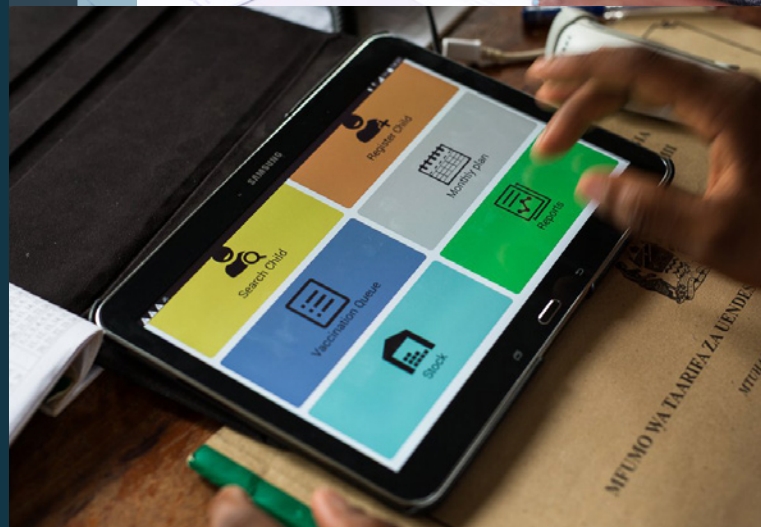
COMMUNITY HEALTH WORKER

Foundational Digital Literacy Framework



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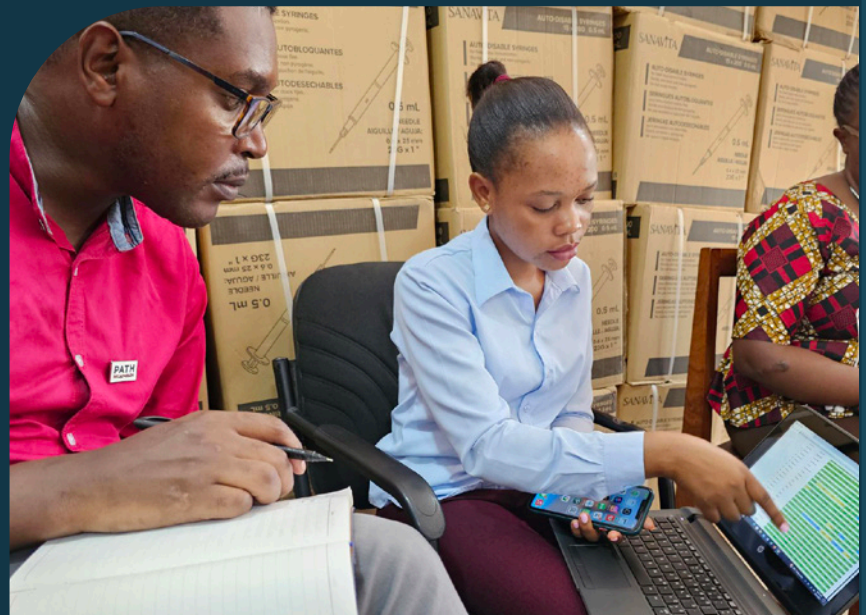

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Executive summary

Community Health Workers (CHWs) are at the frontline for delivering essential healthcare in underserved populations, particularly in low- and middle-income countries (LMICs). However, their effectiveness is increasingly dependent on their digital literacy, as digital tools are being integrated to improve service quality and data management. This document presents a comprehensive framework for foundational digital literacy among CHWs, addressing the critical need to bridge the digital gender gap and equip CHWs with essential skills.

Developed through a rigorous research process involving literature reviews, existing curriculum analysis, key informant interviews, in-country consultations and peer review, the framework defines CHWs digital literacy as the ability of those cadres to access, use, manage, and share health information safely and effectively through digital technologies. It outlines three competency levels (foundational, intermediate, and advanced), focusing on the foundational level required for CHWs.

The framework comprises seven core competence areas: devices and software operations, information and data literacy, communication and collaboration, digital content creation, transactional skills, security and safety, and interpersonal skills. Additionally, it emphasizes three overarching competency areas: problem-solving, legislation, policy and responsible data use, and artificial intelligence awareness. All those competency areas comprise each, a set of competencies for at minimum the basic tier with non-exhaustive competencies at mid and high tiers.

This framework aims to guide ministries and implementing partners in strengthening CHW digital literacy, ensuring they can effectively utilize digital tools to enhance healthcare delivery. By prioritizing foundational skills and addressing gender disparities, this initiative seeks to empower CHWs and improve health outcomes in LMICs. Accompanying this framework is a suggested model curriculum to help train on basic-tier foundational digital literacy competencies. Contained in the curriculum also implementation recommendations for the training.

Introduction

Community health workers (CHWs) are often the first point of care for underserved populations in lower- and middle-income countries. According to the Global Fund, there are over 3.8 million CHWs globally across at least 98 countries. However, this number of CHWs is not sufficient to meet global needs for essential health workers—as they currently stand. As stakeholders work to improve essential health care through increased CHW services (underpinned by adequate training, supportive supervision, and compensation), they are turning to digital solutions to address health systems challenges and grow the impact of the CHW model. As digital tools are introduced to improve quality of services through data access and sharing, support decision-making, and enhance data availability and quality, the need for CHWs to be digitally literate is crucial.

Digital literacy is now an essential part of being able to operate as a CHW. However, around 70 percent of CHWs are women. According to the 2024 GSMA Mobile Gender Gap Report, women are 15 percent less likely to use mobile internet than men. When women do use mobile internet, they use it for a narrower range of functions than men. Approximately 785 million women do not use mobile internet (60 percent of whom live in South Asia and sub-Saharan Africa). This lack of use of mobile internet is linked to a cycle of low digital literacy among women: they don't know, therefore they don't use, therefore they don't learn through experience.

Despite the digital literacy challenges among a large percentage of CHWs, digital tools for CHWs have historically focused on how to use specific applications (business processes, for example) and assume that the user has the knowledge, skills, and attitude to use a basic digital device. Although there are many digital literacy or skills building frameworks or toolkits held by different organizations, there is not yet a tool that can guide digital literacy especially for CHWs. Digital Square proposes this framework to answer the questions of what is needed in terms of foundational digital literacy for CHWs and what is the package of basic knowledge, skills, and attitudes that are required to ensure that ministries and implementing partners strengthen digital literacy among CHWs, mainly in low- and middle-income countries (LMICs).

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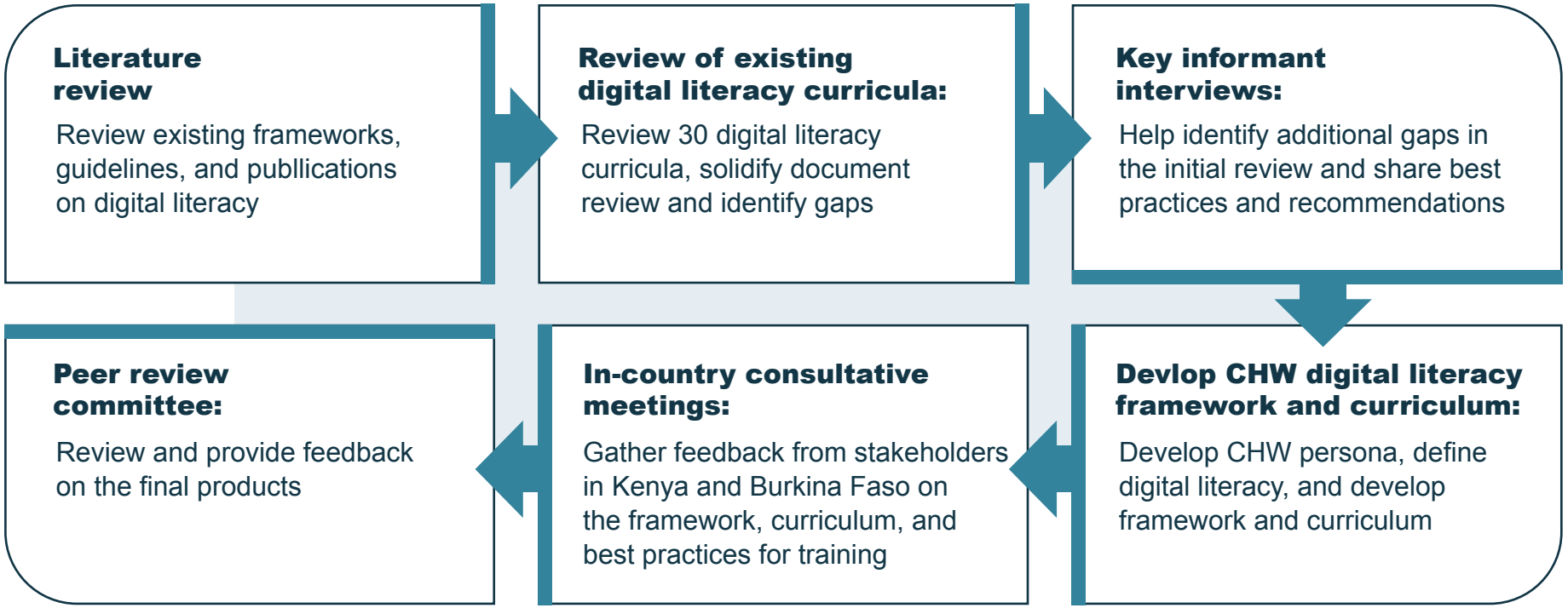
Process for developing the digital literacy framework

The development of this framework is based on triangulated research that includes data from a secondary review of the existing body of knowledge around digital literacy in low-resource settings, as well as primary data sources from individual interviews and focus groups. Taking a multipronged data generation and analysis approach, we have built on existing knowledge in an inclusive and participatory way, involving stakeholders from LMICs, to ensure that the framework meets the needs of CHWs in low-resource settings. Figure 1 summarizes the process of review and analysis.

Figure 1. Foundational digital literacy framework development process.



Each step of the process in Figure 1 is described in more detail below:

- **The literature review** was used to understand existing knowledge regarding digital literacy in low-resource settings and reflect on how this knowledge can inform digital literacy training of CHWs. The documents (published and unpublished) came from relevant stakeholders such as International Telecommunication Union (ITU), United Nations Educational, Scientific and Cultural Organization (UNESCO), United States Agency for International Development (USAID), UK Aid, and ministries of health. The review provided authors with definitions of digital literacy and the existing related frameworks. It also raised the idea of associated levels of knowledge skills building approaches and assessment methods. This process resulted in a draft foundational digital literacy competency framework, which was refined in subsequent steps.
- **The review of existing digital literacy curricula** provided the authors with more in-depth knowledge of key areas of competence currently being focused on in digital literacy training. The team reviewed 30 digital literacy curricula, with 16 of these curricula designed for community agents, including 13 targeting CHWs in LMICs. The curricula are owned by multiple stakeholders, including government agencies, international development organizations, nongovernmental organizations, and private institutions. This knowledge helped confirm findings from the document review, while revealing gaps in foundational digital literacy training of CHWs.
- **Key informant interviews (KIIs)** were conducted with representatives from the global digital health community representing entities such as ministries of health (MOHs), implementing organizations, donors, academics, and the private sector. The insights gathered through the KIIs built on the secondary research, focusing on useful requirements and approaches to a foundational digital literacy framework. The KIIs also provided insights into relevant requirements for the curriculum to be developed based on this framework. Recommendations from KIIs were based on their experience in building capacity of CHWs and other health and community cadres. The KIIs represented countries in Africa, Asia, and North and South America.
- **Development of CHW digital literacy framework and curriculum**, which included building a generic CHW persona from existing documentation, creating an inclusive and comprehensive definition of digital literacy in the context of CHWs, and developing a comprehensive framework and curriculum for foundational digital literacy for CHWs.
- **Two in-country consultative meetings (focus groups) of stakeholders** were organized in Burkina Faso and Kenya. These meetings were used to gather initial feedback from the field on this framework as well as the associated digital literacy curriculum. The meetings gathered participants from MOH community health departments, subnational CHW supervisors, CHWs, and nongovernmental implementing partners.
- **A peer review committee** was convened to review and provide guidance and feedback on the final draft of this framework. The peer review committee included representatives from ministries of health in LMICs, implementing organizations, donors, and academics.

Definition of a community health worker

The first step in developing a framework for CHW digital literacy was to establish a generic CHW persona to help us clarify the characteristics, actions, wants, and needs of this cadre of health worker and the requirements they create for the framework and associated digital literacy curriculum. Drawing from the work of UNICEF, World Health Organization (WHO), and ITU, we documented the CHW persona shown in Figure 2.

Figure 2. Generic community health worker persona.

Demographics:

Gender: Woman

Age: 25–60 years old

Level of education: grade 7–10

Number of dependents: 3–5

Language: local language(s), minimal English, French, Spanish or Portuguese

Location: rural, minimum 5km from local health facilities

Roles/responsibilities:

- Her work varies daily, covering multiple programs from antenatal and postnatal to immunizations to HIV and TB client support.
- She covers an area of 5–6 villages. Her mode of transport is via foot or public transport.
- She uses paper-based service registers and tally sheets to monitor the services she provides. Each month she manually tallies her records to provide her supervisor with data or district reports.

Challenges, bottlenecks, and paint-points:

- She has difficulties in reading, writing, and completing registers, tallies, and client notes.
- She doesn't have the time to populate a paper-based report due to her high workload, distances to be covered, and household responsibilities.
- Doesn't have access to annual workplans and targets and finds it difficult to plan her visits in advance.
- She has no way of knowing if the clients she refers to clinic attend and outcomes of these visits (no feedback on referrals).

Connectivity / digital access:

- She doesn't have a smart phone of her own and she is scared about sharing a phone with others.
- There is low connectivity/signal in the area and power is an issue for charging devices.
- Data is unaffordable for a CHW in low resource settings where other basic needs need to be prioritized.

Motivation:

- To help keep the community healthy, particularly women and children.
- To get an income (in areas where CHWs are paid).

As illustrated by the persona, CHWs can offer a variety of primary health care (PHC)-level services that facilitate social inclusion. The core competency areas identified in this framework will be the backbone of the curriculum to train CHWs in foundational digital literacy, which has been developed alongside this framework.

Definition of digital literacy

The definition of digital literacy is a core component of the development of this framework and associated CHW digital literacy curriculum. Our analysis of existing literature and curricula for digital literacy has shown that many organizations provided similar but not standardized definitions of digital literacy. For example, UNESCO digital literacy is the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital technologies for employment, decent jobs, and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT (information and communication technology) literacy, information literacy, and media literacy.

In comparison, the USAID digital ecosystem framework says digital literacy is the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic, social, and political life. As a third definition, EDUCAUSE defines the concept of digital literacy as encompassing a range of skills and knowledge necessary to evaluate, use, and create digital information in various forms. These examples depict digital literacy in a similar light focusing on data literacy, information literacy, visual literacy, media literacy, and metaliteracy, as well as related capacities for assessing social and ethical issues in our digital world.

Drawing on these definitions and the results of our consultations, there is a general acceptance across stakeholders that the definition of digital literacy should include that users have the necessary knowledge and skills to use an ICT device safely and securely in their personal and work capacity. However, it is also commonly acknowledged that the above understanding of digital literacy needs to go beyond solely technical proficiency and consider social issues and cultural norms surrounding technology use, specifically in low-resource settings. The definition of digital literacy should therefore include building the knowledge, skills, and attitudes required for a CHW to be able to use ICT devices to accomplish goals in their personal and work capacity.

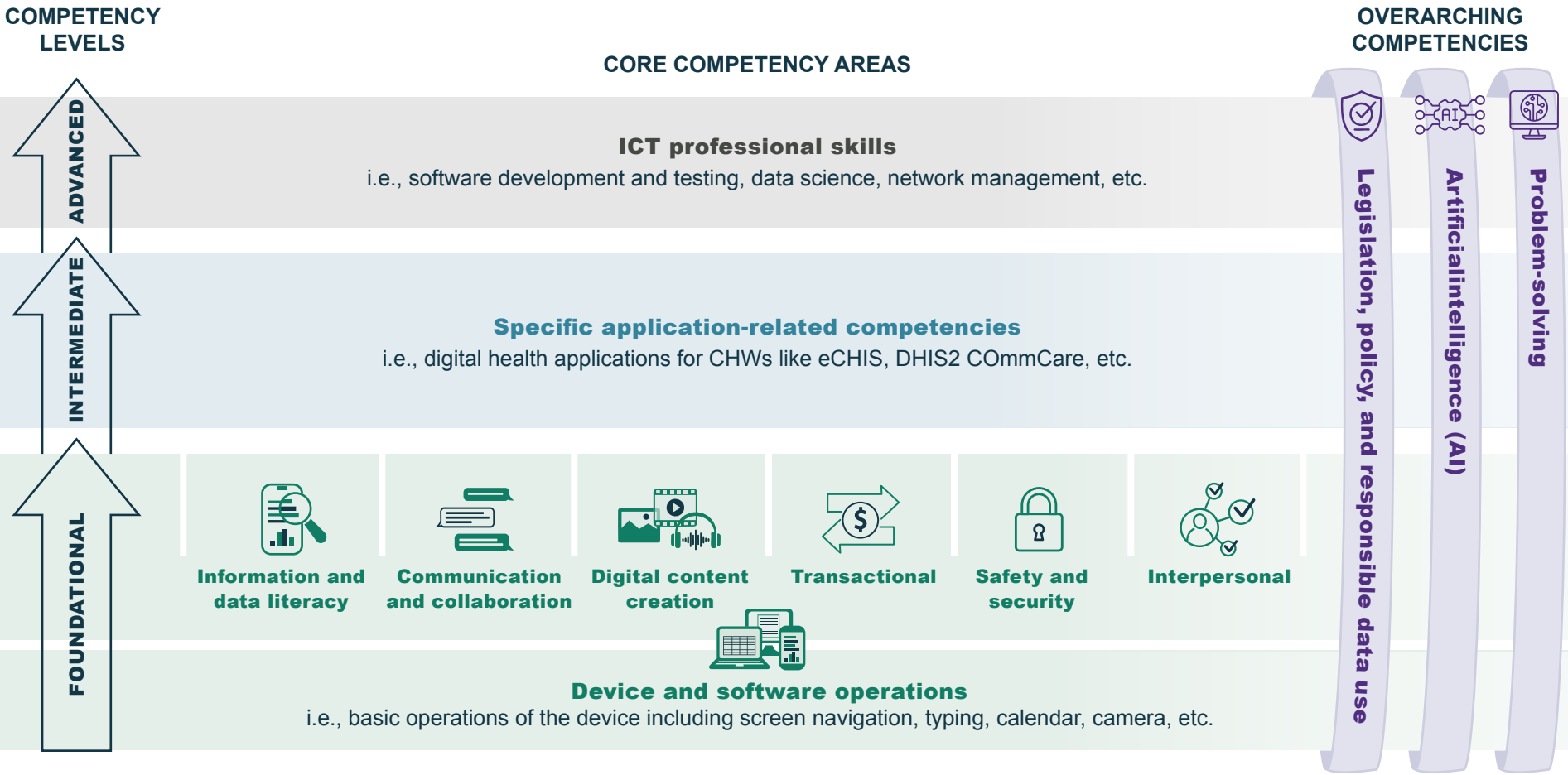
For the purpose of this document and the accompanying CHW digital literacy curriculum we therefore take the broader context of CHWs into account and will use the following definition of digital literacy:

> **Digital literacy is the ability to access, use, manage, and share health information safely and effectively through digital technologies, enabling users to operate digital devices, communicate securely, create and manage digital content, protect sensitive data, solve digital challenges, conduct online transactions, and apply digital tools in their work and personal capacity.**

Community health worker digital literacy framework

Having established what we mean by ‘community health worker’ and ‘digital literacy,’ we have developed a framework for digital literacy and an associated curriculum that comprises competency levels, core competencies, and overarching competencies (reading from left to right in Figure 3). This section of the document will describe each component of the framework as well as the competencies that are included in each core competency area and the associated overarching competencies.

Figure 3. Community health worker (CHW) digital literacy framework.



Levels of digital literacy

Drawing from the ITU's Digital Skills Toolkit, this framework will look at work-related digital skills as being divided into three levels of knowledge: Foundational, Intermediate, and Advanced.

1. At a **Foundational level** of digital skills, the ICT device user has the basic skills required to operate and manage their ICT device. These basic knowledge, skills, and attitudes include powering up, accessing, and closing the device; navigating a device with a touch screen; and using basic applications like the calendar, calculator, notes, voice note, and camera functions on the device.

2. **Intermediate level** digital skills are knowledge, skills, and attitudes that enable the user to use the ICT device and its applications in "meaningful and beneficial ways. This means that intermediate digital skills cover a plethora of application-specific skills determined by the tasks that a user needs to carry out for their work. For example, a CHW in Kenya will need to have the knowledge, skills, and attitudes required to use the eCHIS application on a smartphone or tablet, and a CHW in Burkina Faso needs to be able to use the CommCare application. The ability to implement these intermediate skills depends on the users' knowledge, skills, and attitudes related to the foundational level skills they possess.

3. **Advanced level** digital knowledge and skills are those used by ICT specialists to perform complex technical tasks. These advanced-level digital literacy skills users are usually professional software developers, data scientists, and network managers.

The framework described in this document and associated curriculum covers the foundational level of knowledge, skills, and attitudes development specifically required by CHWs. The framework focuses on improving digital literacy for CHWs in their work capacity, enabling them to use digital tools to efficiently and effectively deliver health services at a community health level. The skills gained will also facilitate access to information, communication, and administrative tools in a personal capacity as an anticipated secondary outcome of this work but not its focus.

Foundational digital literacy competency areas

Having established the three levels of knowledge, skills, and attitudes involved in digital literacy, we went on to identify seven core competency areas that are necessary for a CHW to master and be considered digitally literate at a foundational level. These core competency areas (depicted in the green boxes in the framework diagram in Figure 3) are:

Devices and software operations: Confidently navigate and operate relevant digital devices, perform basic functions, and use essential applications necessary for carrying out their duties.

Information and data literacy: Search for, evaluate, manage, and store digital health information securely and responsibly.

Communication and collaboration: Use digital tools to communicate, collaborate, and share information in a respectful and responsible manner.

Digital content creation: Create, edit, store, and share simple digital content, such as text, audio, images, and videos using appropriate digital tools.

Transactional (Financial services): Securely register for and conduct basic online transactions, such as accessing services, making payments, and managing accounts.

Security and Safety: Apply basic security measures to protect their digital devices, personal data, client data, and online interactions, while also safeguarding themselves from cyber threats, harmful content, and digital risks.

Interpersonal skills: Identify and address any worries, expressed or not, by a client in regard to digital tool use for health care provision.

In addition to these seven core competency areas, there are three overarching competencies (depicted on the right side of the diagram in Figure 3 in purple) that need to be considered and included in CHW digital literacy capacity strengthening. They are:

Legislation, policy, and responsible data use: Recognize the importance of digital policies, health data protection laws, and ethical guidelines in ensuring the safe, legal, and responsible use of digital health information.

Artificial intelligence (AI): Use AI on a digital device, such as simple predictive text as well as development of a basic understanding about what AI is and how it can help in a community health context.

Problem-solving: Identify and use digital tools and online resources to troubleshoot and resolve common technical issues related to devices, software

Foundational digital literacy tiers and competencies

Having identified the core competency areas needed for CHW digital literacy, we dug deeper into what specific knowledge, skills, and attitudes CHWs will require to meet these competency areas. Document review coupled with inputs from KIIs and the in-country consultative meetings in Burkina Faso and Kenya helped develop this list of knowledge, skills, and attitudes and prioritize what was critical basic knowledge and what was less critical knowledge but still sitting within the foundational level. As such we have divided the following list of knowledge, skills, and attitudes into three tiers: basic, mid, and high. The curriculum developed alongside the framework focuses on building foundational level basic-tier knowledge, skills, and attitudes. Therefore, the lists below focus on building out the basic-tier. The full list of knowledge, skills, and attitudes for the other two tiers have yet to be developed. The purpose of including some elements of the other two tiers in this document is to ensure all feedback provided through KIIs and in-country consultations is included in the model.

Table 1 shows proposed competencies for each of the foundational-level core competency areas and overarching competencies.

Table 1. Proposed foundational-level core competency areas for digital literacy for community health workers (CHWs).

COMPETENCY AREA	BASIC TIER	MID TIER	HIGH TIER
Devices and software operations	• Turn on/off a device • Use a digital device • Use the available controls on a device • Interact with the home screen on a device • Turn on the data command to connect mobile internet • Know that passwords and personal information need to be kept safely • Update and change password when prompted to do so • Launch an application from the screen of a device • Purchase credit for calls • Purchase data bundle • Understand that the internet allows to access information and content • Being aware that connecting a device to unknown/unsual Wifi network can expose their information • Connect to the internet and open a browser to find and use websites • Update a device OS (operating system) when prompted or upon organization instruction. • Download/delete an application • Manage basic features (calendar, reminders, notification) • Register/manage contacts • Manage phone storage	• Make use of accessibility tools (use features) on a device to make it easier to use • Make use of accessibility features for CHWs with low vision	• Install digital health application • Update digital health application • Uninstall digital health application

COMPETENCY AREA	BASIC TIER	MID TIER	HIGH TIER
Information and data literacy	• Understand that not all online information and content is reliable • Evaluate what information or content may, or may not, be reliable. • Understand and conform with the organization's policy for IT (information technology) use • Synchronize and share information across different devices	• Use search engines to find information and make use of search terms to generate better results • Use bookmarks to save and retrieve information on a web browser • Access information and content from different devices • Understand that the cloud is a way to store information and content in a remote location • Organize information and content using files and folders on a device or on a cloud • Use the internet to legally access content for entertainment including films, music, games, and books	
Communication and collaboration	• Understand the importance of communicating effectively • Enter and edit text within a digital device • Turn on/off predictive text • Use speech-to-text functionality • Communicate with others digitally using text messaging apps (SMS, WhatsApp) • Communicate with others digitally using call apps (phone, WhatsApp)	• Use word processing applications to create documents • Share documents as attachments via phone apps like WhatsApp • Post messages, photographs, videos, or blogs on social media platforms • 1Communicate using video tools	• Set up an email account • Communicate with others digitally using email • Communicate in an appropriate way using collaborative digital tools • Use digital collaboration tools to meet with, share, and collaborate with colleagues • Use professional online networks and communities • Understand and conform with the organization's IT and social media policies • Comply with the organization's security protocols when accessing or communicating through digital health apps or email

COMPETENCY AREA	BASIC TIER	MID TIER	HIGH TIER
Digital content creation	• Take a picture with a digital device • Make a video with a digital device • Record audio with a digital device • Save photo/video/audio • Navigate to find saved photo/video/audio • Share photo/video/audio with someone	• Edit photo/video/audio	• Find a video command on an application menu • Find an audio command/icon on an application menu
Transactional	• Set up an account using USSD (Unstructured Supplementary Service Data) including mobile money account • Set up an account online including mobile money account, using appropriate websites or apps • Access and use public services online, including filling online forms • Understand what mobile money is and the benefits of using it • Perform functions such as checking balance, sending money, paying a bill, etc. • Understand the basic safety measures of using mobile money platforms	• Understand other use cases for mobile money including paying for goods and services, getting a loan, earning interest on savings, and sending/receiving money from abroad • Use different payment systems, such as credit/debit card, direct bank transfer, and phone accounts, to make payments for goods or services online • Upload documents and photographs when this is required to complete an online transaction • Fill in online forms when required to complete an online transaction • Securely manage money and transactions online, such as with a bank, through the use of websites or apps	• Access and use online employment services portals • Access salary/stipend and expenses information digitally including password-protected pay slip • Fill in and save client details on a digital tool
Security and safety	• Keep the digital device away from potential damage factors (humidity, high temperature, risk of falling, etc.) • Understand the risks and threats involved in carrying out activities online and the importance of working securely • Understand that electronic viruses can damage a device (*continued*...)	• Perform multi-factor authentication password • Set privacy settings on social media and other accounts • Identify secure websites by looking for the padlock icon and https in the address bar (*continued*...)	• Ensure devices meant for work are not used for personal tasks • Make sure that any information or content is backed up frequently by making a copy and storing it separately either in the cloud or on an external storage device

COMPETENCY AREA	BASIC TIER	MID TIER	HIGH TIER
Security and safety	(*continued...*) • Understand that online activity produces a permanent record that could be accessed by others and used both now and in the future • Understand that data can be captured and used by others, and that, personal data must be protected and secured against such threats through privacy settings • Understand that sharing other people's data online without their consent is not permissible • Be aware of suspicious links in social media messages and pop ups and know that clicking on these links or downloading unfamiliar attachments could put someone and a device at risk • Set up a password • Login with a password • Show awareness of importance of reporting security breaches	(*continued...*) • Understand why it is important to keep handheld devices and security software up to date and allow them to be updated when prompted • Understand why taking and using content (images and documents from the web) that belongs to others without their permission is not acceptable	
Interpersonal skills	• Overcome hesitation and discomfort with digital tools • Practice smooth, professional device usage • Explain how digital tools improve health care efficiency and accessibility • Provide examples of digital health applications and their benefits • Handle client concerns about digital tools • Understand common worries (e.g., data privacy, misuse of information) • Respond with simple, reassuring explanations • Address myths and misconceptions about digital health		

COMPETENCY AREA	BASIC TIER	MID TIER	HIGH TIER
Legislation, policy, and responsible data use	• Definition of responsible data use • Introduction to local legislation around personal information • Introduction to local policy around health data management and use		
Artificial intelligence (AI)	• Set your language for communication • Use predictive text • Use voice-to-text function		
Problem solving	• Use messaging application to communicate for problem solving • Use calling application to communicate for problem solving • Troubleshoot common device issues like phone freeze, etc. • Troubleshoot digital communication issues like connecting to the internet, etc.	• Use online tutorials, FAQs (frequently asked questions), and advice forums to solve problems and improve skills in using devices, software, and applications; use the internet to find information that helps solve problems • Use clouds to store online information • Use the internet to find sources of help for a range of activities	• Use in-app chat facilities to help solve problems • Utilize help desks • Use the internet to find information that helps solve problems at work • Use appropriate software, including a spreadsheet, to manipulate and analyze data to help solve problems at work • Understand that different digital tools can improve one's own and the organization's productivity

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