherence to clinical guidelines	2.3.1 Provide prompts and alerts based according to protocol 2.3.2 Provide checklist according to protocol 2.5.2 Communication and performance feedback to healthcare provider 2.7.2 Scheduling of health worker activities	» Telemedicine systems » Decision support systems
Lack of access to information or data	2.2.4 Routine health indicator data collection and management 4.1.2 Data storage and aggregation 4.1.3 Data synthesis and visualizations	» Health Management Information System (HMIS) » Electronic Medical Record » Identification registries and directories
Loss to follow-up of clients	1.1.3 Transmit targeted alerts and reminders to a client 2.2.1 Longitudinal tracking of client's health status and services received	» Client communication system » Electronic Medical Record

Practical application of classification